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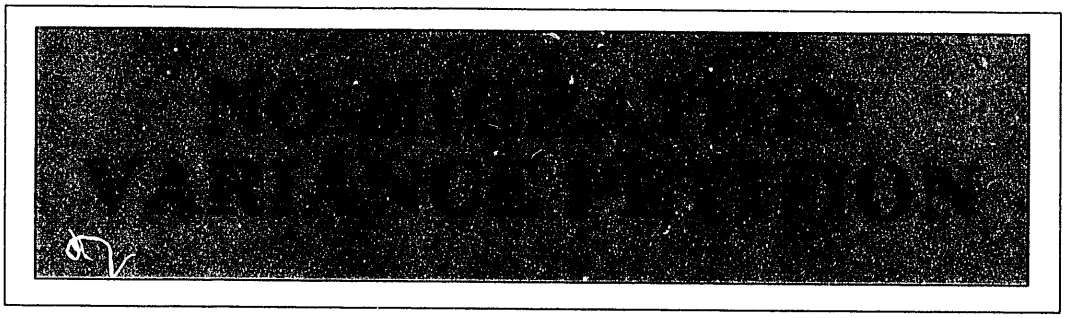
WASTE ISOLATION PILOT PLANT



APPENDIX B, ATTACHMENTS E through Q

VOLUME IV

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Westinghouse Electric Corporation
Waste Isolation Division
Carlsbad, New Mexico

MASTER

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ATTACHMENT E

TRU MIXED WASTE CHARACTERIZATION DATABASE

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WASTE CHARACTERIZATION

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Argonne National Laboratory - East	111	Noncombustible solid waste	D006 D008	Cadmium Lead	Glassware, rigid plastics, rock, metal, laboratory apparatus such as heaters, ring stands, clamps, scales, utensils, etc. from laboratory research.
Argonne National Laboratory - West	153 160	Solid material - RH	D008	Lead	Combustible material, filters, absorbed analytical samples, equipment and glass from analytical chemistry and metalography fuel examination.
Argonne National Laboratory - West	NYD*	Solid - RH	D006	Cadmium	Metallic waste containing cadmium, zirconium, anode baskets and fuel cladding from the reprocessing of reactor fuel.
Idaho National Engineering Laboratory	1	Uncemented sludges	F001 F001 F001 F002 F003 F003 F003 D006 D008	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro- 1,2,2-trifluoroethane Methyl chloride Xylene Methyl alcohol Butyl alcohol Cadmium Lead	First-stage sludge consists of a sludge produced from treating aqueous process wastes, such as ion-exchange column effluent, distillates, and caustic scrub solutions.
Idaho National Engineering Laboratory	2	Uncemented sludges	F001 F001 F001 F002 F003 F003 F003 D006 D008 D009 D003	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro- 1,2,2-trifluoroethane Methylene chloride Xylene Methyl alcohol Butyl alcohol Cadmium Lead Mercury Reactive Lithium	Second-stage sludge of a sludge produced from treatment of radioactive and chemical contaminated wastes and further treatment of the first-stage effluent.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	3	Uncemented sludges	F001	1,1,1-Trichloroethane	This waste is produced from treatment of liquid organic wastes generated by various plutonium and non-plutonium operations. The organic wastes are mixed with calcium silicate to form a grease or paste-like substance.
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F001	Trichloroethylene	
			F001	Perchloroethylene	
			F002	Carbon tetrachloride	
			P015	Beryllium	
Idaho National Engineering Laboratory	4	Cemented sludges	F001	1,1,1-Trichloroethane	This waste consists of liquids absorbed in a cement mixture. The liquid wastes are not compatible with aqueous treatment processes and are handled separately due to their plutonium complexing nature. The complexing chemicals include some alcohols, organic acids, and versenes [chelating agents based on ethylenediaminetetraacetic acid (EDTA)].
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F003	Xylene	
			F003	Methyl alcohol	
			F003	Butyl alcohol	
			D006	Cadmium	
			D008	Lead	
Idaho National Engineering Laboratory	7	Uncemented sludges	F001	1,1,1-Trichloroethane	This waste consists of a wet sludge produced from treating aqueous process wastes, such as ion-exchange column effluent, distillates, and caustic scrub solutions.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			F003	Xylene	
			F003	Methyl alcohol	
			F003	Butyl alcohol	
			D006	Cadmium	
			D008	Lead	

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	40	Particulate waste	D008	Lead	This waste from Bettis Atomic Power Laboratory consists of solid binary scrap in the form of powder, pellets, or rods. The binary material is made of ceramic-based UO_2 and ThO_2. The waste also includes fuel rods constructed of fuel pellets within hollow zirconium tubes. Lead is used for shielding the fuel pallets.
Idaho National Engineering Laboratory	101	Metals	D008	Lead	This waste contains glove box sections and associated equipment from decontamination and decommissioning operations. The glove boxes have lead shielding sandwiched between two layers of stainless steel.
Idaho National Engineering Laboratory	104	Paper, metal, and glass (RH-TRU)	D008	Lead	Alpha-Gamma Hot Cell Facility Waste - The waste consists of combustibles and noncombustibles. The combustibles include: paper and paper products, polyvinyl chloride, polypropylene, polyethylene, polyurethane, neoprene, rubber O-rings and gloves, rags, etc. The noncombustibles include: lab equipment, tools, fixtures, glassware, pipe, metal tubing, fittings fasteners, firebrick, small lead weights, scrap metal, small electric motors, manipulator parts, etc. The waste is removed from the hot cell in metal cans and placed in a 7-1/2 gallon steel bucket. The individual cans and the steel buckets are bagged in plastic and placed in a 90-ml liner inside a 30-gallon drum.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	800, 803, 807	Solidified aqueous waste	F001	1,1,1-Trichloroethane	See Rocky Flats Plant description for Content Codes 800, 803, 807.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			F003	Methyl alcohol	
			F003	Butyl alcohol	
			F003	Xylene	
			D006	Cadmium	
			D008	Lead	
Idaho National Engineering Laboratory	801	Solidified organics	F001	1,1,1-Trichloroethane	See Rocky Flats Plant description for Content Code 801.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
Idaho National Engineering Laboratory	806	Solidified process solids	F001	1,1,1-Trichloroethane	See Rocky Flats Plant description for Content Code 806.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			F003	Methyl alcohol	
			F003	Butyl alcohol	
			F003	Xylene	
			D008	Lead	
Idaho National Engineering Laboratory	491	Filters	F001	1,1,1-Trichloroethane	See Rocky Flats Plant description for Content Code 491.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	330, 831	Dry Combustibles	F001	Carbon tetrachloride	See Rocky Flats Plant description for Content Codes 330 and 831.
			F001	1,1,1-Trichloroethane	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
Idaho National Engineering Laboratory	336, 832	Wet Combustibles	F001	Carbon tetrachloride	See Rocky Flats Plant description for Content Codes 336 and 832.
			F001	1,1,1-Trichloroethane	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
Idaho National Engineering Laboratory	337, 833	Combustibles	F001	Carbon tetrachloride	See Rocky Flats Plant description for Content Codes 337 and 833.
			F001	1,1,1-Trichloroethane	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
Idaho National Engineering Laboratory	480	Metal	F001	1,1,1-Trichloroethane	See Rocky Flats Plant description for Content Code 480.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			D008	Lead	
Idaho National Engineering Laboratory	488, 321	Metal	D008	Lead	See Rocky Flats Plant description for Content Codes 488 and 321.
Idaho National Engineering Laboratory	335, 376, 490	Filter	F001	1,1,1-Trichloroethane	See Rocky Flats Plant description for Content Codes 335, 376, and 490.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	375	Inorganic solid waste	F001 F001 F001	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane	See Rocky Flats Plant description for Content Code 375.
Idaho National Engineering Laboratory	374	Inorganic solid waste	F001 F001 F001	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane	See Rocky Flats Plant description for Content Code 374.
Idaho National Engineering Laboratory	339	Leaded rubber	D008	Lead	See Rocky Flats Plant description for Content Code 339.
Idaho National Engineering Laboratory	150	Mixed waste - paper, metal, glass - RH	D008	Lead	Laboratory Waste (ANL-W & ICPP) - The ICPP waste includes kim wipes, trash, glassware, dissolved samples absorbed on Oil-Dri, analytical samples, and gloves. The ANL-W waste contains fluxwire, analytical samples absorbed on Oil-Dri, U3-8 pellets, glassware, vials, aluminum foils waste capsules, chlorinated ion exchange resin, and Pu sources.
Idaho National Engineering Laboratory	151	Uncemented sludge	D008	Lead	Solidified Fuel Sludge - Parts of an irradiated fuel rod were dissolved in an acid solution as part of an actinide separation project. This solidified mass is in glass bottles which were placed in metal cans with a crimped seal. Several of these containers are in a plastic bag. Lead sheeting was used as shielding materials, and the drums are lead lined.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	153	Radioactive sources or combustibles - RH	D008 P015	Lead Beryllium	The remote-handled combustible waste contains paper, polyvinyl chloride, polyethylene, polypropylene, polyurethane, rubber, neoprene, leather, rags, and some miscellaneous metal items. The radioactive source was placed in a 30-gallon drum with paraffin used as a neutron shield. This drum was then placed inside a 55-gallon drum with wood used as shoring.
Idaho National Engineering Laboratory	154	Fuel samples	D008	Lead	Sample Fuel - The waste consists of actinide neutron sources, a radium needle, small vials of fuel, and metal containers of experimental fuel capsules. Lead shot was used as shielding.
Idaho National Engineering Laboratory	159	Solidified sludge	D009 D007 D008 D011 D006	Mercury Chromium Lead Silver Cadmium	Solidified sludge from decontamination/decommissioning operations in laboratories and hot cells are collected in filters. The filters are tied off and put in drums of vermiculite.
Idaho National Engineering Laboratory	201	Noncombustible solids/metal	D008	Lead	This waste consists of piping, vessels, tools, crucibles, pieces of equipment, lead bricks, plexiglass, and filters. The waste is from decontamination and decommissioning of the Plutonium Laboratory.
Idaho National Engineering Laboratory	241	Mixed waste - paper, metal, and glass	D008 F002 F003	Lead Methylene chloride Xylene	Americium Process Residue - The waste consists of piping, flanges, valves, tools, equipment, PVC generated from the americium recovery line. The waste was usually wrapped in lead and/or the drum was lead lined.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	290, 292	Uncemented sludges	F001	1,1,1-Trichloroethane	Filter and Off-gas Sludge - Waste consists of sludge generated from the incinerator off-gas system, recovery building filter plenums, and pumps.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			F003	Xylene	
			F003	Methyl alcohol	
			F003	Butyl alcohol	
			D006	Cadmium	
			D008	Lead	
Idaho National Engineering Laboratory	976	Cemented sludges	F001	1,1,1-Trichloroethane	Waste consists of process sludge mixed with portland cement. Process sludges contain dirt, sand, gravel, floor sweepings, and other similar material.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			F003	Xylene	
			F003	Methyl alcohol	
			F003	Butyl alcohol	
			D007	Sodium chromate	
Idaho National Engineering Laboratory	302, 464	Benelex, plexiglas	D008	Lead	Waste consists of Benelex, which is used for neutron shielding, and Plexiglass glove box windows. Lead sheeting may be attached to some Benelex pieces. In addition to Plexiglas, leaded-glass may also be present in the waste.
Idaho National Engineering Laboratory	320	Metals	D008	Lead	Waste primarily consists of used tantalum crucibles, funnels, funnel inserts, and pour-rods. Other metal may include tungsten, platinum, and lead.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	328	Filters	F001 F001 F001 F002	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane Methylene chloride	Filters, Full-flo, from incinerator - The waste consists of fibrous polypropylene filter media
Idaho National Engineering Laboratory	330	Combustibles	F001 F001 F001 F002	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane Methylene chloride	This waste consists of line- and nonline-generated dry combustible materials (e.g., paper and rags).
Idaho National Engineering Laboratory	460	Combustibles	F001 F001 F001 F002	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane Methylene chloride	Line-generated wastes including rubber and plastics. This content code was generated in 1972 only.
Idaho National Engineering Laboratory	335	Filters	F001 F001 F001 F002	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2,2-trifluoroethane Methylene chloride	Waste consists of filters used for filtering intake and exhaust air from glove boxes. The filters are composed of wood or particle board frames and an asbestos-type filter media.
Idaho National Engineering Laboratory	336	Combustibles	F001 F001 F001 F002	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane Methylene chloride	This waste consists of damp line- and nonline-generated combustible materials.
Idaho National Engineering Laboratory	337	Combustibles	F001 F001 F001 F002	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane Methylene chloride	Plastic and nonleaded rubber - Waste consists of plastics such as polyethylene, PVC, Teflon, and nonleaded rubber items. The waste may be in the form of bags, sample vials, bottles, sheeting, and surgeons gloves.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	338, 376	Filters	F001 F001 F001 F002	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane Methylene chloride	The waste consists of filter media (fiberglass and asbestos), asbestos-type pipe insulation, asbestos gloves, and fire blankets. Limited amounts of other materials, such as aluminum and wood filter frames, may be present. This content code has not been used since 1977.
Idaho National Engineering Laboratory	360	Filters	F001 F001 F001 F002	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane Methylene chloride	Insulation - The waste consists of asbestos-type insulation, asbestos gloves and fire blankets, pipe insulation, and pipe filter and filter media (fiberglass and asbestos). This content code has not been used since 1973.
Idaho National Engineering Laboratory	490	Filters	F001 F001 F001 F002	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane Methylene chloride	The waste consists of whole HEPA filters. Pre-1976 waste will contain Chemical Wartare Service filters. The waste will also include prefilters. The filters may have been used on ventilation intake and exhaust systems.
Idaho National Engineering Laboratory	339	Leaded rubber	D008	Lead	This waste consists of leaded glove box gloves and aprons. The waste may also contain some lead bricks and lead sheeting.
Idaho National Engineering Laboratory	463	Leaded rubber	D008	Lead	This waste consists of leaded glove box gloves, aprons, lead bricks, and lead sheeting.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	374, 90, 990	Particulate waste	F001	1,1,1-Trichloroethane	This waste consists of blacktop, concrete, cinder blocks, bricks, dirt, and sand generated from cleanup operations. Content code 374 replaced 90 and 990 in 1975.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F001	Trichloroethylene	
			F001	Perchloroethylene	
			F003	Methyl alcohol	
			F003	Butyl alcohol	
			F002	Methylene chloride	
Idaho National Engineering Laboratory	375	Particulate waste	F001	1,1,1-Trichloroethane	This waste is generated at the plutonium recovery incinerator during processing of wet combustible waste. The Oil-Dri, which was added as an absorbent when the waste was initially packaged, could not be incinerated and was segregated from the combustible waste and repackaged for disposal.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
Idaho National Engineering Laboratory	376	Particulate waste	F001	1,1,1-Trichloroethane	This waste consists of filter media, whole filters, and insulation waste such as asbestos gloves and fire blankets. Portland cement is added to neutralize any residual nitric acid that may have been present in the waste.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
Idaho National Engineering Laboratory	480	Metals	F001	1,1,1-Trichloroethane	Waste consists of nonline- and line-generated metal wastes. The waste may be in the form of glove boxes, piping, ducting, process equipment, lathes, pumps, motors, tanks, and tools.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			D008	Lead	

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	980	Metals	F001 F001 F001 F002	1,1,1-Trichloroethane Carbon tetrachloride 1,1,2-Trichloro-1,2,2-trifluoroethane Methylene chloride	Equipment - Only one drum with this content code from Rocky Flats Plant was shipped to the INEL
Idaho National National Laboratory	481	Metals	D008	Lead	Waste consists of metal such as iron, copper, aluminum, and stainless steel. The waste is in the form of small hand tools, valves, trays, clamps and pipe. The metal waste has been processed by hot-water washing for plutonium recovery.
Idaho National Engineering Laboratory	802	Combustibles	D008	Lead	This waste consists of neoprene dry box gloves, neoprene o-rings, and leaded glove box gloves. Gloves contaminated with above-discard amounts of plutonium were leached with nitric acid, ultrasonically cleaned, and dried prior to packaging.
Idaho National Engineering	950	Mixed waste - paper, metal and glass	D008	Lead	This waste contains nonline-generated noncombustible waste generated from routine maintenance and renovation projects. Such items as: electrical conduit, control panels, electronic instrumentation, water and steam pipes, office equipment, windows, light bulbs, lead shielding, and structural metal could be included in this waste. Content Code 950 has not been used since 1974.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Idaho National Engineering Laboratory	NYD*	PREPP solidified waste	F001	1,1,1-Trichloroethane	Process Experimental Pilot Plant (PREPP) generated grouted waste - TRU waste that is determined by Stored Waste Examination Pilot Plant (SWEPP) to fail the WIPP-WAC, but meet the PREPP-WAC will be processed at PREPP. The PREPP facility will process unopened waste containers by shredding, incineration, and grouting of the ash to form a solidified cement form in a 55-gallon drum. In the incinerator, the waste will be subjected to temperatures of 815-912°C for approximately 90 minutes to insure complete waste combustion. Any of the TRU waste forms that are processed through SWEPP are candidates for processing at PREPP. Therefore, any of the hazardous materials in the other content codes could be in the feed to the PREPP facility.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			F003	Xylene	
			F003	Methyl alcohol	
			F003	Butyl alcohol	
			D006	Cadmium	
			D008	Lead	
			D009	Mercury	
Los Alamos National Laboratory	001	Mixed metal and combustibles	D008	Lead	Mixed metal scrap and miscellaneous combustibles, primarily from operations of the Size Reduction Facility. Size Reduction Facility treats large metallic waste items including glove boxes and duct work. Large objects are size reduced by plasma arc cutting and other mechanical means.
Los Alamos National Laboratory	002	Cemented sludges	D007	Chromium	Caustic sludge (original pH range of 10-12) is solidified with portland cement to form a noncorrosive solid monolith.
			D008	Lead	
			D006	Cadmium	
			D004	Arsenic	

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Los Alamos National Laboratory	002				Acid and caustic wastes from Pu-processing are either neutralized and mixed with cement or are treated with calcium hydroxide, ferrous and/or ferric sulfate, a flocculation aid, and sodium hydroxide, to produce a thin sludge that is mixed with cement.
Los Alamos National Laboratory	003	Dewatered sludge	F003 F002 F005	Spent, non-halogenated solvents Spent, halogenated solvents Spent, non-halogenated solvents	Treatment of aqueous wastes contaminated primarily with plutonium and uranium. Aqueous wastes generated laboratory-wide and transferred to treatment primarily by pipelines. Dewatered sludge generated in a process utilizing calcium hydroxide, ferric sulfate, a flocculation aid, and sodium hydroxide. Sludge is vacuum filtered to produce a clay-like solid. Dry portland cement is added to immobilize any free liquids that may separate.
Los Alamos National Laboratory	005	Leaded items/ shielding	D008	Lead	This waste contains leaded gloves removed/ replaced from glove boxes, replacement of leaded glove box windows, disposal of Pu-contaminated wastes, small tools, cans, small equipment items, and broken glass which may contain some small fraction of combustible plastics. Noncombustible means those materials that cannot be reduced to ash but do meet the WIPP WAC without further processing.
Los Alamos National Laboratory	006	Cemented process residues	D006 D007 D008	Cadmium Chromium Lead	Process leached solids, filter cakes and evaporator bottoms from Pu-recovery operations are stabilized in portland or gypsum cement. Cemented wastes packaged in lead-shielded drums.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Los Alamos National Laboratory	004	Solidified liquids	D008	Lead	Empty polyethylene reagent bottles, plastic pipettes, glassware, polyethylene sleeves, rubber gloves, and solidified liquids from laboratory research activities.
Mound	842	Soils	D006	Cadmium	Decommissioning and decontamination of contaminated sites.
			D007	Chromium	
			D008	Lead	
			D009	Mercury	
			D010	Selenium	
			D011	Silver	
			F001	Listed solvent	
			F002	Listed solvent	
			F003	Listed solvent	
			F004	Listed solvent	
			F005	Listed solvent	
Mound	836	Cemented sludge	D005	Barium	Wastewater treatment of alpha contaminated aqueous wastes.
			D006	Cadmium	
			D007	Chromium	
			D008	Lead	
			D009	Mercury	
			D010	Selenium	
			D011	Silver	
			F001	Listed solvent	
			F002	Listed solvent	
			F003	Listed solvent	
			F004	Listed solvent	
			F005	Listed solvent	

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Mound	824	Non-combustible TRU waste	D005	Barium	TRU contaminated pipe, glass, block and other non-combustible items from decommissioning and decontamination operations.
			D006	Cadmium	
			D007	Chromium	
			D008	Lead	
			D009	Mercury	
			D010	Selenium	
			D011	Silver	
			F001	Listed solvent	
			F002	Listed solvent	
			F003	Listed solvent	
			F004	Listed solvent	
			F005	Listed solvent	
Mound	827	Combustible TRU waste	D008	Lead	Plastics, paper, rubber, and other combustible wastes from decommissioning and decontamination operations.
			D009	Mercury	
			F001	Listed solvents	
			F002	Listed solvents	
			F003	Listed solvents	
			F004	Listed solvents	
			F005	Listed solvents	
Nevada Test Site	201	Metal	D008	Lead	Discarded sources, foils and activated metal with lead shielding.
Nevada Test Site	330	Combustibles	F002	1,1,1-Trichlorethane	Glove box waste includes tissues, paper, plastic chemistry glassware, ceramics, metals and small quantities of absorbed liquids or sludges. The waste is solidified with portland cement and sodium silicate, or Envirostone.
			F003	Acetone	
			D008	Lead	
			P015	Beryllium	

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Nevada Test Site	961	Metal and equipment	F002 F003 D008 P015	1,1,1-Trichloroethane Acetone Lead Beryllium	This waste includes decommissioned glove boxes, hoods, and large pieces of contaminated equipment (lathes, and mills). Loose items are shored into place with flame-retardant, organic foam.
Nevada Test Site	993	Mixed paper, plastics, glass, and metal	F002 F003 D008 P015	1,1,1-Trichloroethane Acetone Lead Beryllium	Non-line generated trash - room waste.
Oak Ridge National Laboratory	NYD*	Solid waste CH-TRU	D008	Lead	CH-TRU waste is generated principally by ORNL research laboratories. Waste includes about 14% contaminated equipment, 4% decontaminations debris, and 82% dry solids. Boxed waste is almost solely equipment racks or discarded glove boxes, possibly containing some lead shielding.
Oak Ridge National Laboratory	NYD*	Solid waste RH-TRU	D008 D009	Lead Mercury	Hot-cell waste consists of cloth, paper, glass, rubber, plastic, and metal (small tools). This waste is principally packed in one gallon metal paint cans, over-packed and sealed in four gallon plastic buckets, and placed into concrete casks. A few casks contain lead brick or crushed mercury vapor lamps.
Oak Ridge National Laboratory	NYD*	Sludges - RH	D005 D007 D008	Barium Chromium Lead	TRU-contaminated sludge precipitated from low-level liquid waste (LLW).
Oak Ridge National Laboratory	NYD*	Sludge - RH	D008	Lead	The sludge consists of glass, plastic, metal, and lead sheeting used as shielding.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Rocky Flats Plant	320	Metal	D008	Lead	Metallic waste is generated in plutonium casting/pyrochemical operations. Primary constituents are tantalum and tungsten.
Rocky Flats Plant	321	Metal	D008	Lead	Lead shielding from glove boxes.
Rocky Flats Plant	330, 831	Dry combustibles	F001 F001 F001 F002	Carbon tetrachloride 1,1,1-Trichloroethane 1,2-Trichloro-1,2,2-trifluoroethane Methylene chloride	Paper, rags, and plastics, (e.g., polyethylene and polyvinyl chloride) from cleaning in plutonium recovery, fabrication and laboratories.
Rocky Flats Plant	335	Absolute dry box filters	F001 F001 F001 F002	Carbon tetrachloride 1,1,1-Trichloroethane 1,1,1-Trichloro-1,2,2-trifluoroethane Methylene chloride	High Efficiency Particulate Air (HEPA) filters from glove box intake and exhaust.
Rocky Flats Plant	336, 832	Wet combustibles	F001 F001 F001 F002	Carbon tetrachloride 1,1,1-Trichloroethane 1,1,1-Trichloro-1,2,2-trifluoroethane Methylene chloride	Paper, rags, and plastics (e.g., polyethlene and polyvinyl chloride) from cleaning in plutonium recovery, fabrication and laboratories.
Rocky Flats Plant	337, 833	Combustibles	F001 F001 F001 F002	Carbon tetrachloride 1,1,1-Trichloroethane 1,1,1-Trichloro-1,2,2-trifluoroethane Methylene chloride	Plastics (primarily polyethylene and polyvinyl chloride) from maintenance and decontamination/ decommissioning operations.
Rocky Flats Plant	339	Leaded rubber	D008	Lead	Leaded rubber gloves from change out in plutonium areas.
Rocky Flats Plant	374	Inorganic solid waste	F001 F002	1,1,1-Trichloroethane Methylene chloride	Blacktop, soil, concrete, and sand from decommissioning and decontamination operations.

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Rocky Flats Plant	375	Inorganic solid waste	F001	1,1,1-Trichloroethane	Oil-Dri used as an absorbent from waste containers that are repackaged.
			F001	Carbon tetrachloride	
			F001	1,1,1-Trichloro-1,2,2-trifluoroethane	
Rocky Flats Plant	376	Filters	F001	1,1,1-Trichloroethane	Filter media processed to remove recoverable plutonium.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
Rocky Flats Plant	480	Metal	F001	1,1,1-Trichloroethane	Primarily stainless steel from maintenance and decontamination/decommissioning operations.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			D008	Lead	
Rocky Flats Plant	488	Metal	D008	Lead	Glove box parts from decontamination/decommissioning operations.
Rocky Flats Plant	490	Filters	F001	1,1,1-Trichloroethane	High Efficiency Particulate Air (HEPA) filter change-out operations.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
Rocky Flats Plant	491	Filters	F001	1,1,1-Trichloroethane	Plenum prefilters to HEPA filters from change-out operations.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Rocky Flats Plant	800, 803, 807	Solidified aqueous sludge	F001	1,1,1-Trichloroethane	Aqueous process waste is generated throughout the plutonium processing areas, plutonium recovery, fabrication, analytical laboratories, and R&D activities. Aqueous process wastes are treated by the carrier precipitation process involving neutralization, precipitation, flocculation, clarification, filtration, and immobilization.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			D008	Lead	
			D006	Cadmium	
			F003	Methyl alcohol	
			F003	Butyl alcohol	
			F003	Xylene	
Rocky Flats Plant	801	Solidified organics	F001	1,1,1-Trichloroethane	Lathe coolants and degreasing solvents used in the plutonium fabrication area. Liquid organics are immobilized by mixing with Envirostone, an emulsifier and a catalyst to produce a solidified monolith.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
Rocky Flats Plant	806	Solidified process solids	F001	1,1,1-Tricloroethane	Ion column resins and incinerator ash are generated in the plutonium recovery operations. This waste is solidified with portland cement.
			F001	Carbon tetrachloride	
			F001	1,1,2-Trichloro-1,2,2-trifluoroethane	
			F002	Methylene chloride	
			F003	Methyl alcohol	
			F003	Butyl alcohol	
			F003	Xylene	
			D008	Lead	
Savannah River Plant	001	Job control waste	D008	Lead	Job control waste includes plastic film, paper wipes, bottles, cartons, gloves, glassware, ceramic, miscellaneous wood and rubber, plexiglass, sponges, windows, uniforms, instruments, and firebricks. This waste is generated by two production facilities and two laboratory facilities.
			D006	Cadmium	
			D009	Mercury	
			D003	Calcium metal	

WASTE CHARACTERIZATION
(CONTINUED)

GENERATOR	CONTENT CODE	WASTE FORM	HAZARDOUS WASTE NUMBER	BASIS FOR CLASSIFICATION	DESCRIPTION
Hanford	004	Absorbed organics	F003	Xylene	Organic cleanup of solvent extraction system and analytical lab waste. Liquid organics are absorbed on Conweb pads.
Hanford	001	Solid waste	D002 D008	Sodium hydroxide Lead	NaOH is added with an absorbent to neutralize residual acid from damp rags and equipment in PUREX process. Lead is used as shielding in gloves.
Hanford	002	Solid waste	D008	Lead	Acid soaked rags are used to clean up hoods in the Plutonium Finishing Plant. These rags are neutralized in 1M NaOH solution.
Lawrence Livermore National Laboratory	1 330 961	Mixed glove box waste	F002 F003 P015 D008	1,1,1-Trichloroethane Acetone Beryllium Lead	Untreated solid materials such as wiping tissues, paper, plastic, glassware, ceramics, and metals from plutonium processing; mixed glovebox waste and non-line generated waste (room waste).

*NYD = Not Yet Determined.

ATTACHMENT F

HAZARDOUS CONSTITUENTS OF ROCKY FLATS TRANSURANIC WASTE

Internal Letter Rockwell International

Date · May 23, 1989

No. · WCP02-31

TO (Name, Organization, Internal Address)
· Those Listed
·
·

FROM (Name, Organization, Internal Address, Phone)
· J. K. Paynter
· Waste Compl & Plng
· Building 776
· Extension 5258

SUBJECT · **HAZARDOUS CONSTITUENTS OF ROCKY FLATS TRANSURANIC WASTE**

Ref: IL to Distribution from J. K. Paynter, dated May 24, 1988, same subject

Attached are tables that identify the hazardous constituents of Rocky Flats transuranic waste by Waste Form Number (WFN) and Item Description Code (IDC). These tables supersede the tables previously distributed with the above referenced letter. Table 1 and 2 list the maximum possible amount of hazardous constituents per container for Waste Form Numbers and Item Description Codes, respectively.

It should be noted that several Waste Form Number categories contain both hazardous and nonhazardous IDCs. Therefore, the IDC should be used to determine whether a waste is hazardous or nonhazardous.

The TRU and TRU-Mixed Item Description Codes are listed below. If a TRU waste IDC does not appear on this list, Waste Operations will be responsible for characterizing its hazardous constituents (if any) prior to shipment.

TRU Mixed IDCs		TRU IDCs	
320	491	300	411
321	800	302	429
335	801	303	438
338	803	312	440
339	806	342	442
374	807	368	454
375	831	370	802
376	832	371	809
480	833	377	854
488	855	379	
490	856		

The information was developed from process knowledge and utilizing waste analysis when available. This information was developed to allow Rockwell to manifest TRU Mixed Waste to be shipped to INEL. Further analyses may be necessary before RCRA permitting.

Tables 1 and 2 were revised to show the maximum net weight per container instead of the maximum gross weight. Ethyl benzene and toluene were added to IDC 803 and 807. These constituents were found during the analysis of process waste water that is treated in Building 374. The maximum lead content for IDCs 480 and 488 was increased after further review of waste box log sheets.

Upon further review it has been determined that the reportable quantity (RQ) for an EP toxic waste is based on the amount of waste, not the amount of the EP toxic constituent (40CFR302.5(b)). By making this adjustment in the attached tables, all TRU mixed waste that is EP toxic is now indicated as having an RQ per container.

IDCs 338, 342, 809, 854, 855 and 856 were added to the tables. IDC 338 and 342 are no longer required to be processed into IDC 376. IDC 809 consists of cemented resin. The cemented resin was previously one of the wastes described by IDC 806. For TRUPACT II shipments, organic wastes such as resin will be assigned a more restrictive wattage limit than inorganic wastes. By segregating the organic waste from the other IDC 806 wastes, IDC 806 will be assigned a higher wattage limit. IDC 854 will consist of unclassified beryllium metal. RFP ground glass is almost exclusively made up of crushed fluorescent lamps which are EP toxic for mercury. IDC 440 glass is characterized as being non-RCRA waste; therefore, IDC 855 was added to describe this ground glass. Also IDC 442-Raschig Rings, leached is identified as a non-RCRA waste. There are cases, however, where raschig rings are used in tanks that contain RCRA listed solvents. IDC 856 will be used to identify raschig rings that are/have been contaminated with these solvents.

J. K. Paynter
Waste Compliance & Planning

Distribution

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TABLE 1
TRANSURANIC MIXED WASTE BY WASTE FORM NUMBER

WFN	DESCRIPTION	HAZARDOUS CONSTITUENTS	RQ (LB)	PERCENTAGE OR PPM	FOOTNOTE (See Below)	QUANTITY OF HAZARDOUS CONSTITUENTS (LB)	EPA IDENTIFICATION NUMBER
111	Solidified Aqueous Waste	1,1,1-Trichloroethane	1000	75 ppm		0.05	F001
		Carbon Tetrachloride	5000	25 ppm		0.02	F001
		1,1,2-Trichloro-1,2,2 Trifluoroethane	5000	100 ppm		0.07	F001
		Methylene Chloride	1000	700 ppm		0.5	F002
		Methyl Alcohol	5000	25 ppm	*	0.02	F003
		Xylene	1000	50 ppm	*	0.04	F003
		Butyl Alcohol	5000	10 ppm	*	0.007	F003
		Ethyl Benzene	1000	10 ppm		0.007	F005
		Toluene	1000	10 ppm	*	0.007	F005
		Cadmium	1	10 ppm	**	720	D006
		Lead	1	10 ppm	**	720	D008
112	Solidified Organics	1,1,1-Trichloroethane	1000	15%		100	F001
		Carbon Tetrachloride	5000	5%		40	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	5%		40	F001
113	Solidified Lab Waste	None					
114	Solidified Process Solids	1,1,1-Trichloroethane	1000	200 ppm		0.1	F001
		Carbon Tetrachloride	5000	25 ppm		0.02	F001
		1,1,2-Trichloro-1,2,2 Trifluoroethane	5000	200 ppm		0.1	F001
		Methylene Chloride	1000	100 ppm		0.07	F002
		Methyl Alcohol	5000	15 ppm	*	0.01	F003
		Xylene	1000	50 ppm	*	0.04	F003
		Butyl Alcohol	5000	10 ppm	*	0.007	F003
		Lead	1	400 ppm	**	720	D008
115	TRU Graphite Waste	None					

RQ = Reportable Quantity
NOTE: Maximum weight - 720 pound drums, 5520 pound crates
* Listed as a hazardous material, but in Waste Operations opinion does not meet the associated hazard class.
** RQ based on quantity of characteristic waste (not amount of constituent)

TABLE 1 (Continued)
TRANSURANIC MIXED WASTE BY WASTE FORM NUMBER

WFN	DESCRIPTION	HAZARDOUS CONSTITUENTS	RQ (LB)	PERCENTAGE OR PPM	FOOTNOTE (See Below)	QUANTITY OF HAZARDOUS CONSTITUENTS (LB)	EPA IDENTIFICATION NUMBER
116	TRU Combustible Waste	1,1,1-Trichloroethane	1000	2000 ppm		1/10	F001
		Carbon Tetrachloride	5000	750 ppm		0.5/4	F001
		1,1,2-Trichloro-1,2,2 Trifluoroethane	5000	1500 ppm		1/8	F001
		Methylene Chloride	1000	750 ppm		0.5/5	F002
117	TRU Metal Waste	1,1,1-Trichloroethane	1000	15 ppm		0.01/0.08	F001
		Carbon Tetrachloride	5000	10 ppm		0.007/0.05	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	75 ppm		0.05/0.4	F001
		Methylene Chloride	1000	200 ppm		0.1/1	F002
		Lead	1	100%	**	720/5520	D008
118	TRU Glass Waste	Mercury	1	10 ppm	**	720	D009
		1,1,1-Trichloroethane	1000	1 ppm		0.0007	F001
		Carbon Tetrachloride	5000	1 ppm		0.0007	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	1 ppm		0.0007	F001
119	TRU Filter Waste	1,1,1-Trichloroethane	1000	150 ppm		0.1/0.8	F001
		Carbon Tetrachloride	5000	150 ppm		0.1/0.8	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	100 ppm		0.07/0.5	F001
		Methylene Chloride	1000	50 ppm		0.04/0.3	F002
121	TRU Organic Solid Waste	None					

RQ = Reportable Quantity
NOTE: Maximum weight - 720 pound drums, 5520 pound crates
* Listed as a hazardous material, but in Waste Operations opinion does not meet the associated hazard class.
** RQ based on quantity of characteristic waste (not amount of constituent)

TABLE 1 (Continued)
TRANSURANIC MIXED WASTE BY WASTE FORM NUMBER

WFN	DESCRIPTION	HAZARDOUS CONSTITUENTS	RQ (LB)	PERCENTAGE OR PPM	FOOTNOTE (See Below)	QUANTITY OF HAZARDOUS CONSTITUENTS (LB)	EPA IDENTIFICATION NUMBER
122	TRU Inorganic Solid Waste	1,1,1-Trichloroethane	1000	900 ppm		0.7/5	F001
		Carbon Tetrachloride	5000	100 ppm		0.07/0.5	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	8000 ppm		6/40	F001
		Methylene Chloride	1000	700 ppm		0.5/4	F002
123	Leaded Rubber	Lead	1	60%		720	D008
124	TRU Pyrochemical Salt Waste	None					

RQ = Reportable Quantity
NOTE: Maximum weight - 720 pound drums, 5520 pound crates
* Listed as a hazardous material, but in Waste Operations opinion does not meet the associated hazard class.
** RQ based on quantity or characteristic waste (not amount of constituent)

TABLE 2

TRANSURANIC MIXED WASTE BY ITEM DESCRIPTION CODE

IDC	DESCRIPTION	HAZARDOUS CONSTITUENTS	RQ (LB)	PERCENTAGE OR PPM	FOOTNOTE (See Below)	MAXIMUM QUANTITY OF HAZARDOUS CONSTITUENTS DRUM/CRATE (LB)	EPA IDENTIFICATION NUMBER
300	Graphite Molds	None					
302	Benelex & Plexiglas	None					
303	Scarfed Graphite	None					
312	Coarse Graphite	None					
320	Heavy Non-SS Metal	Lead	1	49000 ppm	**	720	D008
321	Lead	Lead	1	100%	**	720	D008
335	Absolute Dry Box Filters	1,1,1-Trichloroethane	1000	150 ppm		0.1/0.6	F001
		Carbon Tetrachloride	5000	150 ppm		0.1/0.8	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	100 ppm		0.07/0.5	F001
		Methylene Chloride	1000	50 ppm		0.04/0.3	F002
338	Filter Media	1,1,1-Trichlorethane	1000	150 ppm		0.1/0.8	F001
		Carbon Tetrachloride	5000	150 ppm		0.1/0.8	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	100 ppm		0.07/0.5	F001
		Methylene Chloride	1000	50 ppm		0.04/0.3	F002
339	Leaded Dry Box Gloves	Lead	1	60%	**	720	D008
342	Absolute Dry Box Filters	None					
368	MgO Crucibles-Not Leco	None					

RQ = Reportable Quantity
NOTE: Maximum weight - 720 pound drums, 5520 pound crates
* Listed as a hazardous material, but in Waste Operations opinion does not meet the associated hazard class.
** RQ based on quantity of characteristic waste (not amount of constituent).

TABLE 2

TRANSURANIC MIXED WASTE BY ITEM DESCRIPTION CODE (Continued)

IDC	DESCRIPTION	HAZARDOUS CONSTITUENTS	RQ (LB)	PERCENTAGE OR PPM	FOOTNOTE (See Below)	MAXIMUM QUANTITY OF HAZARDOUS CONSTITUENTS DRUM/CRATE (LB)	EPA IDENTIFICATION NUMBER
370	Leco Crucibles	None					
371	Firebrick	None					
374	Blacktop, Dirt, Concrete and Sand	1,1,1-Trichloroethane	1000	200 ppm		0.1/1	F001
		Methylene Chloride	1000	700 ppm		0.5/4	F002
375	Oil Dry	1,1,1-Trichloroethane	1000	900 ppm		0.7/5	F001
		Carbon Tetrachloride	5000	100 ppm		0.07/0.5	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	8000 ppm		6/40	F001
376	Processed Filter Media	1,1,1-Trichloroethane	1000	150 ppm		0.1/0.8	F001
		Carbon Tetrachloride	5000	150 ppm		0.1/0.8	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	100 ppm		0.08/0.5	F001
		Methylene Chloride	1000	50 ppm		0.04/0.3	F002
377	Firebrick, Coarse	None					
379	Firebrick, Scarfed	None					
411	ER Salt	None					
429	Spent Salt	None					
438	Insulation	None					
440	Glass	None					

RQ = Reportable Quantity
NOTE: Maximum weight - 720 pound drums, 5520 pound crates
* Listed as a hazardous material, but in Waste Operations opinion does not meet the associated hazard class.
** RQ based on quantity of characteristic waste (not amount of constituent.

TABLE 2

TRANSURANIC MIXED WASTE BY ITEM DESCRIPTION CODE (Continued)

IDC	DESCRIPTION	HAZARDOUS CONSTITUENTS	RQ (LB)	PERCENTAGE OR PPM	FOOTNOTE (See Below)	MAXIMUM QUANTITY OF HAZARDOUS CONSTITUENTS DRUM/CRATE (LB)	EPA IDENTIFICATION NUMBER
442	Leached Raschig Rings	None					
454	DOR Salts	None					
480	Light Metal	1,1,1-Trichloroethane	1000	15 ppm		0.01/0.08	F001
		Carbon Tetrachloride	5000	10 ppm		0.007/0.05	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	75 ppm		0.05/0.4	F001
		Methylene Chloride	1000	200 ppm		0.1/1	F002
		Lead	1	17%	**	720/5520	D008
488	Glovebox Parts with Lead	Lead	1	25%	**	720/5520	D008
490	HEPA Filters	1,1,1-Trichloroethane	1000	150 ppm		0.1/0.8	F001
		Carbon Tetrachloride	5000	150 ppm		0.1/0.8	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	100 ppm		0.07/0.5	F001
		Methylene Chloride	1000	50 ppm		0.04/0.3	F002
491	Prefilters	1,1,1-Trichloroethane	1000	400 ppm		0.3/2	F001
		Carbon Tetrachloride	5000	400 ppm		0.3/2	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	150 ppm		0.1/0.8	F001
		Methylene Chloride	1000	50 ppm		0.04/0.3	F002
800	Solidified Sludge - Building 774	1,1,1-Trichloroethane	1000	75 ppm		0.05	F001
		Carbon Tetrachloride	5000	25 ppm		0.02	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	100 ppm		0.07	F001

RQ = Reportable Quantity

NOTE: Maximum weight - 720 pound drums, 5520 pound crates

* Listed as a hazardous material, but in Waste Operations opinion does not meet the associated hazard class.

** RQ based on quantity of characteristic waste (not amount of constituent).

TABLE 2

TRANSURANIC MIXED WASTE BY ITEM DESCRIPTION CODE (Continued)

IDC	DESCRIPTION	HAZARDOUS CONSTITUENTS	RQ (LB)	PERCENTAGE OR PPM	FOOTNOTE (See Below)	MAXIMUM QUANTITY OF HAZARDOUS CONSTITUENTS DRUM/CRATE (LB)	EPA IDENTIFICATION NUMBER
800	Solidified Sludge - Building 774 (cont.)	Methylene Chloride	1000	700 ppm		0.5	F002
		Methyl Alcohol	5000	25 ppm	*	0.02	F003
		Xylene	1000	50 ppm	*	0.04	F003
		Butyl Alcohol	5000	10 ppm	*	0.007	F003
		Cadmium	1	5 ppm	**	720	D006
		Lead	1	10 ppm	**	720	D008
801	Solidified Organics - Building 774	1,1,1-Trichloroethane	1000	15%		100	F001
		Carbon Tetrachloride	5000	5%		40	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	5%		40	F001
802	Solidified Lab Waste - Building 774	None					
803	Solidified Sludge (DCP) - Building 374	1,1,1-Trichloroethane	1000	20 ppm		0.02	F001
		Carbon Tetrachloride	5000	15 ppm		0.01	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	20 ppm		0.02	F001
		Methylene Chloride	1000	5 ppm		0.004	F002
		Methyl Alcohol	5000	5 ppm	*	0.004	F003
		Xylene	1000	10 ppm	*	0.008	F003
		Butyl Alcohol	5000	5 ppm	*	0.004	F003
		Ethyl Benzene	1000	10 ppm		0.007	F005
		Toluene	1000	10 ppm	*	0.007	F005
		Cadmium	1	10 ppm	**	720	D006
		Lead	1	10 ppm	**	720	D008

RQ = Reportable Quantity
NOTE: Maximum weight - 720 pound drums, 5520 pound crates
* Listed as a hazardous material, but in Waste Operations opinion does not meet the associated hazard class.
** Particle size larger than 100 micrometers (0.004 inches).

TABLE 2

TRANSURANIC MIXED WASTE BY ITEM DESCRIPTION CODE (Continued)

IDC	DESCRIPTION	HAZARDOUS CONSTITUENTS	RQ (LB)	PERCENTAGE OR PPM	FOOTNOTE (See Below)	MAXIMUM QUANTITY OF HAZARDOUS CONSTITUENTS DRUM/CRATE (LB)	EPA IDENTIFICATION NUMBER
806	Solidified Process Solids	1,1,1-Trichloroethane	1000	200 ppm		0.1	F001
		Carbon Tetrachloride	5000	25 ppm		0.02	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	200 ppm		0.1	F001
		Methylene Chloride	1000	100 ppm		0.07	F002
		Methyl Alcohol	5000	15 ppm	*	0.01	F003
		Xylene	1000	50 ppm	*	0.04	F003
		Butyl Alcohol	5000	10 ppm	*	0.007	F003
		Lead	1	400 ppm	**	720	D008
807	Solidified Bypass Sludge - Building 374	1,1,1-Trichloroethane	1000	20 ppm		0.02	F001
		Carbon Tetrachloride	5000	15 ppm		0.01	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	20 ppm		0.02	F001
		Methylene Chloride	1000	5 ppm		0.004	F002
		Methyl Alcohol	5000	5 ppm	*	0.004	F003
		Xylene	1000	10 ppm	*	0.007	F003
		Butyl Alcohol	5000	5 ppm	*	0.004	F003
		Ethyl Benzene	1000	10 ppm		0.007	F005
		Toluene	1000	10 ppm	*	0.007	F005
		Cadmium	1	10 ppm	**	720	D006
		Lead	1	10 ppm	**	720	D008
809	Cemented Resin	None					

RQ = Reportable Quantity

NOTE: Maximum weight - 720 pound drums, 5520 pound crates

* Listed as a hazardous material, but in Waste Operations opinion does not meet the associated hazard class.

** RQ based on amount of characteristic waste (not amount of constituent)

TABLE 2

TRANSURANIC MIXED WASTE BY ITEM DESCRIPTION CODE (Continued)

IDC	DESCRIPTION	HAZARDOUS CONSTITUENTS	RQ (LB)	PERCENTAGE OR PPM	FOOTNOTE (See Below)	MAXIMUM QUANTITY OF HAZARDOUS CONSTITUENTS DRUM/CRATE (LB)	EPA IDENTIFICATION NUMBER
831	Dry Combustibles	1,1,1-Trichloroethane	1000	2000 ppm		1/10	F001
		Carbon Tetrachloride	5000	750 ppm		0.5/5	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	1500 ppm		1/8	F001
		Methylene Chloride	1000	750 ppm		0.5/5	F002
832	Wet Combustibles	1,1,1-Trichloroethane	1000	2000 ppm		1/10	F001
		Carbon Tetrachloride	5000	750 ppm		0.5/5	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	1500 ppm		1/8	F001
		Methylene Chloride	1000	750 ppm		0.5/5	F002
833	Plastic	1,1,1-Trichloroethane	1000	1000 ppm		0.7/5	F001
		Carbon Tetrachloride	5000	500 ppm		0.04/0.3	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	2500 ppm		2/10	F001
		Methylene Chloride	1000	1000 ppm		0.7/5	F002
854	Beryllium Metal	None					
855	Ground Glass	Mercury	1	10 ppm	**	720	D009
856	Raschig Rings Solvent Contaminated	1,1,1-Trichloroethane	1000	1 ppm		0.0007	F001
		Carbon Tetrachloride	5000	1 ppm		0.0007	F001
		1,1,2-Trichloro-1,2,2-Trifluoroethane	5000	1 ppm		0.0007	F001

RQ = Reportable Quantity
NOTE: Maximum weight - 720 pound drums, 5520 pound crates
* Listed as a hazardous material, but in Waste Operations opinion does not meet the associated hazard class.
** RQ based on quantity of characteristic waste (not amount of constituent).

ATTACHMENT G

SUMMARY OF WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM AT INEL

1.0 INTRODUCTION

Waste components in over 200 drums were summarized by Clements and Kudera (1985; Attachments N and O) as part of the INEL TRU waste sampling program. Their results are represented here and listed chronologically by content code to facilitate review and evaluation. Each drum has been assigned an ID number, waste form and content code, followed by a summary of the waste components. Content codes are described in Attachment A, and waste forms and components are summarized below in Section 2.0.

2.0 SUMMARY OF WASTE FORMS AND COMPONENTS

Most of the principal waste forms appear in abbreviated form and are keyed as follows: sludges (UNC SLUDG); cemented sludges and solutions (CMT S&S); mixed paper, metal and glass (MX P, M, G); nonmetal molds and crucibles (MOLD&CRUC); benelex and plexiglass (BEN/PLEX); combustibles (COMBUS); leaded rubber (Pb RUBBER); concrete and block (CON&BLK); and particulates (PARTICUL).

Waste-component headings have been subdivided to reveal more detail about a particular component. The principal headings and their subdivisions are: glass - raschig rings and other laboratory glassware; metal - tantalum, steel, stainless steel, lead and other (e.g., Al, Cu, Be, Pt, Hg, Cd, Cr, Ag); combustibles - gloves, paper, cloth, plastic, rubber and other (e.g., wood, blacktop); miscellaneous - organic, inorganic, Pb rubber, cemented resin, molds and crucibles, firebrick and salts; absorbents - concrete, other (e.g., gypsum, diatomite) and vermiculite; portland cement; and oil-dri.

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	GLASS CONTENT RASCHIG	GLASS CONTENT OTHER	METAL Ta	METAL STEEL	METAL STAINL	METAL Pb	METAL OTHER	COMBUSTIBLES GLOVES	COMBUSTIBLES PAPER	COMBUSTIBLES CLOTH	COMBUSTIBLES PLASTIC	COMBUSTIBLES RUBBER	COMBUSTIBLES OTHER
7412-00483	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
7412-00636	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.00	0.00
7412-00766	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
7412-00797	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
7412-03121	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
7412-03125	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
7412-03127	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
7412-03128	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
741-12387	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
741-12404	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00
741-12411	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00
741-12794	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00
741-12795	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
741-12847	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00
741-12858	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	27.70	0.00	0.00	0.00	0.00	4.00	0.00	0.00
742-21396	UNC SLUDG	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
742-21440	UNC SLUDG	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	1.00	0.00	0.00
742-21594	UNC SLUDG	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
742-21640	UNC SLUDG	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
742-26150	UNC SLUDG	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
742-26152	UNC SLUDG	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
742-26154	UNC SLUDG	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
743-11586	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00
743-11682	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00
743-11838	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00
743-11870	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00
743-15023	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.25	0.00	0.00
743-15037	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00
743-15075	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.75	0.00	0.00
743-15312	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.00	0.00	0.00
743-16469	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
743-16487	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
743-16656	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00	0.00
743-16733	UNC SLUDG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00	0.00
744-2368	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00
744-2376	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00
744-2389	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.	0.00
744-2424	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00
744-2430	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00
744-2442	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	MISCELLANEOUS							ABSORBES			PORTLAND CEMENT	OIL-DRI	NET WEIGHT
			ORGANIC	INORGANIC	PB RUBB	CM RESIN	MOD&CRUC	FIREBRIC	SALTS	CONCRETE	OTHER	VERMICUL			
7412-00483	UNC SLUDG	1	0.00	433.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.50	3.00	469.50
7412-00636	UNC SLUDG	1	0.00	394.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	400.00
7412-00766	UNC SLUDG	1	0.00	398.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.00	4.00	434.00
7412-00797	UNC SLUDG	1	0.00	319.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.75	2.00	346.75
7412-03121	UNC SLUDG	1	0.00	245.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	38.20	0.00	288.20
7412-03125	UNC SLUDG	1	0.00	355.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.00	361.10
7412-03127	UNC SLUDG	1	0.00	274.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	279.00
7412-03128	UNC SLUDG	1	0.00	326.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.10	1.50	344.60
741-12387	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
741-12404	UNC SLUDG	1	0.00	427.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.00	0.00	453.50
741-12411	UNC SLUDG	1	0.00	268.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.00	0.00	311.00
741-12794	UNC SLUDG	1	0.00	365.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	0.00	389.00
741-12795	UNC SLUDG	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
741-12847	UNC SLUDG	1	0.00	411.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	423.00
741-12858	UNC SLUDG	1	0.00	370.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.80	15.40	433.50
742-21396	UNC SLUDG	2	0.00	382.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.80	0.00	392.50
742-21440	UNC SLUDG	2	0.00	227.00	0.00	0.00	0.00	0.00	0.00	0.00	58.00	0.00	47.00	0.00	333.50
742-21594	UNC SLUDG	2	0.00	365.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	37.00	0.00	403.00
742-21640	UNC SLUDG	2	0.00	415.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.00	0.00	433.50
742-26150	UNC SLUDG	2	0.00	389.00	0.00	0.00	0.00	0.00	0.00	0.00	41.80	0.00	0.00	0.00	432.80
742-26152	UNC SLUDG	2	0.00	399.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	0.00	0.00	0.00	404.20
742-26154	UNC SLUDG	2	0.00	390.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10	0.00	0.00	0.00	394.10
743-11586	UNC SLUDG	3	477.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.00	0.00	0.00	0.00	513.50
743-11682	UNC SLUDG	3	490.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	493.50
743-11838	UNC SLUDG	3	365.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	370.50
743-11870	UNC SLUDG	3	439.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.60	461.50
743-15023	UNC SLUDG	3	396.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75	412.00
743-15037	UNC SLUDG	3	375.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.50	393.50
743-15075	UNC SLUDG	3	397.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	414.75
743-15312	UNC SLUDG	3	437.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	450.50
743-16469	UNC SLUDG	3	340.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.60	7.00	0.00	0.00	354.60
743-16487	UNC SLUDG	3	385.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	9.00	0.00	0.00	396.20
743-16656	UNC SLUDG	3	316.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	320.00
743-16733	UNC SLUDG	3	422.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	426.00
744-2368	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	237.00	0.00	0.00	130.00	18.60	389.60
744-2376	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	386.30	0.00	0.00	14.10	17.60	422.00
744-2389	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	551.60	0.00	0.00	37.40	0.00	593.00
744-2424	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
744-2430	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	430.00	0.00	0.00	0.00	10.00	444.00
744-2442	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	353.00	0.00	0.00	5.00	10.00	372.00
744-3829	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	502.00	0.00	7.50	0.00	0.00	514.00

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	GLASS CONTENT RASCHIG	GLASS CONTENT OTHER	METAL Ta	METAL STEEL	METAL STAINL	METAL Pb	METAL OTHER	COMBUSTIBLES GLOVES	COMBUSTIBLES PAPER	COMBUSTIBLES CLOTH	COMBUSTIBLES PLASTIC	RUBBER	OTHER
744-3829	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
744-3837	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
744-3841	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
744-3846	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
744-3848	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
747-00944	UNC SLUDG	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
747-01488	UNC SLUDG	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
747-01492	UNC SLUDG	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
747-01531	UNC SLUDG	7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00
01-08068	MX P,M,G	241	0.00	0.00	0.00	0.00	0.00	56.50	16.30	0.00	0.00	0.00	37.50	0.00	6.20
02-39213	UNC SLUDG	292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.75	0.00	0.00
02-39229	UNC SLUDG	292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.25	0.00	0.00
02-39435	UNC SLUDG	292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.75	0.00	0.00
02-40342	UNC SLUDG	292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.25	0.00	0.00
40-00063	UNC SLUDG	292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	29.75	0.00	0.00
76-01642	UNC SLUDG	292	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	5.00	0.00	0.00
76-01643	UNC SLUDG	292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	4.00	0.00	0.00
76-01644	UNC SLUDG	292	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00
12-09161	MOLD&CRUC	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	3.75	0.00	0.00
12-09189	MOLD&CRUC	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	4.00	0.00	0.00
12-09295	MOLD&CRUC	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	4.00	0.00	0.00
12-09300	MOLD&CRUC	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	3.00	0.00	0.00
12-11023	MOLD&CRUC	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	4.00	0.00	0.00
12-11229	MOLD&CRUC	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	1.50	0.00	0.00
19-01811	MOLD&CRUC	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00	0.00
41-01531	MOLD&CRUC	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00
11-01625	MOLD&CRUC	301	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	3.75	0.00	5.75	0.00	0.00
01-08991	BEN/PLEX	302	0.00	73.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.00	0.00	0.00
02-10126	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	7.00	0.00	0.00
02-10283	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.50	0.00	0.00
02-10316	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.90	0.00	0.00
02-10436	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.80	0.00	0.00
02-10502	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	1.00	0.00	0.00
32-01049	MOLD&CRUC	312	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.75	0.00	0.00
32-01055	MOLD&CRUC	312	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.50	0.00	0.00
02-10128	METALS	320	0.00	0.00	0.00	46.20	38.70	17.60	13.20	0.00	4.00	0.00	4.00	2.20	10.10
02-10613	METALS	320	0.00	0.00	91.40	0.00	0.00	0.00	0.00	0.00	12.00	0.00	9.20	0.00	0.00
02-12224	METALS	320	0.00	0.00	0.00	33.80	91.50	0.00	0.00	0.00	5.40	0.00	9.00	0.00	0.00
02-40153	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	189.00	0.00	0.00	0.00	0.00	0.00	0.00
29-00513	METALS	320	0.00	0.00	0.00	33.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00
29-00528	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	49.00	0.00	0.00	0.00	4.50	0.00	0.00

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	MISCELLANEOUS							ABSORBES			PORTLAND CEMENT	OIL-DRI	NET WEIGHT
			ORGANIC	INORGANIC	PB RUBB CM	RESIN	MOD&CRUC	FIREBRIC	SALTS	CONCRETE	OTHER	VERMICUL			
744-3837	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	621.00	0.00	0.00	0.00	0.00	625.50
744-3841	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	492.00	0.00	0.00	0.00	0.00	496.00
744-3846	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	491.00	0.00	0.00	0.00	0.00	495.50
744-3848	CMT S&S	4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	548.00	0.00	0.00	0.00	0.00	552.50
747-00944	UNC SLUDG	7	0.00	348.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	1.00	38.00	395.20
747-01488	UNC SLUDG	7	0.00	286.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.10	3.00	0.00	339.60
747-01492	UNC SLUDG	7	0.00	242.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.20	0.00	0.00	280.70
747-01531	UNC SLUDG	7	0.00	205.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.90	0.00	0.00	262.90
01-08068	MX P,M,G	241	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.00	0.00	0.00	5.00	175.50
02-39213	UNC SLUDG	292	0.00	81.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	113.50
02-39229	UNC SLUDG	292	0.00	117.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.25	0.00	0.00	152.75
02-39435	UNC SLUDG	292	0.00	125.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.25	0.00	0.00	151.75
02-40342	UNC SLUDG	292	0.00	141.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.00	0.00	177.75
40-00063	UNC SLUDG	292	0.00	148.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	195.50
76-01642	UNC SLUDG	292	0.00	218.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	228.00
76-01643	UNC SLUDG	292	0.00	73.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	83.25
76-01644	UNC SLUDG	292	0.00	154.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	159.50
12-09161	MOLD&CRUC	300	0.00	0.00	0.00	0.00	167.50	0.00	0.00	0.00	0.00	0.00	0.00	4.00	179.75
12-09189	MOLD&CRUC	300	0.00	0.00	0.00	0.00	149.75	0.00	0.00	0.00	0.00	0.00	0.00	4.00	161.75
12-09295	MOLD&CRUC	300	0.00	0.00	0.00	0.00	210.50	0.00	0.00	0.00	0.00	0.00	0.00	3.50	222.00
12-09300	MOLD&CRUC	300	0.00	0.00	0.00	0.00	185.50	0.00	0.00	0.00	0.00	0.00	0.00	3.50	196.00
12-11023	MOLD&CRUC	300	0.00	0.00	0.00	0.00	135.75	0.00	0.00	0.00	0.00	3.00	0.00	0.00	147.25
12-11229	MOLD&CRUC	300	0.00	0.00	0.00	0.00	48.75	0.00	0.00	0.00	0.00	22.00	0.00	0.00	76.25
19-01811	MOLD&CRUC	300	0.00	0.00	0.00	0.00	56.50	0.00	0.00	0.00	0.00	20.00	0.00	0.00	78.75
41-01531	MOLD&CRUC	300	0.00	0.00	0.00	0.00	88.75	0.00	0.00	0.00	0.00	13.00	0.00	0.00	106.75
11-01625	MOLD&CRUC	301	0.00	0.00	0.00	0.00	133.75	0.00	0.00	0.00	0.00	2.50	0.00	8.50	154.38
01-08991	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.60	0.00	0.00	47.60	205.10
02-10126	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	377.50	0.00	0.00	1.00	389.50
02-10283	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	161.70	0.00	0.00	12.80	189.00
02-10316	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	124.10	0.00	0.00	22.90	157.90
02-10436	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	60.30	0.00	0.00	18.50	88.60
02-10502	BEN/PLEX	302	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74.70	0.00	0.00	46.40	134.10
32-01049	MOLD&CRUC	312	0.00	0.00	0.00	0.00	74.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.75
32-01055	MOLD&CRUC	312	0.00	0.00	0.00	0.00	80.75	0.00	0.00	0.00	16.00	0.00	0.00	0.00	120.25
02-10128	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40	0.00	0.00	2.20	142.60
02-10613	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.40	123.00
02-12224	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20	145.90
02-40153	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00	197.00
29-00513	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.00	0.00	0.00	56.00
29-00528	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.50	0.00	0.00	70.00
29-01396	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	177.40

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	GLASS CONTENT RASCHIG	GLASS CONTENT OTHER	METAL Ta	METAL STEEL	METAL STAINL	METAL Pb	METAL OTHER	COMBUSTIBLES GLOVES	COMBUSTIBLES PAPER	COMBUSTIBLES CLOTH	COMBUSTIBLES PLASTIC	COMBUSTIBLES RUBBER	COMBUSTIBLES OTHER
29-01396	METALS	320	0.00	0.00	0.00	161.00	0.00	0.00	0.00	2.00	3.00	0.00	9.20	0.00	0.00
32-00544	METALS	320	0.00	0.00	0.00	72.50	0.00	0.00	2.60	0.00	28.00	0.00	7.00	0.00	0.00
55-00290	METALS	320	0.00	0.00	40.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75	0.00	0.00
78-00199	METALS	320	0.00	0.00	0.00	148.00	0.00	27.00	28.00	0.00	0.00	0.00	8.50	0.00	0.00
02-39371	COMBUS	328	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	57.50	0.25	17.75	0.00	0.00
02-39453	COMBUS	328	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	98.25	0.00	18.50	0.00	0.00
02-39481	COMBUS	328	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	59.25	0.50	13.75	0.00	0.00
01-08200	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	4.20	12.40	24.40	0.00	0.00
01-08604	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.60	0.00	57.60
01-08796	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	7.40	8.00	19.50	0.00	0.00
02-35272	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.75	0.00	81.50
02-39195	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.25	0.00	73.75
22-01194	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	1.50	30.00	14.00	0.50	15.00	0.00	0.00
28-00781	COMBUS	330	0.00	84.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.50	0.00	0.00
389-90471	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	16.00	143.00	407.00	74.00	406.00	8.00	0.00
38-00101	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	53.50	24.75	0.00	12.00	0.00	0.00
390-90609	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	336.00	38.00	364.00	0.00	0.00
42-00291	COMBUS	330	0.00	0.50	0.00	0.00	0.00	0.00	0.00	2.50	22.50	0.00	28.25	0.00	0.00
76-02898	COMBUS	330	0.00	0.00	0.00	0.00	0.00	106.75	0.00	0.50	0.00	3.00	59.50	0.25	0.00
90-00042	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	77.00	0.00	7.90	1.00	150.00	7.00	0.00
0-29253	FILTERS	335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-10348	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-34820	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00	10.00	1.00	0.00
02-39084	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	69.25
02-39465	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	45.25	0.00	0.25
02-40137	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	46.50	0.00	0.00
22-00748	COMBUS	336	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.00	0.00	6.00	0.00	0.00
23-01599	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	1.50	5.75	34.00	8.50	17.00	0.00	3.00
37-00689	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	19.40	0.25	10.40	0.00	30.40
47-00256	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	63.00	0.00	4.00
65-00137	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	56.00	8.00	15.80	5.00	0.50
89-03607	COMBUS	336	0.00	0.00	0.00	2.00	0.00	0.00	5.60	3.60	28.40	3.40	31.60	0.00	0.00
90-00039	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	40.00	8.40	115.70	27.30	0.00
92-00419	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.25	1.25	4.75	0.00	0.00
01-08906	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-10180	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.50	1.00	7.00	7.00	46.60	0.00	0.00
02-10215	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	9.40	7.40	28.60	5.60	16.00	1.40	0.00
36-00723	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.60	0.00	0.00	38.50	3.00	0.00
37-00672	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37-00698	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	143.40	2.00	0.50	5.40	1.50	0.00
37-00711	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.50	82.00	1.00	0.00	1.00	0.50	0.00
389-85743	COMBUS	337	0.00	0.00	0.00	0.00	406.60	0.00	43.60	0.00	6.20	0.00	338.40	0.00	134.20

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	MISCELLANEOUS								ABSORBES		PORTLAND CEMENT	OIL-DRI	NET WEIGHT
			ORGANIC	INORGANIC	PB RUBB	CM RESIN	MOD&CRUC	FIRBRIC	SALTS	CONCRETE	OTHER	VERMICUL			
32-00544	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	115.10
55-00290	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	51.12
78-00199	METALS	320	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	211.50
02-39371	COMBUS	328	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	85.50
02-39453	COMBUS	328	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.50	0.00	121.25
02-39481	COMBUS	328	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.75	0.00	0.00	83.25
01-08200	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.20	53.40
01-08604	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	64.40
01-08796	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.00	56.90
02-35272	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.25	0.00	0.00	92.50
02-39195	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00	87.50
22-01194	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	63.00
28-00781	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	100.00
389-90471	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1054.00
38-00101	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00	91.00
390-90609	COMBUS	330	0.00	0.00	78.00	0.00	0.00	0.00	0.00	0.00	0.00	14.00	0.00	0.00	840.00
42-00291	COMBUS	330	0.00	0.00	0.00	5.25	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	59.50
76-02898	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	4.00	0.00	0.00	180.00
90-00042	COMBUS	330	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	1.50	244.90
0-29253	FILTERS	335	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-10348	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-34820	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00	5.00	26.50
02-39084	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00	0.00	84.75
02-39465	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	49.00
02-40137	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	52.50
22-00748	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	15.75
23-01599	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00	0.00	73.25
37-00689	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	65.20
47-00256	COMBUS	336	0.00	0.00	2.75	0.00	0.00	0.00	0.00	0.00	0.00	2.50	0.00	0.00	74.50
65-00137	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	94.80
89-03607	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.00	90.60
90-00039	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40	196.80
92-00419	COMBUS	336	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.00	0.00	13.25
01-08906	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-10180	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	68.60
02-10215	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	71.40
36-00723	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	106.10
37-00672	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37-00698	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40	156.20
37-00711	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	92.00
389-85743	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	134.10	0.00	0.00	0.00	1063.10
55-00435	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	53.25

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	GLASS CONTENT RASCHIG	GLASS CONTENT OTHER	METAL Ta	METAL STEEL	METAL STAINL	METAL Pb	METAL OTHER	COMBUSTIBLES GLOVES	COMBUSTIBLES PAPER	COMBUSTIBLES CLOTH	COMBUSTIBLES PLASTIC	COMBUSTIBLES RUBBER	COMBUSTIBLES OTHER
55-00435	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	5.25	1.50	40.25	0.00	0.75
744-3789	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.25	0.00	0.00
744-3792	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.50	0.00	0.00
744-3823	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.00	0.00	0.00
02-12169	FILTERS	338	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
89-03509	FILTERS	338	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0 00	0.00	0.00	4.00	0.00	0.00
19-01472	PB RUBBER	339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	2.25	0.00
19-01831	PB RUBBER	339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00	4.00	18.00	0.00
19-01840	PB RUBBER	339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	4.00	0.00
19-01845	PB RUBBER	339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00
19-01884	PB RUBBER	339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	8.00	0.00
22-00224	PB RUBBER	339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	8.80	0.00	0.00
23-00435	PB RUBBER	339	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.50	0.00	0.00
01-00201	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-08811	FIREBRICK	371	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.70	0.00	0.00
01-08836	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	8.00	0.00	0.00
02-10586	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	12.00	0.00	5.20	0.00	0.00
02-11061	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.00	0.00	0.00
02-11379	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.00	0.00	0.00
02-21470	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.00	0.00	6.00	0.00	0.00
02-45508	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	2.20	0.00	0.00
01-08083	CON&BLK	374	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
02-2464	PARTICUL	376	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41-1577	PARTICUL	376	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41-1605	PARTICUL	376	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-44115	CON&BLK	377	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	4.40	0.00	0.00
01-05779	SALTS	409	0.00	0.00	0.00	0.00	10.50	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00
03-02724	SALTS	409	0.00	0.00	0.00	0.00	26.40	96.80	0.00	0.00	12.00	0.00	6.20	0.00	0.00
01-05486	SALTS	414	0.00	0.00	0.00	0.00	10.12	0.00	0.00	0.00	0.00	0.00	16.00	0.00	0.00
01-08956	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.70	0.00	0.00
02-10070	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.90	0.00	0.00
02-10195	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.20	0.00	0.00
02-10286	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.20	0.00	0.00
02-10288	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.70	0.00	0.00
02-34829	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.50	0.00	0.00
02-34830	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.75	0.00	0.00
02-34844	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00	0.00	0.00
02-39189	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.50	0.00	0.00
02-39215	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.00	0.00	0.00
02-39296	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.00	0.00	0.00
02-44427	RESINS	432	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.90	0.00	0.00
02-34934	GLASS	440	0.00	305.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	0.00	0.00

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	MISCELLANEOUS							ABSORBES			PORTLAND CEMENT	OIL-DRI	NET WEIGHT
			ORGANIC	INORGANIC	PB RUBB	CM RESIN	MOD&CRUC	FIREBRIC	SALTS	CONCRETE	OTHER	VERMICUL			
744-3789	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00	8.00	38.75
744-3792	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	6.25	0.00	0.00	16.25	0.00	0.00	54.00
744-3823	COMBUS	337	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.75	0.00	0.00	44.75
02-12169	FILTERS	338	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
89-03509	FILTERS	338	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.00	0.00	0.00	2.40	54.40
19-01472	PB RUBBER	339	0.00	0.00	119.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	130.50
19-01831	PB RUBBER	339	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.00	0.00	192.00
19-01840	PB RUBBER	339	0.00	0.00	255.00	0.00	0.00	0.00	0.00	0.00	0.00	9.00	0.00	1.00	269.50
19-01845	PB RUBBER	339	0.00	0.00	164.00	0.00	0.00	0.00	0.00	0.00	0.00	12.50	0.00	0.00	178.00
19-01884	PB RUBBER	339	0.00	0.00	285.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00	300.50
22-00224	PB RUBBER	339	0.00	0.00	286.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	29.50	324.80
23-00435	PB RUBBER	339	0.00	0.00	215.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.40	237.90
01-00201	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01-08811	FIREBRICK	371	0.00	0.00	0.00	168.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.40	234.60
01-08836	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	110.00	0.00	0.00	0.00	0.00	0.00	49.30	179.30
02-10586	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	50.20	0.00	0.00	0.00	0.00	0.00	66.40	135.00
02-11061	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	336.10	0.00	0.00	0.10	0.00	0.00	0.50	353.70
02-11379	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	279.00	0.00	0.00	0.00	0.00	0.00	9.20	299.20
02-21470	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	90.80	0.00	0.00	4.00	14.25	0.00	0.00	139.05
02-45508	CON&BLK	371	0.00	0.00	0.00	0.00	0.00	30.80	0.00	0.00	0.00	0.00	0.00	0.00	45.00
01-08083	CON&BLK	374	0.00	0.00	0.00	0.00	0.00	0.00	0.00	386.40	0.00	0.00	0.00	11.50	398.90
02-2464	PARTICUL	376	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41-1577	PARTICUL	376	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41-1605	PARTICUL	376	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02-44115	CON&BLK	377	0.00	0.00	0.00	0.00	0.00	26.40	0.00	0.00	0.00	0.00	0.00	0.00	42.80
01-05779	SALTS	409	0.00	0.00	0.00	0.00	0.00	0.00	12.75	0.00	0.00	9.00	0.00	0.00	32.20
03-02724	SALTS	409	0.00	0.00	0.00	0.00	0.00	0.00	23.80	0.00	0.00	0.00	0.00	0.00	165.20
01-05486	SALTS	414	0.00	0.00	0.00	0.00	19.50	0.00	52.88	0.00	0.00	6.00	0.00	0.00	104.50
01-08956	RESINS	432	0.00	0.00	0.00	183.00	0.00	0.00	0.00	0.00	0.00	0.00	7.70	19.80	233.20
02-10070	RESINS	432	0.00	0.00	0.00	178.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.60	237.60
02-10195	RESINS	432	0.00	0.00	0.00	194.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.40	224.70
02-10286	RESINS	432	0.00	0.00	0.00	197.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.50	227.40
02-10288	RESINS	432	0.00	0.00	0.00	157.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	187.80
02-34829	RESINS	432	0.00	0.00	0.00	178.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	214.50
02-34830	RESINS	432	0.00	0.00	0.00	206.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	241.00
02-34844	RESINS	432	0.00	0.00	0.00	69.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.25	87.25
02-39189	RESINS	432	0.00	0.00	0.00	186.50	0.00	0.00	0.00	0.00	0.00	2.25	0.00	0.00	220.25
02-39215	RESINS	432	0.00	0.00	0.00	235.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	271.50
02-39296	RESINS	432	0.00	0.00	0.00	182.75	0.00	0.00	0.00	0.00	0.00	4.50	0.00	0.00	217.25
02-44427	RESINS	432	0.00	0.00	0.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.90
02-34934	GLASS	440	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	311.50

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	GLASS CONTENT RASCHIG	GLASS CONTENT OTHER	METAL Ta	METAL STEEL	METAL STAINL	METAL Pb	METAL OTHER	COMBUSTIBLES GLOVES	COMBUSTIBLES PAPER	COMBUSTIBLES CLOTH	COMBUSTIBLES PLASTIC	COMBUSTIBLES RUBBER	COMBUSTIBLES OTHER
12-11241	GLASS	440	0.00	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.75	4.00	0.00
28-00755	GLASS	440	0.00	75.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	8.50	0.00	0.00
29-00030	GLASS	440	0.00	112.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	16.00	0.00	0.00
36-00628	GLASS	440	0.00	334.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
36-00805	GLASS	440	26.50	95.50	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	24.50	0.00	0.00
37-02018	GLASS	440	0.00	79.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
37-02336	GLASS	440	0.00	22.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.50	0.00	0.00
37-02339	GLASS	440	0.00	54.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.00	0.00	0.00
76-01366	GLASS	440	0.00	385.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00
89-04043	GLASS	441	66.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20	0.00	2.00	0.00	0.00
89-04071	GLASS	441	91.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.10	4.30	0.00	0.00
89-04072	GLASS	441	47.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	0.00	1.50	0.00	0.00
89-04114	GLASS	441	151.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.30	0.00	2.50	0.00	0.00
02-10576	GLASS	442	0.00	289.40	0.00	0.00	0.00	0.00	0.00	0.00	6.60	0.00	2.00	0.00	0.00
02-39533	GLASS	442	50.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	2.00	0.00	0.00
02-39564	GLASS	442	23.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	4.00	0.00	0.00
02-39803	GLASS	442	88.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	2.00	0.00	0.00
02-39805	GLASS	442	78.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	2.50	0.00	0.00
05-01596	GLASS	442	84.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	3.00	0.00	0.00
05-01772	GLASS	442	82.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	4.50	0.00	0.00
17-04562	GLASS	442	89.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	4.00	0.00	0.00
19-02730	GLASS	442	145.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.30	0.00	0.00
22-00722	GLASS	442	89.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	9.25	0.00	0.00
42-00226	GLASS	442	57.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.00	0.00	4.50	0.00	0.00
01-08266	BEN/PLEX	464	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.50	0.00	0.00
01-08226	METALS	480	0.00	0.00	0.00	317.70	0.00	0.00	0.00	0.00	6.60	0.00	9.00	0.00	0.00
01-08232	METALS	480	0.00	0.00	0.00	189.20	0.00	0.00	0.00	0.00	2.20	0.00	5.00	0.00	0.00
02-34855	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	161.50	0.00	0.00	0.00	2.00	0.00	0.00
02-35083	METALS	480	0.00	1.00	0.00	0.00	12.25	0.00	58.37	0.25	1.00	0.00	22.50	0.00	0.00
02-39738	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	15.00	0.00	0.00	0.00	9.50	0.00	0.00
02-40002	METALS	480	0.00	0.00	0.00	0.00	0.00	191.50	54.50	0.00	2.50	0.00	6.00	0.00	0.00
12-12505	METALS	480	0.00	0.00	4.80	38.70	9.20	0.00	14.20	0.00	0.00	0.00	16.20	0.00	1.00
18-00025	METALS	480	0.00	0.00	0.00	36.20	24.20	5.20	0.00	0.00	4.40	0.00	8.30	1.20	0.00
25-00036	METALS	480	0.00	1.00	0.00	14.50	26.00	0.00	0.00	0.00	0.00	1.00	16.60	0.00	0.00
31-00939	METALS	480	0.00	0.00	0.00	0.00	15.00	0.00	26.50	1.00	2.00	0.00	4.25	1.50	0.00
31-01321	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	42.00	0.00	3.00	0.00	10.50	0.00	0.00
389-20305	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
389-85769	METALS	480	0.00	10.00	0.00	2267.30	0.00	0.00	20.70	0.00	47.50	0.00	18.90	0.00	0.00
389-85811	METALS	480	0.00	0.00	0.00	1997.20	411.40	259.20	1.50	0.00	45.80	0.00	61.20	0.00	1.00
389-90828	METALS	480	0.00	0.00	5.00	0.00	177.00	0.00	1412.00	0.00	73.00	0.00	0.00	0.00	0.00
389-90895	METALS	480	24.00	0.00	68.00	1844.00	0.00	0.00	420.00	0.00	15.00	0.00	71.00	0.00	0.00
42-00043	METALS	480	0.00	0.00	0.00	32.00	110.00	0.00	0.00	0.00	2.50	0.00	19.30	0.00	0.00

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	MISCELLANEOUS								ABSORBES		PORTLAND CEMENT	OIL-DRI	NET WEIGHT
			ORGANIC	INORGANIC	PB RUBB	CM RESIN	MOD&CRUC	FIREBRIC	SALTS	CONCRETE	OTHER	VERMICUL			
12-11241	GLASS	440	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00	46.75
28-00755	GLASS	440	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	94.50
29-00030	GLASS	440	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.25	133.25
36-00628	GLASS	440	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.00	356.80
36-00805	GLASS	440	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.50	173.00
37-02018	GLASS	440	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	116.75
37-02336	GLASS	440	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	52.00
37-02339	GLASS	440	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	72.75
76-01366	GLASS	440	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	394.00
89-04043	GLASS	441	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	127.00	201.50
89-04071	GLASS	441	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	6.00	114.40
89-04072	GLASS	441	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	155.30	211.30
89-04114	GLASS	441	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	172.10
02-10576	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.40	303.40
02-39533	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.50	0.00	2.00	81.75
02-39564	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.00	0.00	4.00	54.50
02-39803	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.50	0.00	2.50	117.50
02-39805	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.50	0.00	2.50	108.00
05-01596	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	103.50
05-01772	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	103.75
17-04562	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	110.00
19-02730	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	171.30
22-00722	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	114.25
42-00226	GLASS	442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	77.50
01-08266	BEN/PLEX	464	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.60	0.00	0.00	50.60	143.70
01-08226	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.20	344.50
01-08232	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	48.80	245.20
02-34855	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.25	0.00	0.00	7.50	178.25
02-35083	METALS	480	0.00	0.00	7.50	0.00	0.00	0.00	0.00	16.00	8.00	0.00	0.00	4.25	131.12
02-39738	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	27.50
02-40002	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	260.50
12-12505	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	84.10
18-00025	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40	0.00	0.00	10.00	92.90
25-00036	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	63.10
31-00939	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.50	4.50	0.00	0.00	66.25
31-01321	METALS	480	0.00	0.00	4.50	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00	4.25	67.75
389-20305	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
389-85769	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	193.60	0.00	0.00	0.00	2558.00
389-85811	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2787.30
389-90828	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	333.00	0.00	0.00	0.00	2000.00

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	GLASS CONTENT RASCHIG	GLASS CONTENT OTHER	METAL Ta	METAL STEEL	METAL STAINL	METAL Pb	METAL OTHER	COMBUSTIBLES GLOVES	COMBUSTIBLES PAPER	COMBUSTIBLES CLOTH	COMBUSTIBLES PLASTIC	COMBUSTIBLES RUBBER	COMBUSTIBLES OTHER
42-00209	METALS	480	0.00	0.00	0.00	0.00	45.00	0.00	94.25	0.00	0.00	0.00	19.25	0.00	0.00
45-00528	METALS	480	0.00	0.00	0.00	92.75	29.00	0.00	4.50	0.00	0.00	0.00	18.25	0.00	0.00
15-00049	METALS	481	0.00	0.00	0.00	20.00	0.00	0.00	34.00	0.00	0.00	0.00	11.00	0.00	0.00
19-01827	METALS	481	0.00	0.00	0.00	69.00	48.00	0.00	0.00	0.00	0.00	0.00	18.00	0.00	0.00
19-01901	METALS	481	0.00	0.00	0.00	0.00	0.00	6.00	234.50	0.00	0.00	0.00	2.00	0.00	0.00
19-01919	METALS	481	0.00	0.00	0.00	0.00	50.00	0.00	55.00	0.00	0.00	0.00	3.00	0.00	0.00
76-00416	METALS	481	0.00	0.00	0.00	9.00	145.20	0.00	0.00	0.00	0.10	0.00	3.50	0.00	0.00
746-2906	COMBUS	900	0.00	0.00	0.00	1.50	0.50	0.00	0.00	4.00	113.00	1.80	22.40	0.00	0.00
746-2918	COMBUS	900	0.00	0.00	0.00	2.20	0.00	0.00	42.90	16.60	15.40	11.80	17.40	0.20	1.50
746-7008	COMBUS	900	0.00	0.00	0.00	0.00	4.80	0.00	0.00	11.00	24.20	10.10	14.40	0.00	1.80
746-7013	COMBUS	900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1371-586	MX P,M,G	950	0.00	367.00	0.00	882.60	0.00	113.10	2.00	0.00	29.00	0.00	7.40	0.00	103.40
01-08583	COMBUS	970	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.80	0.00	77.90
01-08700	COMBUS	970	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.90	0.00	92.40
389-85289	COMBUS	970	0.00	0.00	0.00	781.00	105.20	0.00	0.00	0.00	70.80	0.00	170.30	0.00	399.10

WASTE COMPONENTS IN TRU WASTE SAMPLING PROGRAM
(WEIGHT IN POUNDS)

ID NUMBER	WASTE FORM	CONTENT CODE	MISCELLANEOUS								ABSORBES		PORTLAND CEMENT	OIL-DRI	NET WEIGHT
			ORGANIC	INORGANIC	PB RUBB	CM RESIN	MOD&CRUC	FIREBRIC	SALTS	CONCRETE	OTHER	VERMICUL			
389-90895	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.00	0.00	0.00	2427.00
42-00043	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	0.00	0.00	4.00	170.60
42-00209	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.37	0.00	0.00	5.00	169.87
45-00528	METALS	480	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	146.50
15-00049	METALS	481	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	71.00
19-01827	METALS	481	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	6.00	0.00	147.50
19-01901	METALS	481	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.00	0.00	0.00	255.50
19-01919	METALS	481	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.00	0.00	0.00	124.00
76-00416	METALS	481	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	25.00	182.80
746-2906	COMBUS	900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.00	10.80	180.00
746-2918	COMBUS	900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	23.00	11.80	143.00
746-7008	COMBUS	900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.80	0.90	0.00	0.00	22.40	98.40
746-7013	COMBUS	900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1371-586	MX P,M,G	950	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	534.40	0.00	0.00	0.00	2047.90
01-08583	COMBUS	970	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.50	92.20
01-08700	COMBUS	970	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.40	117.70
389-85289	COMBUS	970	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1526.40

ATTACHMENT H

TOTAL VOLATILE ORGANIC COMPOUNDS (VOC) ANALYSES AT ROCKY FLATS PLANT

SECTION 1.0 - RFP SLUDGE SAMPLING AND ANALYSIS PROCEDURES

Two organic sludge drums (shipping content code ID 212, IDC 003) and five inorganic sludge drums (shipping content code ID 211, IDC 001) were sampled for headspace gas composition and for organic compounds in the sludge. These drums were originally generated at Rocky Flats Plant (RFP), stored at Idaho National Engineering Laboratory (INEL) and returned to RFP for examination.

The samples were collected in ziplock polyethylene bags. The bags were immediately placed in stainless steel containers that resemble one gallon paint cans (these cans may not have been air-tight). The sample number and the drum number from which the sample was collected were recorded. The personnel conducting the sampling carried the samples to a local analytical laboratory within a few hours following sample collection for VOC analysis. In some cases the samples were sent to lab commercial courier. A laboratory representative signed a receipt for the samples; and, that receipt was then returned to the sampling personnel. However, no formal chain of custody procedures were followed.

More detailed information on sample preparation and the analyses performed is provided in the original report which is included Attachment M. The method used was based on EPA standard methods 5030 and 8250 from SW-846 except that manual instead of automatic purge and trap was used and a three-point instead of five-point calibration was used. A description of the manual purge and trap method is provided at the end of this section.

The analytical results from the seven sludge samples are shown in Table H-1. Drum numbers 7411-2808, 7412-02917, 7412-03492, 7412-03850 and 7411-2578 are all inorganic sludges, IDC 001 (shipping content code ID 211). Drum numbers 7431-6930 and 250-0484 are organic sludges, IDC 003 (shipping content codes ID 212). The organic compounds that were analyzed for are listed in Table H-2.

TABLE H-1*

VOLATILE ORGANIC ANALYSIS OF SLUDGE SAMPLES*

IDC Volatile Compounds (ppm)	001 7 4 1 1- 2808	001 7 4 1 2- 02917	001 7 4 1 2- 03492	001 7 4 1 2- 03850	001 7 4 1 1- 2578	003 7 4 3 1- 6930	003 2 5 0- 0484
1,1-Dichloroethene	.IU	.1U	.1U	.1U	.1U	.1U	80[b]
1,2-Dichloroethene(Total)	7.8	.1U	.1U	.1U	.1U	.1U	.1U
Chloroform	1.8	.1U	.1U	.1U	.1U	.1U	.1U
1,1,1-Trichloroethane	8.8	.1U	.1U	.1U	.1U	.1U	.1U
Tetrachloroethene	1.7	.1U	.1U	.1U	.1U	1.2	40[b]
1,1,2,2-Tetrachloroethane	4.7	.1U	.1U	.1U	.1U	.1U	.1U
Toluene	0.9	.1U	.1U	.1U	.1U	.1U	.1U
Ethylbenzene	5.3	.1U	.1U	.1U	.1U	.1U	.1U
Styrene	9.6	.1U	.1U	.1U	.1U	.1U	.1U
Total Xylenes	19.0	.1U	.1U	.1U	.1U	.1U	.1U
Carbon Tetrachloride	.IU	.1U	.1U	.1U	.1U	2.2	700[b]
Freon TF	.2U	.2U	.2U	.2U	.2U	4.0	.2U

U Analyzed, not detected

[a] Other volatile organic compounds analyzed for but were not detected include: 1) propanol, 2) butanol, 3) chloroethane, 4) methylene chloride, 5) acetone, 6) carbon disulfide, 7: 1,1-dichloroethane, 8) 1,2-dichloroethane, 9) 2-Butanone, 10) vinyl acetate, 11) bromodichloromethane, 12) 1,2-dichloropropane, 13) cis-1,3-dichloropropene, 14) trichloroethene, 15) dibromochloromethane, 16) 1,1,2-trichloroethane, 17) benzene, 18) trans-1,3-dichloropropene, 19) bromoform, 20) 4-methyl-2-pentanone, 21) 2-hexanone, 22) chlorobenzene, 23) chloromethane, and 24) bromomethane. All detection limits are .2 or .1 ppm for above compounds. Modifed from the TRUPACT-II Safety Analysis Report.

[b] Concentrations in ppb

* Modified from the TRUPACT-II Safety Analysis Report

TABLE H-2[a]

ORGANIC COMPOUNDS SAMPLED FOR IN ROCKY FLATS PLANT PROGRAM

Chloromethane
Bromomethane
Vinyl chloride
Chloroethane
Methylene chloride
Acetone
Carbon disulfide
1, 1-Dichloroethene
1, 1-Dichloroethane
1, 2-Dichloroethene (total)
Chloroform
1, 2-Dichloroethane
2-Butanone
1,1,1-Trichloroethane
Carbon Tetrachloride
FREON TF
Bromodichloromethane
1,20Dichloropropane
CIS-1, 3-Dichloropropene
Tricholoreoethene
Dibromochloromethane
1,2,2-Trichloroethane
Benzene
Trans-1,3-Dichloropropene
Bromoform
4-Methyl-2-Pentanone
2-Hexanone
Tetrachloroethene
1,1,2,2,-Tetrachloroethane
Toluene
Chlorobenzene
Ethylbenzene
Styrene
Xylenes (total)
Isopropanol
Butanol

[a] Modified from the TRUPACT-II Safety Analysis Report

GAS CHROMATOGRAPHY/MASS SPECTROMETRY FOR VOLATILE ORGANICS: MANUAL PURGE AND TRAP METHOD

1.0 INTRODUCTION

The manual purge and trap method for analysis of volatile organics in water follows as closely as possible the procedures described in the Environmental Protection Agency Statement of Work 624 (EPA SOW 624). The deviations from the automatic purge and trap method allow for analysis of radioactively contaminated samples and samples which are not amenable to automatic purge and trap methods (e.g., sludges or waste samples).

An inert gas is purged through a sample and volatile organics deposited onto a trap. The trap is then heated and the volatile organics are swept onto a gas chromatographic column to be separated and then identified and quantitated by mass spectrometry.

2.0 HAZARDS, SAFETY AND SAFEGUARDS CONTROL

2.1 Standards

2.1.1 Wear surgeon's gloves when diluting the stock standards to working standards.

2.2 GC

2.2.1 The gas chromatograph has areas, such as the injection ports, which are thermally hot.

2.3 MS

2.3.1 The mass spectrometer has areas of high voltage.

2.3.2 The turbo pump must be properly maintained.

3.0 SPECIAL EQUIPMENT

3.1 Purge and trap: Tekmar Liquid Sample Concentrator Model LSC-2.

3.2 Traps: One of two traps can be used for analysis of purgeable organics in water.

3.2.1 1/8 inch O.D. stainless steel tubing packed with 7.6 cm Carbopack B and 1.3 cm Carbosieve S-III (Suppelco Cat. No. 2-0321).

3.2.2 1/8 inch O.D. stainless steel tubing packed with 1 cm 3 percent SP-2100, 15 cm Tenax, 8 cm silica gel 15 (Suppelco Cat. No. 2-0293).

3.3 Gas chromatograph: Varian 3400.

3.4 Column: 30-m x 0.25-mm I.D. (or 0.32-mm I.D.) 1-um film thickness silicon-coated fused-silica capillary column (J&W Scientific DB-5 or equivalent).

3.5 Mass Spectrometer and data system: Extrel ELQ-400.

3.6 Glass vials: 4 dram vials with screw caps lined with teflon.

3.7 Microsyringes: 10-ul, 25-ul, 100-ul, 250-ul, 500-ul, and 1,000-ul: These syringes should be equipped with a 20-gauge (0.006-inch I.D.) needle having a length sufficient to extend into the 5-ml gas tight syringe.

3.8 Syringe: 5-ml gas-tight syringe.

4.0 MATERIALS

4.1 Standards

4.1.1 Standards are ordered from Suppelco, Inc.:

purgeables A, Cat. No. 4-8851 -- 200 ug/ml
purgeables B, Cat. No. 4-8852 -- 200 ug/ml
purgeables C, Cat. No. 4-8853 -- 200 ug/ml
HSL Volatiles standard mix, Cat. No. 4-8920 -- 2,000 ug/ml

Store at -100C to -200C. Unopened ampules can be stored for one year. Opened standards are stored in a glass vial with a teflon-lined screw cap; they must be discarded after three months.

4.1.2 Working HSL volatiles standard mix--200 ug/ml: Transfer 100 ul stock standard (2,000 ug/ml) to a Teflon-lined screw-cap bottle. Add 900 ul methanol. Store at 40C or less. The standard can be used for six months unless analysis shows the standard has deteriorated beyond acceptable criteria.

4.1.3 Working purgeables standards mix--50 ug/ml: Transfer 250 ul of each 200 ug/ml standard to a Teflon-sealed screw-cap bottle. Store the working standard at 40C or less when not being used. The working standard is good for one month unless it has deteriorated beyond the acceptable criteria.

4.2 Matrix Spiking Solution

4.2.1 Prepare a spiking solution in methanol that contains the following compounds at a concentration of 250 ug/ml:

1,1-dichloroethene
trichloroethene
chlorobenzene
toluene
benzene

4.3 Methanol: pesticide quality or equivalent.

4.4 Reagent water: Reagent water is defined as water in which an interferent is not observed at the method detection limit of the compounds of interest.

4.4.1 The reagent water we use is passed through the Millipore Super-Q water purification system. The water is then boiled for 15 minutes and then transferred to a clean glass vessel. The water may be stored capped in the refrigerator for four weeks or until it shows interfering peaks by GC/MS.

4.5 Gases:

4.5.1 Special high purity helium is available from the warehouse (stock number 011 52-01-24).

4.5.2 Compressed air, ultra zero, is available from the warehouse (stock number 011 52-01-25).

5.0 STANDARDIZATION AND CALIBRATION

5.1 Tuning

5.1.1 Upon analysis of 50 ng of 4-bromofluorobenzene, the background-subtracted mass spectrum must meet the EPA criteria:

Mass	Ion Abundance Criteria
50	15 to 40 percent of mass 95
75	30 to 60 percent of mass 95
95	base peak, 100 percent relative abundance
96	5 to 9 percent of mass 95
173	less than 2 percent of mass 174
174	greater than 50 percent of mass 95
175	5 to 9 percent of mass 174
176	greater than 95 percent but less than 101 percent of mass 174
177	5 to 9 percent of mass 176

5.1.2 Run the BFB standard according to Section 6.2.1 of the Rocky Flats procedure. Call up the chromatogram, subtract the background from the spectrum, and compare the resulting spectrum to the EPA criteria. If the tune is acceptable, a hard copy of the tuning report is made and filed.

5.2 Internal standard calibration procedure

5.2.1 There are three internal standards:

bromochloromethane
1,4-difluorobenzene
chlorobenzene-d5

5.2.2 There are three surrogate standards:

toluene-d8
bromofluorobenzene
1,2-dichloroethane-d4

5.2.3 A standard curve is prepared and run in the same manner that the samples to be analyzed will be run (refer to Section 6). The standards and surrogates will be run in concentrations of 100 ppb, 250 ppb, and 500 ppb. All these standards will have internal standards of 250 ppb. In order to run the standard curve, the standards, internal standards and surrogate standards are added to water in the following manner:

Conc.	Standard (50 ng/ul)	Internal Standard (250 ng/ul)	Surrogate Standard (250 ng/ul)	Water
100 ppb	10 ul	5 ul	2 ul	5 ml
250 ppb	25 ul	5 ul	5 ul	5 ml
500 ppb	50 ul	5 ul	10 ul	5 ml

Run the standards using "MVOA" for the method file and "MSC" for the root name for the data files.

5.2.4 When the standards have been run, use the Target Editing Program to establish the standard curve:

```
>TED <cr>
     <<<TED-Target and Standard Library Editor>>>
Enter name of library to use: MVOAS <cr>
TED> FL <cr>
     ***Input File List Generator***

Are the files SIM data (N)? <cr>
Enter the file names in response to prompt character (*)
A blank entry or 36 entries terminates this section.

File 1* MSC01 <cr>
Enter concentrations of Target and Standard: 100, 250 <cr>

File 2* MSC02 <cr>
Enter concentrations of Target and Standard: 250, 250 <cr>

File 3* MSC03 <cr>
Enter concentrations of Target and Standard: 500, 250 <cr>

File 4* <cr>

TED> UA <cr>
     ***Update All Internal Standard Curves***

Do you want the baseline over-ride option (N)? <cr>
Use previously generated file list as input (N)? Y <cr>
Show calibration curves (N)? <cr>
Hard copy calibration curves (Y)? N <cr>
Enter up to 15 targets to exclude from update: <cr>
```

The operation is automatic and must be allowed to run to completion (indicated by the appearance of the "TED>" prompt on the CRT). This will take about eight minutes. DO NOT attempt to abort the program even if there has been a mistake made. If a mistake has been made, it must be corrected after the "TED>" prompt returns to the screen.

5.2.5 When the GC run is done, call up the OUT program. Locate the BFB peak; identify a background scan, identify a BFB scan, view the spectrum, "P" to see if the spectrum matches EPA specs and "J" if it does. File the report appropriately. If the spectrum does not meet EPA specs, the mass spec must be returned as per Rocky Flats procedure, and then the BFB must be rerun. When the tuning report is acceptable the daily calibration must be run.

5.3 A daily calibration standard must be run. The standard mixture at a concentration of 100 ppb must be run each time a BFB is run.

5.3.1 Take five ml blank water into the gas tight syringe; add 5 ul internal standard (250 ppb), 5 ul surrogate standard (250 ppb), and 25 ul working standard (50 ppb). Purge and run on the GC/MS as described in Section 6.1.3. After the GC run, the EXTRACT program is run to quantitate the target compounds. If all the targets are within ± 25 percent of the expected value, the remaining samples of unknowns may be run. If not, the standard curve must be run again and the target update program run in order to establish a new standard curve.

6.0 OPERATING INSTRUCTIONS

6.1 PREPARE SAMPLES

6.1.1 Liquid waste samples: introduce 5 ml blank water into a 4 dram glass vial and add .5 ml liquid sample.

OR

6.1.2 Sludge samples: weigh out .5 grams (± .1 grams) of the sample into a 4 dram glass vial. Add 5 ml blank water. Cap the vial and shake the sample to disperse the sample in the water.

6.1.3 Add 5 ul internal standards (250 ppb) and 5 ul surrogate standards (250 ppb) through the valve.

6.1.3 Purge the sample for 15 minutes at a flow rate of 60 ml/min. (± 5 ml/min).

6.1.4 Remove the trap from the purging apparatus and mark the trap with tape which identifies the trap, which sample was purged, the weight of the sample, the flow rate, and length of time purged.

6.1.5 Install the trap in the Tekmar Liquid Samples Concentrator. The purge and trap is set:

purge 0 min
desorb 4 min
bake 17 min

toggle XI
auto hold step = hold

purge ready lit

drain=off
trace=on
power=on

auto=27
SP1=35
SP2=25
SP3=175
SP4=180
SP5=225
T1=27
T2=43
T3=128

purge press gage=30 psi

start button

desorb ready/desorb preheat--toggle switch=auto

bake toggle=auto

green power switch=on

switch indicating last sample, not applicable here

auto/hold toggle=hold

6.1.6 The GC is run on METHOD 1:

6.1.7 Prepare all the blanks, samples, standards and controls in the same manner.

6.2 PREPARE THE BATCH, IDENTIFY AND QUANTITATE THE TARGET COMPOUND METHOD.

6.2.1 >RUN $BATEDT

enter method file
enter # of samples in run
enter name

6.2.2 >ACQ

name method file: _____.BAT

6.3 START THE RUN

6.4 SAMPLE IS SEPARATED BY GAS CHROMATOGRAPHY AND ANALYZED BY MASS SPECTROMETRY. COMPUTER SOFTWARE AUTOMATIC.

The mass spectrometer has areas of high voltage.

7.0 CALCULATIONS

7.1 Run EXTRACT to get quantitative data.

7.2 If there is a dilution factor, figure the targets and surrogates separately.

8.0 RECORDS

8.1 Compile data sheet on the IBM.

8.2 File the BFB report and the standard with percent accuracy report.

8.3 Record the results and/or the data file in the log book.

9.0 SHUTDOWN

9.1 When the results have all been reported, the data is to be transferred to magnetic tape for long-term storage. Follow the Rocky Flats procedure to transfer the data to the 9-track tape.

9.2 When the data has been successfully transferred, delete the data from the hard disk. If a new standard curve has been generated, delete the data files from the previous standard curve.

10.0 REFERENCES

1. EPA Methods

2. Tekmar operator's manual

3. Extrel operator's manual

4. Varian 3400 operator's manual

SECTION 2.0 - RFP AQUEOUS AND SLUDGE VOC ANALYSIS

Seven aqueous waste samples and one sludge sample were analyzed for volatile and semi-volatile constituents. The samples were prepared as per EPA protocols SW 5030 (purge and trap for volatile organics) and SW 3520 (continuous liquid extraction for semi-volatile organics). The extraction of the liquids was performed on only 75 ml. of sample, thus raising the detection limits which were established for extraction of one liter samples. The samples were then analyzed according to SW 8240 and SW 8270. The detection limits are listed on each of the attached report sheets.

The seven aqueous waste samples were taken from holding tanks in Buildings 371, 559, 707, 776 and 779. Aqueous waste from these buildings and tanks are transported via pipe to Building 374, where the waste is processed to inorganic sludges (shipping content code RF 111, IDCs 803 and 807). The single sludge sample came from the inorganic sludge process in Building 774, (shipping content code RF 111, IDC 800). More information on these buildings and processes is provided in Section 3.0 of the Waste Analysis Plan.

Original report sheets for the VOC analytical results are provided in this section. Each of the report sheets correspond to the samples listed below. Samples #1-7 are for IDCs 803 and 807. Sample #8 is for IDC 800.

1. Sample: from Building 374, tank 717
2. Sample: from Building 374, tank 718

Samples 1 & 2 were taken from tanks that receive Building 371 waste. These holding tanks (717 and 718) are fed via process drain aqueous wastes from Building 371. The wastes from these tanks are further processed in Building 374 to inorganic sludges, content code RFP 111.

3. Sample: Weston #17330, Building 528, tanks T1&2
4. Sample: from Building 559, tanks T1&2

Samples 3 & 4 were taken from tanks T1 & 2 which are temporary holding points for process waste from Building 559. Building 528, which a waste pit, houses tanks T1 & 2. The wastes from these tanks are pumped to Building 374 and further processed to inorganic sludges, content code RFP 111.

5. Sample: from Building 707, east and west tanks

Sample 5 was taken from tanks that receive Building 707 waste. These holding tanks (east and west) are fed via process drain aqueous wastes from Building 707. Building 731 houses the east and west tanks. The tanks are used alternatively; one receives waste while the other is pumping waste to Building 374 where it is processed to inorganic sludges, content code RFP 111.

6. Sample: from Building 779, tanks 2A&B

Sample 6 was taken from tanks that receive Building 779 waste. These holding tanks (2A&B) are fed via process drain aqueous wastes from Building 779. Tanks 2A & B are actually housed in Building 776. The wastes from these tanks are pumped to Building 374 and further processed to inorganic sludges, content code RFP 111.

7. Sample: from Building 776, tanks 1A&B

Sample 7 was taken from tanks that receive Building 776 waste. These holding tanks (1A&B) are fed via process drain aqueous wastes from Building 776. Tanks 1A&B, and 2A&B (listed in sample 6) are all housed in Building 776. Tanks 1A&B overflow to each other, tanks 2A&B over flow to each other, and tanks 1A and 2A overflow to each other. The wastes from these tanks are pumped to Building 374 and further processed to inorganic sludges, content code RFP 111.

8. Sample: Weston #09340, sludge sample from Building 774, T207C.

Sample 8 was taken from an inorganic sludge sample processed in Building 774. Building 774 primarily processes aqueous waste from Building 371 into inorganic sludges, content code RFP 111.

VOLATILE ORGANIC ANALYSES

IDCS 803, 807

VOLATILE ORGANIC REPORT SHEET

NO. 1

Sample: from Bldg. 374, tank 717
Sample type: liquid waste from process waste tanks
Sample date: 11/25/87

Report date: 11/30/87

ANALYSIS

Methylene Chloride	1258	
Acetone	397	
Carbon Disulfide	20	U
1,1-Dichloroethene	20	U
1,1-Dichloroethane	20	U
1,2-Dichloroethene (total)	20	U
Chloroform	20	U
1,2-Dichloroethane	20	U
2-Butanone	40	U
1,1,1-Trichloroethane	20	U
Carbon Tetrachloride	4736	
Vinyl Acetate	20	U
Bromodichloromethane	20	U
1,2-Dichloropropane	20	U
cis-1,3-Dichloropropene	20	U
Trichloroethene	20	U
Dibromochloromethane	20	U
1,1,2-Trichloroethane	20	U
Benzene	20	U
trans-1,3-Dichloropropene	20	U
Bromoform	20	U
4-Methyl-2-Pentanone	40	U
2-Hexanone	40	U
Tetrachloroethene	20	U
1,1,2,2-Tetrachloroethane	20	U
Toluene	70	
Chlorobenzene	20	U
Ethylbenzene	8	J
Styrene	20	U
Xylenes (total)	20	U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMI-VOLATILE ORGANIC REPORT SHEET

NO. 1

Sample: from Bldg. 374, tank 717
Sample type: liquid waste from process waste tanks
Sample date: 11/11/87

Report date: 11/30/87

ANALYSIS

Phenol	100 U
bis(2-Chloroethyl)ether	100 U
2-Chlorophenol	100 U
1,3-Dichlorobenzene	100 U
1,4-Dichlorobenzene	100 U
Benzyl Alcohol	100 U
1,2-Dichlorobenzene	100 U
2-Methylphenol	100 U
bis(2-Chloroisopropyl)Ether	100 U
4-Methylphenol	100 U
N-Nitroso-di-n-Propylamine	100 U
Hexachloroethane	100 U
Nitrobenzene	100 U
Isophorone	100 U
2-Nitophenol	100 U
2,4-Dimethylphenol	100 U
Benzoic Acid	500 U
bis(2-Chloroethoxy)Methane	100 U
2,4-Dichlorophenol	100 U
1,2,4-Trichlorobenzene	100 U
Naphthalene	100 U
4-Chloroaniline	100 U
Hexachlorobutadiene	100 U
4-Chloro-3-Methylphenol	100 U
2-Methylnaphthalene	100 U
Hexachlorocyclopentadiene	100 U
2,4,6-Trichlorophenol	500 U
2,4,5-Trichlorophenol	100 U
2-Chloronaphthalene	100 U
2-Nitroaniline	100 U
Dimethylphthalate	100 U
Acenaphthylene	100 U
3-Nitroaniline	500 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMIVOLATILE ORGANIC REPORT SHEET

NO. 1

Sample: from Bldg. 374, tank 717
Sample type: liquid waste from process waste tanks
Sample date: 11/11/87

Report Date: 11/30/87

ANALYSIS

Acenaphthalene	100 U
2,4-Dinitrophenol	500 U
4-Nitrophenol	500 U
Dibenzofuran	100 U
2,4-Dinitrotoluene	100 U
2,6-Dinitrotoluene	100 U
Diethylphthalate	100 U
4-Chlorophenyl-phenylether	100 U
Fluorene	100 U
4-Nitroaniline	500 U
4,6-Dinitro-2-Methylphenol	500 U
N-Nitrosodiphenylamine (1)	100 U
4-Bromophenyl-phenylether	100 U
Hexachlorobenzene	100 U
Pentachlorophenol	500 U
Phenanthrene	100 U
Anthracene	100 U
Di-n-butylphthalate	100 U
Fluoranthene	100 U
Pyrene	100 U
Butylbenzylphthalate	100 U
3,3'-Dichlorobenzidine	100 U
Benzo(a)anthracene	100 U
bis(2-Ethylhexyl)phthalate	100 U
Chrysene	100 U
Di-n-octylphthalate	100 U
Benzo(b)fluoranthene	100 U
Benzo(k)fluoranthene	100 U
Benzo(a)pyrene	100 U
Indeno(1,2,3-cd)pyrene	100 U
Dibenz(a,h)anthracene	100 U
Benzo(g,h,i)perylene	100 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

VOLATILE ORGANIC REPORT SHEET

NO. 2

Sample: from Bldg. 374, tank 718
Sample type: liquid waste from process waste tanks
Sample date: 11/25/87

Report date: 11/30/87

ANALYSIS

Methylene Chloride	20 U
Acetone	40 U
Carbon Disulfide	20 U
1,1-Dichloroethene	20 U
1,1-Dichloroethane	20 U
1,2-Dichloroethene (total)	20 U
Chloroform	20 U
1,2-Dichloroethane	20 U
2-Butanone	40 U
1,1,1-Trichloroethane	20 U
Carbon Tetrachloride	20 U
Vinyl Acetate	20 U
Bromodichloromethane	20 U
1,2-Dichloropropane	20 U
cic-1,3-Dichloropropene	20 U
Trichloroethene	20 U
Dibromochloromethane	20 U
1,1,2-Trichloroethane	20 U
Benzene	20 U
trans-1,3-Dichloropropene	20 U
Bromoform	20 U
4-Methyl-2-Pentanone	40 U
2-Hexanone	40 U
Tetrachloroethene	20 U
1,1,2,2-Tetrachloroethane	20 U
Toluene	20 U
Chlorobenzene	20 U
Ethylbenzene	91974
Styrene	20 U
Xylenes (total)	20 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMI-VOLATILE ORGANIC REPORT SHEET

NO. 2

Sample: from Bldg. 374, tank 718
Sample type: liquid waste from process waste tanks
Sample date: 11/18/87

Report date: 11/30/87

ANALYSIS

Phenol	100 U
bis(2-Chloroethyl)ether	100 U
2-Chlorophenol	100 U
1,3-Dichlorobenzene	100 U
1,4-Dichlorobenzene	100 U
Benzyl Alcohol	100 U
1,2-Dichlorobenzene	100 U
2-Methylphenol	100 U
bis(2-Chloroisopropyl)Ether	100 U
4-Methylphenol	100 U
N-Nitroso-di-n-Propylamine	100 U
Hexachloroethane	100 U
Nitrobenzene	100 U
Isophorone	100 U
2-Nitophenol	100 U
2,4-Dimethylphenol	100 U
Benzoic Acid	500 U
bis(2-Chloroethoxy)Methane	100 U
2,4-Dichlorophenol	100 U
1,2,4-Trichlorobenzene	100 U
Naphthalene	100 U
4-Chloroaniline	100 U
Hexachlorobutadiene	100 U
4-Chloro-3-Methylphenol	100 U
2-Methylnaphthalene	100 U
Hexachlorocyclopentadiene	100 U
2,4,6-Trichlorophenol	500 U
2,4,5-Trichlorophenol	100 U
2-Chloronaphthalene	100 U
2-Nitroaniline	100 U
Dimethylphthalate	100 U
Acenaphthylene	100 U
3-Nitroaniline	500 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMIVOLATILE ORGANIC REPORT SHEET

NO. 2
Sample: from Bldg. 374, tank 718
Sample type: liquid waste from process waste tanks
Sample date: 11/18/87

Report Date: 11/30/87

ANALYSIS

Acenaphthalene	100 U
2,4-Dinitrophenol	500 U
4-Nitrophenol	500 U
Dibenzpfuran	100 U
2,4-Dinitrotoluene	100 U
2,6-Dinitrotoluene	100 U
Diethylphthalate	100 U
4-Chlorophenyl-phenylether	100 U
Fluorene	100 U
4-Nitroaniline	500 U
4,6-Dinitro-2-Methylphenol	500 U
N-Nitrosodiphenylamine (1)	100 U
4-Bromophenyl-phenylether	100 U
Hexachlorobenzene	100 U
Pentachlorophenol	500 U
Phenanthrene	100 U
Anthracene	100 U
Di-n-butylphthalate	100 U
Fluoranthene	100 U
Pyrene	100 U
Butylbenzylphthalate	100 U
3,3'-Dichlorobenzidine	100 U
Benzo(a)anthracene	100 U
bis(2-Ethylhexyl)phthalate	100 U
Chrysene	100 U
Di-n-octylphthalate	100 U
Benzo(b)fluoranthene	100 U
Benzo(k)fluoranthene	100 U
Benzo(a)pyrene	100 U
Indeno(1,2,3-cd)pyrene	100 U
Dibenz(a,h)anthracene	100 U
Benzo(g,h,i)perylene	100 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

VOLATILE ORGANIC REPORT SHEET

NO. 3

Sample: Weston #17330
Sample type: aqueous sample from Bldg. 528 T1&2
Sample date: 10/26/87

Report date: 11/20/87

ANALYSIS

Methylene Chloride	20 U
Acetone	40 U
Carbon Disulfide	20 U
1,1-Dichloroethene	20 U
1,1-Dichloroethane	20 U
1,2-Dichloroethene (total)	20 U
Chloroform	20 U
1,2-Dichloroethane	20 U
2-Butanone	40 U
1,1,1-Trichloroethane	20 U
Carbon Tetrachloride	20 U
Vinyl Acetate	20 U
Bromodichloromethane	20 U
1,2-Dichloropropane	20 U
cic-1,3-Dichloropropene	20 U
Trichloroethene	20 U
Dibromochloromethane	20 U
1,1,2-Trichloroethane	20 U
Benzene	20 U
trans-1,3-Dichloropropene	20 U
Bromoform	20 U
4-Methyl-2-Pentanone	40 U
2-Hexanone	40 U
Tetrachloroethene	20 U
1,1,2,2-Tetrachloroethane	20 U
Toluene	270
Chlorobenzene	20 U
Ethylbenzene	121
Styrene	20 U
Xylenes (total)	20 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMI-VOLATILE ORGANIC REPORT SHEET

NO. 3

Sample: Weston #17330
Sample type: aqueous sample from Bldg. 528 T1&2
Sample date: 10/26/87

Report date: 11/20/87

ANALYSIS

Phenol	100 U
bis(2-Chloroethyl)ether	100 U
2-Chlorophenol	100 U
1,3-Dichlorobenzene	100 U
1,4-Dichlorobenzene	100 U
Benzyl Alcohol	100 U
1,2-Dichlorobenzene	100 U
2-Methylphenol	100 U
bis(2-Chloroisopropyl)Ether	100 U
4-Methylphenol	100 U
N-Nitroso-di-n-Propylamine	100 U
Hexachloroethane	100 U
Nitrobenzene	100 U
Isophorone	100 U
2-Nitophenol	100 U
2,4-Dimethylphenol	100 U
Benzoic Acid	500 U
bis(2-Chloroethoxy)Methane	100 U
2,4-Dichlorophenol	100 U
1,2,4-Trichlorobenzene	100 U
Naphthalene	100 U
4-Chloroaniline	100 U
Hexachlorobutadiene	100 U
4-Chloro-3-Methylphenol	100 U
2-Methylnaphthalene	100 U
Hexachlorocyclopentadiene	100 U
2,4,6-Trichlorophenol	500 U
2,4,5-Trichlorophenol	100 U
2-Chloronaphthalene	100 U
2-Nitroaniline	100 U
Dimethylphthalate	100 U
Acenaphthylene	100 U
3-Nitroaniline	500 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L

SEMIVOLATILE ORGANIC REPORT SHEET

NO. 3

Sample: Weston #17330
Sample type: aqueous sample from Bldg. 528 T1&2
Sample date: 10/26/87

Report Date: 11/20/87

ANALYSIS

Acenaphthalene	100 U
2,4-Dinitrophenol	500 U
4-Nitrophenol	500 U
Dibenzofuran	100 U
2,4-Dinitrotoluene	100 U
2,6-Dinitrotoluene	100 U
Diethylphthalate	100 U
4-Chlorophenyl-phenylether	100 U
Fluorene	100 U
4-Nitroaniline	500 U
4,6-Dinitro-2-Methylphenol	500 U
N-Nitrosodiphenylamine (1)	100 U
4-Bromophenyl-phenylether	100 U
Hexachlorobenzene	100 U
Pentachlorophenol	500 U
Phenanthrene	100 U
Anthracene	100 U
Di-n-butylphthalate	100 U
Fluoranthene	100 U
Pyrene	100 U
Butylbenzylphthalate	100 U
3,3'-Dichlorobenzidine	100 U
Benzo(a)anthracene	100 U
bis(2-Ethylhexyl)phthalate	100 U
Chrysene	100 U
Di-n-octylphthalate	100 U
Benzo(b)fluoranthene	100 U
Benzo(k)fluoranthene	100 U
Benzo(a)pyrene	100 U
Indeno(1,2,3-cd)pyrene	100 U
Dibenz(a,h)anthracene	100 U
Benzo(g,h,i)perylene	100 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMI-VOLATILE ORGANIC REPORT SHEET

NO. 4

Sample: from Bldg. 559, tanks T1 & 2
Sample type: liquid waste from process waste tanks
Sample date: 11/11/87

Report date: 11/30/87

ANALYSIS

Phenol	100 U
bis(2-Chloroethyl)ether	100 U
2-Chlorophenol	100 U
1,3-Dichlorobenzene	100 U
1,4-Dichlorobenzene	100 U
Benzyl Alcohol	100 U
1,2-Dichlorobenzene	100 U
2-Methylphenol	100 U
bis(2-Chloroisopropyl)Ether	100 U
4-Methylphenol	100 U
N-Nitroso-di-n-Propylamine	100 U
Hexachloroethane	100 U
Nitrobenzene	100 U
Isophorone	100 U
2-Nitophenol	100 U
2,4-Dimethylphenol	100 U
Benzoic Acid	500 U
bis(2-Chloroethoxy)Methane	100 U
2,4-Dichlorophenol	100 U
1,2,4-Trichlorobenzene	100 U
Naphthalene	100 U
4-Chloroaniline	100 U
Hexachlorobutadiene	100 U
4-Chloro-3-Methylphenol	100 U
2-Methylnaphthalene	100 U
Hexachlorocyclopentadiene	100 U
2,4,6-Trichlorophenol	500 U
2,4,5-Trichlorophenol	100 U
2-Chloronaphthalene	100 U
2-Nitroaniline	100 U
Dimethylphthalate	100 U
Acenaphthylene	100 U
3-Nitroaniline	500 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L

SEMIVOLATILE ORGANIC REPORT SHEET

NO. 4

Sample: from Bldg. 559, tanks T1 & 2
Sample type: liquid waste from process waste tanks
Sample date: 11/11/87

Report Date: 11/30/87

ANALYSIS

Acenaphthalene	100 U
2,4-Dinitrophenol	500 U
4-Nitrophenol	500 U
Dibenzpfuran	100 U
2,4-Dinitrotoluene	100 U
2,6-Dinitrotoluene	100 U
Diethylphthalate	100 U
4-Chlorophenyl-phenylether	100 U
Fluorene	100 U
4-Nitroaniline	500 U
4,6-Dinitro-2-Methylphenol	500 U
N-Nitrosodiphenylamine (1)	100 U
4-Bromophenyl-phenylether	100 U
Hexachlorobenzene	100 U
Pentachlorophenol	500 U
Phenanthrene	100 U
Anthracene	100 U
Di-n-butylphthalate	100 U
Fluoranthene	100 U
Pyrene	100 U
Butylbenzylphthalate	100 U
3,3'-Dichlorobenzidine	100 U
Benzo(a)anthracene	100 U
bis(2-Ethylhexyl)phthalate	100 U
Chrysene	100 U
Di-n-octylphthalate	100 U
Benzo(b)fluoranthene	100 U
Benzo(k)fluoranthene	100 U
Benzo(a)pyrene	100 U
Indeno(1,2,3-cd)pyrene	100 U
Dibenz(a,h)anthracene	100 U
Benzo(g,h,i)perylene	100 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

VOLATILE ORGANIC REPORT SHEET

NO. 5

Sample: from Blg. 707, east and west tanks
Sample type: liquid waste from process waste tanks
Sample date: 11/11/87

Report date: 11/30/87

ANALYSIS

Methylene Chloride	4628	
Acetone	10614	
Carbon Disulfide	20	U
1,1-Dichloroethene	18	J
1,1-Dichloroethane	20	U
1,2-Dichloroethene (total)	19	J
Chloroform	20	U
1,2-Dichloroethane	20	U
2-Butanone	40	U
1,1,1-Trichloroethane	48	
Carbon Tetrachloride	20518	
Vinyl Acetate	20	U
Bromodichloromethane	20	U
1,2-Dichloropropane	20	U
cic-1,3-Dichloropropene	20	U
Trichloroethene	20	U
Dibromochloromethane	20	U
1,1,2-Trichloroethane	20	U
Benzene	20	U
trans-1,3-Dichloropropene	20	U
Bromoform	20	U
4-Methyl-2-Pentanone	40	U
2-Hexanone	40	U
Tetrachloroethene	20	U
1,1,2,2-Tetrachloroethane	20	U
Toluene	20	U
Chlorobenzene	20	U
Ethylbenzene	20	U
Styrene	20	U
Xylenes (total)	20	U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMI-VOLATILE ORGANIC REPORT SHEET

NO. 5

Sample: from Bldg. 707, east and west tanks
Sample type: liquid waste from process waste tanks
Sample date: 11/11/87

Report date: 11/30/87

ANALYSIS

Phenol	100 U
bis(2-Chloroethyl)ether	100 U
2-Chlorophenol	100 U
1,3-Dichlorobenzene	100 U
1,4-Dichlorobenzene	100 U
Benzyl Alcohol	100 U
1,2-Dichlorobenzene	100 U
2-Methylphenol	100 U
bis(2-Chloroisopropyl)Ether	100 U
4-Methylphenol	100 U
N-Nitroso-di-n-Propylamine	100 U
Hexachloroethane	100 U
Nitrobenzene	100 U
Isophorone	100 U
2-Nitophenol	100 U
2,4-Dimethylphenol	100 U
Benzoic Acid	500 U
bis(2-Chloroethoxy)Methane	100 U
2,4-Dichlorophenol	100 U
1,2,4-Trichlorobenzene	100 U
Naphthalene	100 U
4-Chloroaniline	100 U
Hexachlorobutadiene	100 U
4-Chloro-3-Methylphenol	100 U
2-Methylnaphthalene	100 U
Hexachlorocyclopentadiene	100 U
2,4,6-Trichlorophenol	500 U
2,4,5-Trichlorophenol	100 U
2-Chloronaphthalene	100 U
2-Nitroaniline	100 U
Dimethylphthalate	100 U
Acenaphthylene	100 U
3-Nitroaniline	500 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMIVOLATILE ORGANIC REPORT SHEET

NO. 5

Sample: from Bldg. 707, east and west tanks
Sample type: liquid waste from process waste tanks
Sample date: 11/11/87

Report Date: 11/30/87

ANALYSIS

Acenaphthalene	100 U
2,4-Dinitrophenol	500 U
4-Nitrophenol	500 U
Dibenzpfuran	100 U
2,4-Dinitrotoluene	100 U
2,6-Dinitrotoluene	100 U
Diethylphthalate	100 U
4-Chlorophenyl-phenylether	100 U
Fluorene	100 U
4-Nitroaniline	500 U
4,6-Dinitro-2-Methylphenol	500 U
N-Nitrosodiphenylamine (1)	100 U
4-Bromophenyl-phenylether	100 U
Hexachlorobenzene	100 U
Pentachlorophenol	500 U
Phenanthrene	100 U
Anthracene	100 U
Di-n-butylphthalate	100 U
Fluoranthene	100 U
Pyrene	100 U
Butylbenzylphthalate	100 U
3,3'-Dichlorobenzidine	100 U
Benzo(a)anthracene	100 U
bis(2-Ethylhexyl)phthalate	100 U
Chrysene	100 U
Di-n-octylphthalate	100 U
Benzo(b)fluoranthene	100 U
Benzo(k)fluoranthene	100 U
Benzo(a)pyrene	100 U
Indeno(1,2,3-cd)pyrene	100 U
Dibenz(a,h)anthracene	100 U
Benzo(g,h,i)perylene	100 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

VOLATILE ORGANIC REPORT SHEET

NO. 6

Sample: from Bldg. 779, tanks 2A & B
Sample type: liquid waste from process waste tanks
Sample date: 11/11/87

Report date: 11/30/87

ANALYSIS

Methylene Chloride	50080	
Acetone	5755	
Carbon Disulfide	20	U
1,1-Dichloroethene	20	U
1,1-Dichloroethane	20	U
1,2-Dichloroethene (total)	72	
Chloroform	38	
1,2-Dichloroethane	20	U
2-Butanone	40	U
1,1,1-Trichloroethane	196	
Carbon Tetrachloride	33	
Vinyl Acetate	39840	
Bromodichloromethane	20	U
1,2-Dichloropropane	20	U
cic-1,3-Dichloropropene	20	U
Trichloroethene	34	
Dibromochloromethane	20	U
1,1,2-Trichloroethane	20	U
Benzene	9	J
trans-1,3-Dichloropropene	20	U
Bromoform	20	U
4-Methyl-2-Pentanone	40	U
2-Hexanone	40	U
Tetrachloroethene	20	U
1,1,2,2-Tetrachloroethane	20	U
Toluene	643	
Chlorobenzene	57	
Ethylbenzene	31	
Styrene	20	U
Xylenes (total)	20	U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMI-VOLATILE ORGANIC REPORT SHEET

NO. 6

Sample: from Bldg. 779, tanks 2A & B
Sample type: liquid waste from process waste tanks
Sample date: 11/11/87

Report date: 11/30/87

ANALYSIS

Phenol	100 U
bis(2-Chloroethyl)ether	100 U
2-Chlorophenol	100 U
1,3-Dichlorobenzene	100 U
1,4-Dichlorobenzene	100 U
Benzyl Alcohol	100 U
1,2-Dichlorobenzene	100 U
2-Methylphenol	100 U
bis(2-Chloroisopropyl)Ether	100 U
4-Methylphenol	100 U
N-Nitroso-di-n-Propylamine	100 U
Hexachloroethane	100 U
Nitrobenzene	100 U
Isophorone	100 U
2-Nitophenol	100 U
2,4-Dimethylphenol	100 U
Benzoic Acid	500 U
bis(2-Chloroethoxy)Methane	100 U
2,4-Dichlorophenol	100 U
1,2,4-Trichlorobenzene	100 U
Naphthalene	100 U
4-Chloroaniline	100 U
Hexachlorobutadiene	100 U
4-Chloro-3-Methylphenol	100 U
2-Methylnaphthalene	100 U
Hexachlorocyclopentadiene	100 U
2,4,6-Trichlorophenol	500 U
2,4,5-Trichlorophenol	100 U
2-Chloronaphthalene	100 U
2-Nitroaniline	100 U
Dimethylphthalate	100 U
Acenaphthylene	100 U
3-Nitroaniline	500 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMIVOLATILE ORGANIC REPORT SHEET

NO. 6

Sample: from Bldg. 779, tanks 2A & B
Sample type: liquid waste from process waste tanks
Sample date: 11/11/87

Report Date: 11/30/87

ANALYSIS

Acenaphthalene	100 U
2,4-Dinitrophenol	500 U
4-Nitrophenol	500 U
Dibenzofuran	100 U
2,4-Dinitrotoluene	100 U
2,6-Dinitrotoluene	100 U
Diethylphthalate	100 U
4-Chlorophenyl-phenylether	100 U
Fluorene	100 U
4-Nitroaniline	500 U
4,6-Dinitro-2-Methylphenol	500 U
N-Nitrosodiphenylamine (1)	100 U
4-Bromophenyl-phenylether	100 U
Hexachlorobenzene	100 U
Pentachlorophenol	500 U
Phenanthrene	100 U
Anthracene	100 U
Di-n-butylphthalate	100 U
Fluoranthene	100 U
Pyrene	100 U
Butylbenzylphthalate	100 U
3,3'-Dichlorobenzidine	100 U
Benzo(a)anthracene	100 U
bis(2-Ethylhexyl)phthalate	100 U
Chrysene	100 U
Di-n-octylphthalate	100 U
Benzo(b)fluoranthene	100 U
Benzo(k)fluoranthene	100 U
Benzo(a)pyrene	100 U
Indeno(1,2,3-cd)pyrene	100 U
Dibenz(a,h)anthracene	100 U
Benzo(g,h,i)perylene	100 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

VOLATILE ORGANIC REPORT SHEET

NO. 7

Sample: from Bldg. 776, tanks 1A & B
Saple type: liquid waste from process waste tanks
Sample date: tanks empty; to be resampled at another date

Report date: 11/30/87

ANALYSIS

Methylene Chloride	20 U
Acetone	40 U
Carbon Disulfide	20 U
1,1-Dichloroethene	20 U
1,1-Dichloroethane	20 U
1,2-Dichloroethene (total)	20 U
Chloroform	20 U
1,2-Dichloroethane	20 U
2-Butanone	40 U
1,1,1-Trichloroethane	20 U
Carbon Tetrachloride	20 U
Vinyl Acetate	20 U
Bromodichloromethane	20 U
1,2-Dichloropropane	20 U
cic-1,3-Dichloropropene	20 U
Trichloroethene	20 U
Dibromochloromethane	20 U
1,1,2-Trichloroethane	20 U
Benzene	20 U
trans-1,3-Dichloropropene	20 U
Bromoform	20 U
4-Methyl-2-Pentanone	40 U
2-Hexanone	40 U
Tetrachloroethene	20 U
1,1,2,2-Tetrachloroethane	20 U
Toluene	20 U
Chlorobenzene	20 U
Ethylbenzene	20 U
Styrene	20 U
Xylenes (total)	20 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMI-VOLATILE ORGANIC REPORT SHEET

NO. 7

Sample: from Bldg. 776, tanks 1A & B
Sample type: liquid waste from process waste tanks
Sample date: 11/18/87

Report date: 11/30/87

ANALYSIS

Phenol	100 U
bis(2-Chloroethyl)ether	100 U
2-Chlorophenol	100 U
1,3-Dichlorobenzene	100 U
1,4-Dichlorobenzene	100 U
Benzyl Alcohol	100 U
1,2-Dichlorobenzene	100 U
2-Methylphenol	100 U
bis(2-Chloroisopropyl)Ether	100 U
4-Methylphenol	100 U
N-Nitroso-di-n-Propylamine	100 U
Hexachloroethane	100 U
Nitrobenzene	100 U
Isophorone	100 U
2-Nitophenol	100 U
2,4-Dimethylphenol	100 U
Benzoic Acid	500 U
bis(2-Chloroethoxy)Methane	100 U
2,4-Dichlorophenol	100 U
1,2,4-Trichlorobenzene	100 U
Naphthalene	100 U
4-Chloroaniline	100 U
Hexachlorobutadiene	100 U
4-Chloro-3-Methylphenol	100 U
2-Methylnaphthalene	100 U
Hexachlorocyclopentadiene	100 U
2,4,6-Trichlorophenol	500 U
2,4,5-Trichlorophenol	100 U
2-Chloronaphthalene	100 U
2-Nitroaniline	100 U
Dimethylphthalate	100 U
Acenaphthylene	100 U
3-Nitroaniline	500 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMIVOLATILE ORGANIC REPORT SHEET

NO. 7

Sample: from Bldg. 776, tanks 1A & B
Sample type: liquid waste from process waste tanks
Sample date: 11/18/87

Report date: 11/30/87

ANALYSIS

Acenaphthalene	100 U
2,4-Dinitrophenol	500 U
4-Nitrophenol	500 U
Dibenzofuran	100 U
2,4-Dinitrotoluene	100 U
2,6-Dinitrotoluene	100 U
Diethylphthalate	100 U
4-Chlorophenyl-phenylether	100 U
Fluorene	100 U
4-Nitroaniline	500 U
4,6-Dinitro-2-Methylphenol	500 U
N-Nitrosodiphenylamine (1)	100 U
4-Bromophenyl-phenylether	100 U
Hexachlorobenzene	100 U
Pentachlorophenol	500 U
Phenanthrene	100 U
Anthracene	100 U
Di-n-butylphthalate	100 U
Fluoranthene	100 U
Pyrene	100 U
Butylbenzylphthalate	100 U
3,3'-Dichlorobenzidine	100 U
Benzo(a)anthracene	100 U
bis(2-Ethylhexyl)phthalate	100 U
Chrysene	100 U
Di-n-octylphthalate	100 U
Benzo(b)fluoranthene	100 U
Benzo(k)fluoranthene	100 U
Benzo(a)pyrene	100 U
Indeno(1,2,3-cd)pyrene	100 U
Dibenz(a,h)anthracene	100 U
Benzo(g,h,i)perylene	100 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

VOLATILE ORGANICS ANALYSIS

IDC 800

VOLATILE ORGANIC REPORT SHEET

NO. 8

Sample: Weston #09340
Sample type: sludge from T207C
Saple date: 10/26/87

Report date: 11/20/87

ANALYSIS

Methylene Chloride	20 U
Acetone	40 U
Carbon Disulfide	20 U
1,1-Dichloroethene	20 U
1,1-Dichloroethane	20 U
1,2-Dichloroethene (total)	20 U
Chloroform	20 U
1,2-Dichloroethane	20 U
2-Butanone	40 U
1,1,1-Trichloroethane	20 U
Carbon Tetrachloride	20 U
Vinyl Acetate	20 U
Bromodichloromethane	20 U
1,2-Dichloropropane	20 U
cic-1,3-Dichloropropene	20 U
Trichloroethene	20 U
Dibromochloromethane	20 U
1,1,2-Trichloroethane	20 U
Benzene	20 U
trans-1,3-Dichloropropene	20 U
Bromoform	20 U
4-Methyl-2-Pentanone	40 U
2-Hexanone	40 U
Tetrachloroethene	20 U
1,1,2,2-Tetrachloroethane	20 U
Toluene	20 U
Chlorobenzene	20 U
Ethylbenzene	20 U
Styrene	20 U
Xylenes (total)	20 U

U=analyzed, not detected
J=present below detection limit

All results in ug/L.

SEMI-VOLATILE ORGANIC REPORT SHEET

NO. 8

Sample: Weston #09340
Sample type: sludge sample from T207C
Sample date: 10/26/87

Report date: 11/20/87

ANALYSIS

Phenol	330 U
bis(2-Chloroethyl)ether	330 U
2-Chlorophenol	330 U
1,3-Dichlorobenzene	330 U
1,4-Dichlorobenzene	330 U
Benzyl Alcohol	330 U
1,2-Dichlorobenzene	330 U
2-Methylphenol	330 U
bis(2-Chloroisopropyl)Ether	330 U
4-Methylphenol	330 U
N-Nitroso-di-n-Propylamine	330 U
Hexachloroethane	330 U
Nitrobenzene	330 U
Isophorone	330 U
2-Nitophenol	330 U
2,4-Dimethylphenol	330 U
Benzoic Acid	1600 U
bis(2-Chloroethoxy)Methane	330 U
2,4-Dichlorophenol	330 U
1,2,4-Trichlorobenzene	330 U
Naphthalene	240 J
4-Chloroaniline	330 U
Hexachlorobutadiene	330 U
4-Chloro-3-Methylphenol	330 U
2-Methylnaphthalene	150 J
Hexachlorocyclopentadiene	330 U
2,4,6-Trichlorophenol	1600 U
2,4,5-Trichlorophenol	330 U
2-Chloronaphthalene	330 U
2-Nitroaniline	1600 U
Dimethylphthalate	330 U
Acenaphthylene	330 U
3-Nitroaniline	1600 U

U=analyzed, not detected
J=present below detection limit

All results in ug/Kg

SEMIVOLATILE ORGANIC REPORT SHEET

NO. 8

Sample: Weston #09340
Sample type: sluge sample from T207C
Sample date: 10/26/87

Report Date: 11/20/87

ANALYSIS

Acenaphthalene	330	U
2,4-Dinitrophenol	1600	U
4-Nitrophenol	1600	U
Dibenzpfuran	330	U
2,4-Dinitrotoluene	330	U
2,6-Dinitrotoluene	330	U
Diethylphthalate	210	J
4-Chlorophenyl-phenylether	330	U
Fluorene	330	U
4-Nitroaniline	1600	U
4,6-Dinitro-2-Methylphenol	1600	U
N-Nitrosodiphenylamine (1)	330	U
4-Bromophenyl-phenylether	330	U
Hexachlorobenzene	330	U
Pentachlorophenol	1600	U
Phenanthrene	330	U
Anthracene	330	U
Di-n-butylphthalate	330	U
Fluoranthene	330	U
Pyrene	1050	
Butylbenzylphthalate	330	U
3,3'-Dichlorobenzidine	330	U
Benzo(a)anthracene	2610	
bis(2-Ethylhexyl)phthalate	19440	
Chrysene	3090	
Di-n-octylphthalate	330	U
Benzo(b)fluoranthene	6690	
Benzo(k)fluoranthene	7260	
Benzo(a)pyrene	9720	
Indeno(1,2,3-cd)pyrene	330	U
Dibenz(a,h)anthracene	330	U
Benzo(g,h,i)perylene	330	U

U=analyzed, not detected
J=present below detection limit

All resuits in ug/Kg.

SECTION 3.0 - SLUDGE FILTER CAKE SAMPLING AND ANALYSIS AT LOS ALAMOS, 1988

In 1988, a sample of vacuum filter sludge was collected by LANL personnel from the TA-50 Wastewater Treatment Plant. The samples were packaged on ice and shipped by ground-based courier to the NUS Corporation Laboratory in Pittsburgh, Pennsylvania. Formal chain of custody procedures were not followed. Approximately one week elapsed between sample collection and sample arrival at the laboratory. The samples were analyzed for volatile organics, pesticides, and bases/neutrals/acids (BNAs) utilizing EPA recognized methods. The analytical results describing the sample are not accompanied by any QA/QC data, and should be at best considered qualitative.

LOS ALAMOS NATIONAL LABORATORY
SHIPPING CONTENT CODE 111B
IDC 003[a]

DETERMINATION	RESULTS	UNITS
Sample Identification: Filter Cake TA-SO-1 88.75037		
Volatiles-PP in Sediment		
Acrolein	<100	ug/kg
Acrylonitrile	<100	ug/kg
Benzene	<5	ug/kg
Bromoform	<5	ug/kg
Carbon Tetrachloride	<5	ug/kg
Chlorobenzene	<5	ug/kg
Chlorodibromomethane	<5	ug/kg
Chloroethane	<10	ug/kg
2-Chloroethylvinyl Ether	<10	ug/kg
Chloroform	<5	ug/kg
Dichlorobromomethane	<5	ug/kg
1,1-Dichloroethane	<5	ug/kg
1,2-Dichloroethane	<5	ug/kg
1,1-Dichloroethylene	<5	ug/kg
1,2-Dichloropropane	<5	ug/kg
1,3-Dichloropropylene	<5	ug/kg
Ethylbenzene	<5	ug/kg
Methyl Bromide	<10	ug/kg
Methyl Chloride	<10	ug/kg
Methylene Chloride	9	ug/kg
1,1,2,2-Tetrachloroethane	<5	ug/kg
Tetrachloroethylene (Perchloro)	<5	ug/kg
Toluene	<5	ug/kg
1,2-Dichloroethylene (total)	<5	ug/kg
1,1,1-Trichloroethane	<5	ug/kg
1,1,2-Trichloroethane	<5	ug/kg
Trichloroethylene	<5	ug/kg
Trichlorofluoromethane	<10	ug/kg
Vinyl Chloride	<10	ug/kg
Acids-PP In Sediment		
2-Chlorophenol	<1.2	mg/kg
2,4-Dichlorophenol	<1.2	mg/kg

[a]Copied from NUS Corporation Report for Work Order Number 5583, NUS Sample Number 18060069, NUS Client Number 983501, 5350 Campbells Run Road, Pittsburgh, PA 15205.

LOS ALAMOS NATIONAL LABORATORY
SHIPPING CONTENT CODE 111B
IDC 003
(CONTINUED)

DETERMINATION	RESULTS	UNITS
Sample Identification: Filter Cake TA-SO-1 88.75037 (continued)		
2,4-Dimethylphenol	<1.2	mg/kg
4,6-Dinitro-o-cresol	<6.0	mg/kg
2,4-Dinitrophenol	<6.0	mg/kg
2-Nitrophenol	<1.2	mg/kg
4-Nitrophenol	<6.0	mg/kg
p-Chloro-m-cresol	<1.2	mg/kg
Pentachlorophenol	<6.0	mg/kg
Phenol	<1.2	mg/kg
2,4,6-Trichlorophenol	<1.2	mg/kg
Base Neutrals-PP In Sediment		
Acenaphthene	<1.2	mg/kg
Acenaphthylene	<1.2	mg/kg
Anthracene	<1.2	mg/kg
Benzidine	<6.0	mg/kg
Benzo(a)Anthracene	<1.2	mg/kg
Benzo(a)Pyrene	<1.2	mg/kg
3,4-Benzofluoranthene	<1.2	mg/kg
Benzo(shi)Perylene	<1.2	mg/kg
Benzo(k)Fluoranthene	<1.2	mg/kg
Bis(2-Chloroethoxy) Methane	<1.2	mg/kg
Bis(2-Chloroethyl) Ether	<1.2	mg/kg
Bis(2-Chloroisopropyl) Ether	<1.2	mg/kg
Bis(2-Ethlhexyl) Phthalate	21	mg/kg
4-Bromophenyl Phenyl Ether	<1.2	mg/kg
Butyl Benzyl Phthalate	<1.2	mg/kg
2-Chloronaphthalene	<1.2	mg/kg
4-Chlorophenyl Phenyl Ether	<1.2	mg/kg
Chrysene	<1.2	mg/kg
Dibenzo(a,h) Anthracene	<1.2	mg/kg
1,2-Dichlorobenzene	<1.2	mg/kg
1,3-Dichlorobenzene	<1.2	mg/kg
1,4-Dichlorobenzene	<1.2	mg/kg
3,3'-Dichlorobenzidine	<2.4	mg/kg
Diethyl Phthalate	<1.2	mg/kg
Dimethyl Phthalate	<1.2	mg/kg

LOS ALAMOS NATIONAL LABORATORY
SHIPPING CONTENT CODE 111B
IDC 003
(CONTINUED)

DETERMINATION	RESULTS	UNITS
Sample Identification: Filter Cake TA-SO-1 88.75037 (continued)		
Di-N-Butyl Phthalate	<1.2	mg/kg
2,4-Dinitrotoluene	<1.2	mg/kg
2,6-Dinitrotoluene	<1.2	mg/kg
Di-N-Octyl Phthalate	1.9	mg/kg
1,2-Diphenylhydrazine (Azobz)	<2.4	mg/kg
Fluoranthene	<1.2	mg/kg
Fluorene	<1.2	mg/kg
Hexachlorobenzene	<1.2	mg/kg
Hexachlorobutadiene	<1.2	mg/kg
Hexachlorocyclopentadiene	<1.2	mg/kg
Hexachloroethane	<1.2	mg/kg
Indeno(1,2,3-cd) Pyrene	<1.2	mg/kg
Isophorone	<1.2	mg/kg
Naphthalene	<1.2	mg/kg
Nitrobenzene	<1.2	mg/kg
N-Nitrosodimethylamine	<1.2	mg/kg
N-Nitrosodi-N-Propylamine	<1.2	mg/kg
N-Nitrosodiphenylamine	<1.2	mg/kg
Phenanthrene	<1.2	mg/kg
Pyrene	<1.2	mg/kg
1,2,4-Trichlorobenzene	<1.2	mg/kg
Pesticides/PCBs-PP In Sediment		
Aldrin	<57	ug/kg
alpha BHC	<57	ug/kg
beta BHC	<57	ug/kg
delta BHC	<57	ug/kg
gamma BHC (Lindane)	<57	ug/kg
Chlordane	<570	ug/kg
4-4'DDD	<110	ug/kg
4-4'DDE	<110	ug/kg
4-4'DDT	<110	ug/kg
Dieldrin	<110	ug/kg
Endosulfan I	<57	ug/kg
Endosulfan II	<110	ug/kg
Endosulfan Sulfate	<110	ug/kg
Endrin	<110	ug/kg

LOS ALAMOS NATIONAL LABORATORY
SHIPPING CONTENT CODE 111B
IDC 003
(CONTINUED)

DETERMINATION	RESULTS	UNITS
Sample Identification: Filter Cake TA-SO-1 88.75037 (continued)		
Endrin Aldehyde	<110	ug/kg
Heptachlor	<57	ug/kg
Heptachlor Epoxide	<57	ug/kg
Toxaphene	<1100	ug/kg
PCB-1016	<570	ug/kg
PCB-1221	<570	ug/kg
PCB-1232	<570	ug/kg
PCB-1242	<570	ug/kg
PCB-1248	<570	ug/kg
PCB-1254	1200	ug/kg
PCB-1260	<1100	ug/kg

SECTION 4.0 - SLUDGE FILTER CAKE SAMPLING AND ANALYSIS AT LOS ALAMOS, 1989

In October, 1989, a set of duplicate samples of vacuum filter sludge was collected by LANL personnel from the TA-50 Wastewater Treatment Plant. Immediately following collection, the samples were given to International Technology (IT) Corporation personnel who labeled the sample containers and completed the necessary sample collection documentation.

The first sample set was transferred to an onsite analytical laboratory and analyzed for volatile organic Target Compound List (TCL) compounds and semivolatile TCL compounds utilizing EPA recognized testing procedures. These samples were accompanied by chain of custody documentation and kept refrigerated. The second sample set was transported via overnight courier to the IT Analytical Services Laboratory in Oak Ridge, Tennessee. These samples were accompanied by chain of custody documentation, and were not preserved with ice during shipment. These samples were analyzed for the following:

- Volatile organic TCL compounds by gas chromatography/mass spectroscopy (GC/MS) in accordance with EPA CLP 2/88 Statement of Work.
- Semivolatile TCL compounds by GC/MS in accordance with EPA CLP 2/88 Statement of Work.
- Extraction Procedure (EP) toxicity metals using EPA SW-846, Method 1310.

Trip blanks accompanied each sample set submitted for analysis.

Analytical results characterizing both sample sets are attached.

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

RECEIVED
DEC 19 1989
IT CORP. - ALBUQUERQUE

CERTIFICATE OF ANALYSIS

Attn: Dave Flynn
IT Corporation
5301 Central Ave. N.E.
Suite 700
Albuquerque, NM 87108

Date: December 18, 1989

Page 1 of 23

Job Number: LOS 35645-Corrected

P.O. Number: 301251.02.26

This is the Certificate of Analysis for the following:

Client Project ID:	Los Alamos
Date Received by Lab:	10/12/89
Number of Samples:	Three (3)
Sample type:	Sludge

I. INTRODUCTION

On October 12, 1989, two (2) sludge samples and one (1) water Trip blank for volatiles were received at ITAS-Oak Ridge Lab from Los Alamos National Laboratory, Los Alamos, NM. The list of analytical tests performed, as well as date of receipt and analysis can be found in the attached report.

Data are reported with the qualifier "U" if the compound was analyzed for but not detected. Lists with concentration unit code and lab and client suffix code definitions are attached.

II. ANALYTICAL RESULTS/METHODOLOGY

The analytical results for this report are presented by analytical tests. Each set of data will include sample identification information, the analytical results, and the appropriate detection limits.

The samples were analyzed for Target Compound List (TCL) and additional volatile compounds by gas chromatography/mass spectroscopy (GC/MS) in accordance with EPA CLP 2/88 Statement of Work.

Reviewed and Approved

Snell A. Mills III
Laboratory Manager

SAM/rdj

II. ANALYTICAL RESULTS/METHODOLOGY (Continued)

The samples were extracted and analyzed for semivolatile Target Compound List (TCL) compounds by gas chromatography/mass spectroscopy (GC/MS) in accordance with the EPA CLP 2/88 Statement of Work.

The samples were analyzed for EP Toxicity Metals using EPA SW-846, Method 1310.

III. QUALITY CONTROL

The volatile organic compounds were prepared and analyzed on 10/17/89. QC results were within CLP limits except one RPD on the matrix spike.

The semivolatiles were prepared on 10/20/89 and analyzed on 11/8/89. All surrogate recoveries were within CLP QC limits. No matrix spike or matrix spike duplicate were analyzed due to the high level of radiation.

The inorganics were extracted on 10/26/89. The extracts were digested on 10/27/89 and 10/31/89. The ICP analyses were performed on 11/9/89 and 12/12/89. The Graphite furnace analyses were performed from 10/31/89 to 11/1/89. The mercury analysis was performed on 10/31/89.

VOLATILE ORGANIC TARGET COMPOUND LIST

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: TA50V1
Lab Sample: MM0739

Compound		Compound	
chloromethane	34 U	1,2-dichloropropane	17 U
bromomethane	34 U	cis-1,3-dichloropropene	17 U
vinyl chloride	34 U	trichloroethene	17 U
chloroethane	34 U	dibromochloromethane	17 U
methylene chloride	18 B	1,1,2-trichloroethane	17 U
acetone	20 J	benzene	17 U
carbon disulfide	17 U	trans-1,3-dichloropropene	17 U
1,1-dichloroethene	17 U	bromoform	17 U
1,1-dichloroethane	17 U	4-methyl-2-pentanone	34 U
1,2-dichloroethene (total)	17 U	2-hexanone	34 U
chloroform	17 U	tetrachloroethene	17 U
1,2-dichloroethane	17 U	1,1,2,2-tetrachloroethane	17 U
2-butanone	12 BJ	toluene	16 BJ
1,1,1-trichloroethane	5 J	chlorobenzene	17 U
carbon tetrachloride	17 U	ethylbenzene	5 J
vinyl acetate	34 U	styrene	17 U
bromodichloromethane	17 U	total xylenes	9 J

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.
B - Compound was found in the method blank.

Date Analyzed: 10/17/89
Dilution Factor: 1

VOLATILE ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: TA50V1
Lab Sample ID: MM0739

Number TICs found: 1 Dilution Factor: 1.0

	CAS Number	Compound	RT	EST. Conc.	Q
1.	75-69-4	Methane, Trichlorofluoro-	8.94	110	J

VOLATILE ORGANIC TARGET COMPOUND LIST

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: TA50V2
Lab Sample: MM0744

Compound		Compound	
chloromethane	36 U	1,2-dichloropropane	18 U
bromomethane	36 U	cis-1,3-dichloropropene	18 U
vinyl chloride	36 U	trichloroethene	18 U
chloroethane	36 U	dibromochloromethane	18 U
methylene chloride	25 B	b,1,2-trichloroethane	18 U
acetone	36 U	benzene	18 U
carbon disulfide	18 U	trans-1,3-dichloropropene	18 U
1,1-dichloroethene	18 U	bromoform	18 U
1,1-dichloroethane	18 U	4-methyl-2-pentanone	36 U
1,2-dichloroethene (total)	18 U	2-hexanone	36 U
chloroform	27	tetrachloroethene	18 U
1,2-dichloroethane	18 U	1,1,2,2-tetrachloroethane	18 U
2-butanone	14 BJ	toluene	8 BJ
1,1,1-trichloroethane	4 J	chlorobenzene	18 U
carbon tetrachloride	18 U	ethylbenzene	4 J
vinyl acetate	36 U	styrene	18 U
bromodichloromethane	18 U	total xylenes	12 J

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.
B - Compound was found in the method blank.

Date Analyzed: 10/17/89
Dilution Factor: 1

VOLATILE ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: TA50V2
Lab Sample ID: MM0744

Number TICs found: 1 Dilution Factor: 1.0

CAS Number	Compound	RT	EST. Conc.	Q
1.	Unknown Hydrocarbon	13.47	8	J

VOLATILE ORGANIC TARGET COMPOUND LIST

Concentration Units in UG/L

Sample Matrix: Trip Blank

Client Sample ID: TA50V5
Lab Sample: MM0745

Compound		Compound	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	4 J	b,1,2-trichloroethane	5 U
acetone	5 J	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	8 BJ	toluene	1 BJ
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.
B - Compound was found in the method blank.

Date Analyzed: 10/17/89
Dilution Factor: 1

VOLATILE ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS

Concentration Units in UG/L

Sample Matrix: Trip Blank

Client Sample ID: TA50V5
Lab Sample ID: MM0745

Number TICs found: 0 Dilution Factor: 1.0

VOLATILE ORGANIC TARGET COMPOUND LIST

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample: VBLK1017

Compound		Compound	
chloromethane	10 U	1,2-dichloropropane	5 U
bromomethane	10 U	cis-1,3-dichloropropene	5 U
vinyl chloride	10 U	trichloroethene	5 U
chloroethane	10 U	dibromochloromethane	5 U
methylene chloride	2 J	b,1,2-trichloroethane	5 U
acetone	10 U	benzene	5 U
carbon disulfide	5 U	trans-1,3-dichloropropene	5 U
1,1-dichloroethene	5 U	bromoform	5 U
1,1-dichloroethane	5 U	4-methyl-2-pentanone	10 U
1,2-dichloroethene (total)	5 U	2-hexanone	10 U
chloroform	5 U	tetrachloroethene	5 U
1,2-dichloroethane	5 U	1,1,2,2-tetrachloroethane	5 U
2-butanone	7 J	toluene	2 J
1,1,1-trichloroethane	5 U	chlorobenzene	5 U
carbon tetrachloride	5 U	ethylbenzene	5 U
vinyl acetate	10 U	styrene	5 U
bromodichloromethane	5 U	total xylenes	5 U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.

Date Analyzed: 10/17/89
Dilution Factor: 1

VOLATILE ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: VBLK1017

Number TICs found: 0 **Dilution Factor:** 1.0

SOIL SURROGATE PERCENT RECOVERY SUMMARY

Sample Number	VOLATILE Toluene-D8 (81-117%)*	BFB (74-121%)*	1,2 Dichloroethane-D4 (70-121%)*
TA50V1	93	86	100
TA50V2	94	107	106
TA50V1-MS	96	96	111
TA50V1-MSD	92	92	104
METHOD BLANK	89	96	77
TA50V5(trip blank)	90	97	104

* Values in parenthesis represent USEPA contract required QC limits.

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Concentration units in UG/KG

Client Sample ID: TA5OV1

	Conc. Spike Added	Sample Conc.	MS Conc.	MS % Rec.
1,1-dichloroethene	172	0	148	86
trichloroethene	172	0	152	88
benzene	172	0	148	86
toluene	172	16.5	147	76
chlorobenzene	172	0	146	85

	Conc. Spike Added	MSD Conc.	MSD % Rec.	RPD
1,1-dichloroethene	172	116	67	25*
trichloroethene	172	131	76	15
benzene	172	127	74	15
toluene	172	125	63	19
chlorobenzene	172	127	74	14

RPD = Relative Percent Difference

* Asterisked values are outside USEPA advisory QC limits.

SEMIVOLATILE TARGET COMPOUND LIST

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: TA50S1
Lab Sample ID: MM0736

Compound			Compound		
phenol	2300	U	bis(2-chloroethoxy)methane	2300	U
bis(2-chloroethyl)ether	2300	U	2,4-dichlorophenol	2300	U
2-chlorophenol	2300	U	1,2,4-trichlorobenzene	2300	U
1,3-dichlorobenzene	2300	U	naphthalene	2300	U
1,4-dichlorobenzene	2300	U	4-chloroaniline	2300	U
benzyl alcohol	2300	U	hexachlorobutadiene	2300	U
1,2-dichlorobenzene	2300	U	4-chloro-3-methylphenol	2300	U
2-methylphenol	2300	U	2-methylnaphthalene	2300	U
bis(2-chloroisopropyl)ether	2300	U	hexachlorocyclopentadiene	2300	U
4-methylphenol	2300	U	2,4,6-trichlorophenol	2300	U
n-nitroso-di-n-propylamine	2300	U	2,4,5-trichlorophenol	11000	U
hexachloroethane	2300	U	2-chloronaphthalene	2300	U
nitrobenzene	2300	U	2-nitroaniline	11000	U
isophorone	2300	U	dimethyl phthalate	2300	U
2-nitrophenol	2300	U	acenaphthylene	2300	U
2,4-dimethylphenol	2300	U	2,6-dinitrotoluene	2300	U
benzoic acid	11000	U			

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.

Date Extracted: 10/20/89
Date Analyzed: 11/08/89
Dilution Factor: 2

SEMIVOLATILE TARGET COMPOUND LIST
(Continued)

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: TA50S1
Lab Sample ID: MM0736

Compound			Compound		
3-nitroaniline	11000	U	anthracene	2300	U
acenaphthene	2300	U	di-n-butylphthalate	2300	U
2,4-dinitrophenol	11000	U	fluoranthene	2300	U
4-nitrophenol	11000	U	pyrene	2300	U
dibenzofuran	2300	U	butylbenzylphthalate	2300	U
2,4-dinitrotoluene	2300	U	3,3'-dichlorobenzidine	4600	U
diethylphthalate	2300	J	benzo(a)anthracene	2300	U
4-chlorophenyl-phenylether	2300	U	chrysene	2300	U
fluorene	2300	U	bis(2-ethylhexyl)phthalate	330000	D
4-nitroaniline	11000	U	di-n-octyl phthalate	2300	U
4,6-dinitro-2-methylphenol	11000	U	benzo(b)fluoranthene	2300	U
n-nitrosodiphenylamine[1]	2300	U	benzo(k)fluoranthene	2300	U
4-bromophenyl-phenylether	2300	U	benzo(a)pyrene	2300	U
hexachlorobenzene	2300	U	indeno(1,2,3-cd)pyrene	2300	U
pentachlorophenol	11000	U	dibenz(a,h)anthracene	2300	U
phenanthrene	2300	U	benzo(g,h,i)perylene	2300	U

D - Dilution 1:20
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.
1 - Detected as diphenylamine.

Date Extracted: 10/20/89
Date Analyzed: 11/08/89
Dilution Factor: 2

SEMIVOLATILE ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: TA50S1
Lab Sample ID: MM0736

Number TICs found: 20 Dilution Factor: 20.0

	CAS Number	Compound	RT	EST. Conc.	Q
1.	4536-88-3	BENZENE, (1-METHYLDECYL)-	15.02	170000	J
2.	2719-61-1	BENZENE, (1-METHYLUNDEXYL)-	16.00	140000	J
3.	4536-86-1	BENZENE, (1-PROPYLOCTYL)-	14.44	91000	J
4.	4536-87-2	BENZENE, (1-ETHYLNONYL)-	14.65	91000	J
5.	4537-15-9	BENZENE, (1-BUTYLHEPTYL)-	14.34	84000	J
6.	2400-00-2	BENZENE, (1-ETHYLDECYL)-	15.64	81000	J
7.	2719-63-3	BENZENE, (1-BUTYLOCTYL)-	15.32	75000	J
8.	2719-64-4	BENZENE, (1-PROPYLNONYL)-	15.44	73000	J
9.	2719-62-2	BENZENE, (1-PENTYLHEPTYL)-	15.27	70000	J
10.	4536-88-3	BENZENE, (1-METHYLDECYL)-	16.95	56000	J
11.	4534-49-0	BENZENE, (1-PENTYLOCTYL)-	16.20	49000	J
12.	4537-14-8	BENZENE, (1-PENTYLHEXYL)-	14.30	44000	J
13.	4534-52-5	BENZENE, (1-ETHYLUNDECYL)-	16.60	38000	J
14.	4534-50-3	BENZENE, (1-BUTYLNONYL)-	16.27	36000	J
15.	4537-13-7	BENZENE, (1-METHYLNONYL)-	13.99	46000	J
16.	4534-51-4	BENZENE, (1-PROPYLDECYL)-	16.39	29000	J
17.	4621-36-7	BENZENE, (1-ETHYLOCTYL)-	13.60	30000	J
18.		UNKNOWN	19.59	47000	J
19.	4537-12-6	BENZENE, (1-PROPYLHEPTYL)-	13.42	21000	J
20.	4537-11-5	BENZENE, (1-BUTYLHEXYL)-	13.32	21000	J

J - Indicates an estimated value.

SEMIVOLATILE TARGET COMPOUND LIST

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: TA50S2
Lab Sample ID: MM0743

Compound			Compound		
phenol	2400	U	bis(2-chloroethoxy)methane	2400	U
bis(2-chloroethyl)ether	2400	U	2,4-dichlorophenol	2400	U
2-chlorophenol	2400	U	1,2,4-trichlorobenzene	2400	U
1,3-dichlorobenzene	2400	U	naphthalene	2400	U
1,4-dichlorobenzene	2400	U	4-chloroaniline	2400	U
benzyl alcohol	2400	U	hexachlorobutadiene	2400	U
1,2-dichlorobenzene	2400	U	4-chloro-3-methylphenol	2400	U
2-methylphenol	2400	U	2-methylnaphthalene	2400	U
bis(2-chloroisopropyl)ether	2400	U	hexachlorocyclopentadiene	2400	U
4-methylphenol	2400	U	2,4,6-trichlorophenol	2400	U
n-nitroso-di-n-propylamine	2400	U	2,4,5-trichlorophenol	12000	U
hexachloroethane	2400	U	2-chloronaphthalene	2400	U
nitrobenzene	2400	U	2-nitroaniline	12000	U
isophorone	2400	U	dimethyl phthalate	2400	U
2-nitrophenol	2400	U	acenaphthylene	2400	U
2,4-dimethylphenol	2400	U	2,6-dinitrotoluene	2400	U
benzoic acid	12000	U			

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.

Date Extracted: 10/20/89
Date Analyzed: 11/08/89
Dilution Factor: 2

SEMIVOLATILE TARGET COMPOUND LIST
(Continued)

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: TA50S2
Lab Sample ID: MM0743

Compound			Compound		
3-nitroaniline	12000	U	anthracene	2400	U
acenaphthene	2400	U	di-n-butylphthalate	2400	U
2,4-dinitrophenol	12000	U	fluoranthene	2400	U
4-nitrophenol	12000	U	pyrene	2400	U
dibenzofuran	2400	U	butylbenzylphthalate	2400	U
2,4-dinitrotoluene	2400	U	3,3'-dichlorobenzidine	4900	U
diethylphthalate	2400	J	benzo(a)anthracene	2400	U
4-chlorophenyl-phenylether	2400	U	chrysene	2400	U
fluorene	2400	U	bis(2-ethylhexyl)phthalate	390000	D
4-nitroaniline	12000	U	di-n-octyl phthalate	2400	U
4,6-dinitro-2-methylphenol	12000	U	benzo(b)fluoranthene	2400	U
n-nitrosodiphenylamine(1)	2400	U	benzo(k)fluoranthene	2400	U
4-bromophenyl-phenylether	2400	U	benz(a)pyrene	2400	U
hexachlorobenzene	2400	U	indeno(1,2,3-cd)pyrene	2400	U
pentachlorophenol	12000	U	dibenzo(a,h)anthracene	2400	U
phenanthrene	2400	U	benzo(g,h,i)perylene	2400	U

D - Dilution 1:20
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.
1 - Detected as diphenylamine

Date Extracted: 10/20/89
Date Analyzed: 11/08/89
Dilution Factor: 2

SEMIVOLATILE ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: TA50S2
Lab Sample ID: MM0743

Number TICs found: 20 Dilution Factor: 20.0

	CAS Number	Compound	RT	EST. Conc.	Q
1.	4536-88-3	BENZENE, (1-METHYLDECYL)-	15.02	190000	J
2.	2719-61-1	BENZENE, (1-METHYLUNDEXYL)-	16.00	150000	J
3.	4536-86-1	BENZENE, (1-PROPYLOCTYL)-	14.45	100000	J
4.	4536-87-2	BENZENE, (1-ETHYLNONYL)-	14.65	100000	J
5.	4537-15-9	BENZENE, (1-BUTYLHEPTYL)-	14.34	95000	J
6.	2400-00-2	BENZENE, (1-ETHYLDECYL)-	15.64	92000	J
7.	2719-63-3	BENZENE, (1-BUTYLOCTYL)-	15.32	83000	J
8.	2719-64-4	BENZENE, (1-PROPYLNONYL)-	15.44	81000	J
9.	2719-62-2	BENZENE, (1-PENTYLHEPTYL)-	15.27	77000	J
10.	4536-88-3	BENZENE, (1-METHYLDECYL)-	16.95	66000	J
11.	4534-49-0	BENZENE, (1-PENTYLOCTYL)-	16.20	55000	J
12.	4537-14-8	BENZENE, (1-PENTYLHEXYL)-	14.30	48000	J
13.	4534-52-5	BENZENE, (1-ETHYLUNDECYL)-	16.60	47000	J
14.	4534-50-3	BENZENE, (1-BUTYLNONYL)-	16.27	42000	J
15.	4537-13-7	BENZENE, (1-METHYLNONYL)-	13.99	54000	J
16.	4534-51-4	BENZENE, (1-PROPYLDECYL)-	16.39	35000	J
17.	4621-36-7	BENZENE, (1-ETHYLOCTYL)-	13.60	38000	J
18.	4537-12-6	BENZENE, (1-PROPYLHEPTYL)-	13.42	27000	J
19.	4537-11-5	BENZENE, (1-BUTYLHEXYL)-	13.32	25000	J
20.		UNKNOWN HYDROCARBON	19.59	39000	J

J - Indicates an estimated value.

SEMIVOLATILE TARGET COMPOUND LIST

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: Q1473

Compound			Compound		
phenol	660	U	bis(2-chloroethoxy)methane	660	U
bis(2-chloroethyl)ether	660	U	2,4-dichlorophenol	660	U
2-chlorophenol	660	U	1,2,4-trichlorobenzene	660	U
1,3-dichlorobenzene	660	U	naphthalene	660	U
1,4-dichlorobenzene	660	U	4-chloroaniline	660	U
benzyl alcohol	660	U	hexachlorobutadiene	660	U
1,2-dichlorobenzene	660	U	4-chloro-3-methylphenol	660	U
2-methylphenol	660	U	2-methylnaphthalene	660	U
bis(2-chloroisopropyl)ether	660	U	hexachlorocyclopentadiene	660	U
4-methylphenol	660	U	2,4,6-trichlorophenol	660	U
n-nitroso-di-n-propylamine	660	U	2,4,5-trichlorophenol	3200	U
hexachloroethane	660	U	2-chloronaphthalene	660	U
nitrobenzene	660	U	2-nitroaniline	3200	U
isophorone	660	U	dimethyl phthalate	660	U
2-nitrophenol	660	U	acenaphthylene	660	U
2,4-dimethylphenol	660	U	2,6-dinitrotoluene	660	U
benzoic acid	3200	U			

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.

Date Extracted: 10/20/89
Date Analyzed: 11/08/89
Dilution Factor: 2

SEMIVOLATILE TARGET COMPOUND LIST
(Continued)

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: Q1473

Compound			Compound		
3-nitroaniline	3200	U	anthracene	660	U
acenaphthene	660	U	di-n-butylphthalate	660	U
2,4-dinitrophenol	3200	U	fluoranthene	660	U
4-nitrophenol	3200	U	pyrene	660	U
dibenzofuran	660	U	butylbenzylphthalate	660	U
2,4-dinitrotoluene	660	U	3,3'-dichlorobenzidine	1300	U
diethylphthalate	660	U	benzo(a)anthracene	660	U
4-chlorophenyl-phenylether	660	U	chrysene	660	U
flourene	660	U	bis(2-ethylhexyl)phthalate	660	U
4-nitroaniline	3200	U	di-n-octyl phthalate	660	U
4,6-dinitro-2-methylphenol	3200	U	benzo(b)fluoranthene	660	U
n-nitrosodiphenylamine[1]	660	U	benzo(k)fluoranthene	660	U
4-bromophenyl-phenylether	660	U	benzo(a)pyrene	660	U
hexachlorobenzene	660	U	indeno(1,2,3-cd)pyrene	660	U
pentachlorophenol	3200	U	dibenz(a,h)anthracene	660	U
phenanthrene	660	U	benzo(g,h,i)perylene	660	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
J - Indicates an estimated value less than the detection limit.
1- Detected as diphenylamine.

Date Extracted: 10/20/89
Date Analyzed: 11/08/89
Dilution Factor: 2

SEMIVOLATILE ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS

Concentration Units in UG/KG

Sample Matrix: Soil

Client Sample ID: Method Blank
Lab Sample ID: Q1473

Number TICs found: 4 Dilution Factor: 2.00

	CAS Number	Compound	RT	EST. Conc.	Q
1.	123-42-4	2-PENTANONE, 4-HYDROXY-4-MET	4.13	46000	AJ
2.		UNKNOWN	4.07	21000	J
3.		UNKNOWN HYDROXY PENTANONE	5.12	1000	AJ
4.		UNKNOWN	6.20	780	J

J - Indicates an estimated value.
A - Suspected aldol condensation product.

SOIL SURROGATE PERCENT RECOVERY SUMMARY

SEMIVOLATILES

Sample Number	Nitro-Benzene-D5 (23-120%)*	2-Fluoro-Biphenyl (30-115%)*	Terphenyl D14 (18-137%)*	Phenol-D5 (24-113%)*	2-Fluoro-Phenol (25-121%)*	2,4,6-Tribromo Phenol (19-122%)*
TA50S1	72	65	94	90	107	51
TA50S1DL	61	79	87	56	55	23
TA50S2	69	58	103	105	118	41
TA50S2DL	75	90	93	75	82	22
Method Blank	77	89	136	91	120	107

* Values in parenthesis represent USEPA contract required QC limits.

Concentration Units: mg/L (ppm)

EXTRACTION PROCEDURE TOXICITY - METALS

Analyte	Date	Date	TA-50 M-1	TA-50 M-2	BLANK	TA-50 M-1DUP	RPD(%)
Arsenic	10/27/89	10/31/89	0.003	0.003	<0.002	0.003	0.0
Barium	10/27/89	12/12/89	0.377	0.379	<0.002	0.377	0.0
Cadmium	10/27/89	12/12/89	0.045	0.046	<0.001	0.048	6.4
Chromium	10/27/89	12/12/89	0.454	0.443	<0.01	0.451	0.7
Lead	10/27/89	11/09/89	2.11	1.66	0.049	2.05	2.9
Mercury	10/31/89	10/31/89	0.005	0.006	<0.0002	0.005	0.0
Selenium	10/27/89	11/01/89	<0.002	<0.002	<0.002	<0.002	0.0
Silver	10/27/89	12/12/89	<0.01	0.138	0.139	0.137	0.7

Notes:
RPD - Relative Percent Difference.

HSE-9 ANALYTICAL SERVICE AGREEMENT

Request No. 6931

PRESAMPLING CONFERENCE

Program Code WA45 No. Samples Expected 2

Submission Date 10-10-89 Completion Date 11-7-89

Chain of Custody? None Special Protocol? *(EPA etc.)* EPA

Analyses Requested: List analyses on HSE-9 Analytical Chemistry Request Sheet. VOA Semi-Vol.
(Indicate expected concentration range and required detection limits under remarks.)

Container Type Amber Glass Preservative NONE
(See Memo HSE-9/88-304. Guidelines for Collection and Preservation of Liquid Samples.)

Storage Conditions *(circle one or more)*: None Refrigerate Freeze Darkness

Sample Hazards Present? *(Circle one or more)*
No hazard Toxic Radioactive: alpha beta gamma Flammable Explosive/Reactive

Sample Disposal: Return ✓ Discard
(All hazardous samples or TRU wastes will be returned to the customer.)

Customer [signature] HSE-9 Section Leader [signature] Organic
Customer Phone 667-5834 MS E518 [signature] Inorganic
Date 10/10/89 Radiochem

EMERGENCY SAMPLES

Emergency Status requires the following signatures:

Customer Group Leader
HSE-9 Group Leader
Date

REQ	SAM NUM	CUST NUM
6931	89.16807	[illegible]
6931	89.16805	SAMPLE 3
6931	89.16806	SAMPLE 4
6931	[illegible]	[illegible]
6931	[illegible]	[illegible]

I. SAMPLE RECEIPT

Signature [signature] Date 10/12/89 Total No. Samples Received 2

HSE-9 Sample No. Range 89.16805 to 89.16809.

Customer Sample No. Range sample 3 to sample 4.

3-8-89

February 22, 1990

Jerry,

Below you will find a table summarizing the results of analysis for the sample you submitted (TA50-S4) for volatiles analysis under Request #6931. The table will list the results for the one sample that was successfully run as well as two blanks that were prepared simultaneously with the sample in question. Although the blank do not indicate the presence of methylene chloride, I highly suspect that the reported value for methylene chloride in the sample is due to contamination from the laboratory environment and not the sample matrix. I base this judgement upon the fact that the sample prep area has shown high levels of methylene chloride contamination in the past and nothing has really been done to remedy the situation at the existing facility being used for the preparations.

Additionally, the other components that were detected in the sample were also detected in the blank(s). These reported values are insignificant based upon the levels that were detected in the sample as compared to the levels detected in the blank(s).

CONCENTRATION (UG/KG)

Component	Blank #1	Blank #6	#89.16806
Methylene Chloride	ND	ND	980
Toluene	96.0	91.3	140
Ethylbenzene	69.4	ND	140
o-Xylene	51.9	ND	120

In summation, the reported values for the submitted sample are not blank subtracted. It is my opinion that the reported values for the components detected in the sample are due to contamination from the prep environment and not the sample matrix. If you have any questions regarding this matter, please do not hesitate to contact me 5-4792. Thank you for your cooperation and patience with our mixed waste programs.

Chuck Rzeszutko
Organic Section Leader
HSE-9

Preliminary VOA Results for Request #6931

Sample #	Customer #	Component	Conc.(ug/Kg)	LOQ
89.16805	TA-50 S3	NDA	---	---
89.16806	TA-50 S4	Methylene Chloride	980	100
		Toluene	140	50
		Ethylbenzene	140	50
		o-Xylene	120	50
		Undecane	T	NA
		Dodecane	T	NA
		Naphthalene (deca-hydro-2-methyl)	T	NA

LOQ = Limit of Quantitation
NA = Not Applicable
T = Tentative Identification
NDA = No Data Available- instrumentation problems during analysis of this sample

Note that a tentative identification is based solely upon the spectrum comparison between the sample and a library database of mass spectrums. This identification is only qualitative and is not based upon any comparisons to a standard solution of known concentration.

HSE-9 SEMIVOLATILE ORGANIC ANALYSIS
SUMMARY OF ANALYTICAL RESULTS

To: Jerry Buchholz
From: Matthew Monagle MZ

Request Number: 6931
Matrix: Soil (filter cake f: TA-50)
Summary Date: 2/9/1990

Sample ID	Target Compounds Found	Amount (UG/KG)	Level of Quantitation (UG/KG)
Blank 10/18	NONE		330
89.16805	Bis (2-ethylhexyl) phthalate	26000	1000
89.16806	Bis (2-ethylhexyl) phthalate	23000	1000

Summary:

Two filter cake samples were received by Pete Del Mar (HSE-9) on 10/12/89 at TA-50. The sample, along with a quality control blind and a method blank, were extracted by 18 hour soxhlet extraction on 10/18/1989 for semivolatile compounds. Surrogate compounds were added to the matrix to determine the efficiency of the extraction. Analysis was performed on 11/15/1989 at TA-35 by capillary gas chromatography/mass spectrometry using EPA method SW-846.

A quality control sample was run and the results will be in the final report.

Reportable amounts of one target compound were found in the samples submitted. Bis (2-ethylhexyl) phthalate, a common plasticizer frequently found in environmental samples, was found in both samples.

Significant amounts of saturated hydrocarbons were found in both samples. In addition, in both samples, there were large quantities of compounds tentatively identified as saturated alkyl substituted benzenes.

Surrogate Recoveries:

All surrogate recoveries were within the EPA guidelines.

Problems encountered:

The samples were very wet: therefore only ten grams of analyte was used instead of the specified 30 grams. This raised the reporting limit from its normal value of 330 ppb to 1000 ppb. Also, the phthalates that were quantitated were slightly outside the linear range of the curve. It is the analysts opinion that this did not compromise the reliability of the data in any way.

ATTACHMENT I

TOTAL METALS ANALYSES FROM ROCKY FLATS PLANT (IDCs 803,807)

LIQUID WASTE SAMPLING AND ANALYSIS AT RFP

In October 1987, the waste liquid was sampled from several tanks at the Rocky Flats Plant in Buildings 371, 559, 707, 776 and 779. Aqueous waste from these buildings and tanks are transported via pipe to Building 374, where the waste is processed to inorganic sludges (shipping content code RF 111, IDCs 803 and 807). More information on these buildings and processes is provided in Section 3.0 of the Waste Analysis Plan.

Original report sheets for the analysis of total metals are provided in this section. Each of the report sheets correspond to the samples listed below.

1. Sample: from Building 374, tank 717
2. Sample: from Building 374, tank 718

Samples 1 & 2 were taken from tanks that receive Building 371 waste. These holding tanks (717 and 718) are fed via process drain aqueous wastes from Building 371. The wastes from these tanks are further processed in Building 374 to inorganic sludges, content code RFP 111.

3. Sample: from Building 559, tanks T1&2

Sample 3 was taken from tanks T1 & 2 which are temporary holding points for process waste from Building 559. Building 528, which is a waste pit, houses tanks T1 & 2. The wastes from these tanks are pumped to Building 374 and further processed to inorganic sludges, content code RFP 111.

4. Sample: from Building 707, east and west tanks

Sample 4 was taken from tanks that receive Building 707 waste. These holding tanks (east and west) are fed via process drain aqueous wastes from Building 707. Building 731 houses the east and west tanks. The tanks are used alternatively; one receives waste while the other is pumping waste to Building 374 where it is processed to inorganic sludges, content code RFP 111.

5. Sample: from Building 779, tanks 2A&B

Sample 5 was taken from tanks that receive Building 779 waste. These holding tanks (2A&B) are fed via process drain aqueous wastes from Building 779. Tanks 2A & B are actually housed in Building 776. The wastes from these tanks are pumped to Building 374 and further processed to inorganic sludges, content code RFP 111.

6. Sample: from Building 776, tanks 1A&B

Sample 6 was taken from tanks that receive Building 776 waste. These holding tanks (1A&B) are fed via process drain aqueous wastes from Building 776. Tanks 1A&B, and 2A&B (listed in Sample 5) are all housed in Building 776. Tanks 1A&B overflow to each other, tanks 2A&B over flow to each other, and tanks 1A and 2A overflow to each other. The wastes from these tanks are pumped to Building 374 and further processed to inorganic sludges, content code RFP 111.

These samples were analyzed for 27 metals including tritium and uranium. The samples were prepared as per EPA protocols SW 3010 and 3050 (acid digestion). The tritium content was measured by scintillation counting. The uranium content was measured by laser fluorometry. The selenium content was measured by hydride generation atomic absorption spectroscopy (SW 7741). The sodium and potassium contents were measured by flame atomic absorption spectroscopy (SW 7770 and 7610 respectively). All of the other metals were measured by inductively coupled plasma atomic emmision spectroscopy (SW 6010).

The standard methods for preparation and analysis were followed as closely as possible considering that the samples were contaminated with low levels of radioactivity. The primary modifications included working in a glovebox and using smaller sample volumes.
In November 1987, the waste liquid in those same tanks was sampled and analyzed for corrosivity, ignitably, and radioactive components. The analytical procedures are discussed on the analytical results reports. Corrosivity was measured as pH according standard method SW 9040. The ignitability was measure as flash point according to ASTM method D 93-80. The reactivity was measured according to standard method "Test Method for the Determination of Reactive Cyanide and Sulfide Containing Wastes, Final Method." Minor modifications were made to the procedure. The modifications are noted on the analysis report.

The gross alpha on the liquid portion was counted on a Nuclear Measurements Corp. PC-4 gas proportional counter for on hour. A three milliliter decanted sample was prepared by placing it on a large disk and sample Background levels were measured and subtracted from the sample results. The gross alpha was measured by filtering 50 milliliters of sample. Then weighing, dissolving and counting the solids. The total alpha count of the sample was calculated. The gross beta count was done on the samples.

The americium, 235-uranium, 239-plutonium and total uranium were measured on the same samples as those used for the gross alpha on the liquid portion. The sample was mixed and five milliliters were withdrawn and counted in a picker spectroscaler 4R well detector.

Rockwell International
North American Space Operations
Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0464

ANALYTICAL REPORT

SAMPLE NO. 1

To	Account No.	Date	Lab. No.
D. I. Hunter File	986070-00	11/13/87	AL587.770

Reported by Glenda E. Brown
G. E. Brown

Approved K. J. Grossaint
K. J. Grossaint

Sample Description
Waste Location: Tanks D-717 A & B
Building: 374
Sample Date: 10/02/87

Analysis Results

The sample was prepared for analysis using procedures listed in "Test Methods for Evaluating Solid Waste", EPA manual SW-846 (1986).

Tritium was measured by scintillation counting. Uranium was analyzed by laser fluorometry. Selenium was determined by hydride generation atomic absorption spectroscopy. Sodium and potassium were analyzed by flame atomic absorption spectroscopy.

All other elements were determined by inductively coupled plasma atomic emission spectroscopy.

ELEMENT	RESULT		ELEMENT	RESULT	
Aluminum	2.4	mg/l	Molybdenum	.026	mg/l
Antimony	<.04	mg/l	Nickel	1.2	mg/l
Arsenic	<.08	mg/l	Potassium	14.0	mg/l
Barium	.07	mg/l	Selenium	.005	mg/l
Beryllium	.0006	mg/l	Silver	<.01	mg/l
Cadmium	<.001	mg/l	Sodium	29.0	mg/l
Calcium	40.9	mg/l	Strontium	.32	mg/l
Chromium	.032	mg/l	Thallium	.065	mg/l
Cobalt	.07	mg/l	Tin	.03	mg/l
Copper	.66	mg/l	Tritium	<500	pCi/ml
Iron	5.5	mg/l	Uranium	1.0	mg/l
Lead	<.04	mg/l	Vanadium	<.002	mg/l
Magnesium	3.6	mg/l	Zinc	.37	mg/l
Manganese	.078	mg/l			

RF2[illegible]6(6/85)PPOC4-7.3

Rockwell International
North American Space Operations
Rocky Flats Plant
P O Box 464
Golden Colorado 80402-0464

ANALYTICAL REPORT

SAMPLE NO. 2

	Account No.	Date	Lab. No.
D. I. Hunter File	986070-00	11/13/87	AL587.???

Reported by G. E. Brown

Approved K. J. Grossaint

Sample Description

Waste Location: Tank D718
Building: 374
Sample Date: 10/02/87

Analysis Results

The sample was prepared for analysis using procedures listed in "Test Methods for Evaluating Solid Waste", EPA manual SW-846 (1986).

Tritium was measured by scintillation counting. Uranium was analyzed by laser fluorometry. Selenium was determined by hydride generation atomic absorption spectroscopy. Sodium and potassium were analyzed by flame atomic absorption spectroscopy.

All other elements were determined by inductively coupled plasma atomic emission spectroscopy.

ELEMENT	RESULT		ELEMENT	RESULT	
Aluminum	261.0	mg/l	Molybdenum	.18	mg/l
Antimony	3.4	mg/l	Nickel	5.5	mg/l
Arsenic	2.7	mg/l	Potassium	87.0	mg/l
Barium	2.7	mg/l	Selenium	.022	mg/l
Beryllium	.009	mg/l	Silver	.15	mg/l
Cadmium	.27	mg/l	Sodium	50.0	mg/l
Calcium	116.	mg/l	Strontium	2.43	mg/l
Chromium	1.7	mg/l	Thallium	1.2	mg/l
Cobalt	4.1	mg/l	Tin	.69	mg/l
Copper	39.0	mg/l	Tritium	<500	pCi/ml
Iron	58.0	mg/l	Uranium	1.0	mg/l
Lead	10.5	mg/l	Vanadium	.19	mg/l
Magnesium	6.6	mg/l	Zinc	29.0	mg/l
Manganese	3.4	mg/l			

Rockwell International
North American Space Operations
Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0464

ANALYTICAL REPORT

SAMPLE NO. 3

To	Account No.	Date	Lab. No.
D. I. Hunter File	986070-00	11/13/87	AL587.768

Reported by G. E. Brown

Approved K. J. Grossaint

Sample Description
Waste Location: Tanks T 1 & 2
Building: 559
Sample Date: 10/29/87

Analysis Results

The sample was prepared for analysis using procedures listed in "Test Methods for Evaluating Solid Waste", EPA manual SW-846 (1986).

Tritium was measured by scintillation counting. Uranium was analyzed by laser fluorometry. Selenium was determined by hydride generation atomic absorption spectroscopy. Sodium and potassium were analyzed by flame atomic absorption spectroscopy.

All other elements were determined by inductively coupled plasma atomic emission spectroscopy.

ELEMENT	RESULT		ELEMENT	RESULT	
Aluminum	2.4	mg/l	Molybdenum	.45	mg/l
Antimony	<.04	mg/l	Nickel	9.2	mg/l
Arsenic	<.08	mg/l	Potassium	13.0	mg/l
Barium	3.2	mg/l	Selenium	.0017	mg/l
Beryllium	.0079	mg/l	Silver	.22	mg/l
Cadmium	.033	mg/l	Sodium	98.0	mg/l
Calcium	9.8	mg/l	Strontium	.068	mg/l
Chromium	.62	mg/l	Thallium	.12	mg/l
Cobalt	.018	mg/l	Tin	.72	mg/l
Copper	5.08	mg/l	Tritium	5.4	pCi/ml
Iron	35.7	mg/l	Uranium	<0.8	mg/l
Lead	4.0	mg/l	Vanadium	.0035	mg/l
Magnesium	1.5	mg/l	Zinc	4.1	mg/l
Manganese	.22	mg/l			

RF28860(6/85)PPQC-7.3

Rockwell International
North American Space Operations
Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0464

ANALYTICAL REPORT

SAMPLE NO. 4

To	Account No.	Date	Lab. No.
D. I. Hunter File	986070-00	11/13/87	AL587.769

Reported by G. E. Brown

Approved K. J. Grossaint

Sample Description
Waste Location: East and West
Building: 707
Sample Date: 10/02/87

Analysis Results

The sample was prepared for analysis using procedures listed in "Test Methods for Evaluating Solid Waste", EPA manual SW-846 (1986).

Tritium was measured by scintillation counting. Uranium was analyzed by laser fluorometry. Selenium was determined by hydride generation atomic absorption spectroscopy. Sodium and potassium were analyzed by flame atomic absorption spectroscopy.

All other elements were determined by inductively coupled plasma atomic emission spectroscopy.

ELEMENT	RESULT		ELEMENT	RESULT	
Aluminum	7.2	mg/l	Molybdenum	.06	mg/l
Antimony	.12	mg/l	Nickel	.59	mg/l
Arsenic	3.4	mg/l	Potassium	31.0	mg/l
Barium	.38	mg/l	Selenium	.005	mg/l
Beryllium	.003	mg/l	Silver	6.4	mg/l
Cadmium	.04	mg/l	Sodium	123.0	mg/l
Calcium	40.7	mg/l	Strontium	.15	mg/l
Chromium	3.4	mg/l	Thallium	.13	mg/l
Cobalt	<.006	mg/l	Tin	.15	mg/l
Copper	1.1	mg/l	Tritium	<500	pCi/ml
Iron	22.8	mg/l	Uranium	1.1	mg/l
Lead	.63	mg/l	Vanadium	<.002	mg/l
Magnesium	3.1	mg/l	Zinc	17.4	mg/l
Manganese	.20	mg/l			

RF28860(6/85)PPQC4-7.3

Rockwell International
North American Space Operations
Rocky Flats Plant
P O Box 464
Golden, Colorado 80402-0464

ANALYTICAL REPORT

SAMPLE NO. 5

To	Account No.	Date	Lab. No.
D. I. Hunter File	986070-00	11/13/87	AL587.[illegible]

Reported by G. E. Brown

Approved K. J. Grossaint

Sample Description

Waste Location: Tanks 2A & B
Building: 779
Sample Date: 10/02/87

Analysis Results

The sample was prepared for analysis using procedures listed in "Test Methods for Evaluating Solid Waste", EPA manual SW-846 (1986).

Tritium was measured by scintillation counting. Uranium was analyzed by laser fluorometry. Selenium was determined by hydride generation atomic absorption spectroscopy. Sodium and potassium were analyzed by flame atomic absorption spectroscopy.

All other elements were determined by inductively coupled plasma atomic emission spectroscopy.

ELEMENT	RESULT		ELEMENT	RESULT	
Aluminum	1.3	mg/l	Molybdenum	.011	mg/l
Antimony	<.04	mg/l	Nickel	1.3	mg/l
Arsenic	<.08	mg/l	Potassium	15.0	mg/l
Barium	.07	mg/l	Selenium	.005	mg/l
Beryllium	.011	mg/l	Silver	.012	mg/l
Cadmium	<.001	mg/l	Sodium	68.0	mg/l
Calcium	12.1	mg/l	Strontium	.063	mg/l
Chromium	0.63	mg/l	Thallium	<.04	mg/l
Cobalt	<.006	mg/l	Tin	<.04	mg/l
Copper	0.59	mg/l	Tritium	<500	pCi/ml
Iron	3.6	mg/l	Uranium	1.1	mg/l
Lead	<.04	mg/l	Vanadium	<.002	mg/l
Magnesium	2.2	mg/l	Zinc	3.4	mg/l
Manganese	.052	mg/l			

Rockwell International
North American Space Operations
Rocky Flats Plant
P O Box 464
Golden Colorado 80402-0464

ANALYTICAL REPORT

SAMPLE NO. 6

To	Account No.	Date	Lab. No.
D. I. Hunter File	986070-00	11/13/87	AL587,766

Reported by G. E. Brown

Approved K. J. Grossaint

Sample Description
Waste Location: Tanks 1A & B
Building: 776
Sample Date: 10/02/87

Analysis Results

The sample was prepared for analysis using procedures listed in "Test Methods for Evaluating Solid Waste", EPA manual SW-846 (1986).

Tritium was measured by scintillation counting. Uranium was analyzed by laser fluorometry. Selenium was determined by hydride generation atomic absorption spectroscopy. Sodium and potassium were analyzed by flame atomic absorption spectroscopy.

All other elements were determined by inductively coupled plasma atomic emission spectroscopy.

ELEMENT	RESULT		ELEMENT	RESULT	
Aluminum	7.3	mg/l	Molybdenum	.024	mg/l
Antimony	<.04	mg/l	Nickel	3.8	mg/l
Arsenic	<.08	mg/l	Potassium	29.0	mg/l
Barium	.09	mg/l	Selenium	.005	mg/l
Beryllium	.007	mg/l	Silver	.09	mg/l
Cadmium	.04	mg/l	Sodium	24.0	mg/l
Calcium	18.0	mg/l	Strontium	.08	mg/l
Chromium	0.5	mg/l	Thallium	.07	mg/l
Cobalt	<.006	mg/l	Tin	<.04	mg/l
Copper	.16	mg/l	Tritium	<500	pCi/ml
Iron	5.3	mg/l	Uranium	1.1	mg/l
Lead	<.04	mg/l	Vanadium	<.002	mg/l
Magnesium	1.9	mg/l	Zinc	6.2	mg/l
Manganese	0.5	mg/l			

RF28860(6/85)PPOC-7.3

Rockwell International
North American Space Operations
Rocky Flats Plant
P.O. Box 464
Golden, Colorado 80402-0464

ANALYTICAL REPORT

PRODUCTION SUPPORT LABORATORY

To D. I. Hunter 881 Account No. 986123-01 Date 11/24/87 Lab. No. AL587 796
File
A. C. Ficklin

Reported by D. B. Stuit
D. B. Stuit

Approved K. J. Grossaint
K. J. Grossaint

Sample Description

Liquid Waste from Process Waste Tanks for Analysis of Mercury

Analysis Results

The sample was prepared for analysis using the procedure listed in "Test Methods for Evaluating Solid Waste," EPA Manual SW-846 (1986). Mercury was determined by cold vapor atomic absorption.

Waste Location	Building	Hg Concentration
Tanks 1A & B	776	<0.5 µg/l
Tanks 2A & B	779	<0.5 µg/l
Tanks T1 & 2	559	34. µg/l
East and West	707	2.8 µg/l
Tanks D-717 A & B	374	<0.5 µg/l
Tank D-178	374	6. µg/l

RF2880(6/86)PROC4-7.3

Rockwell International

ANALYTICAL SERVICES

To D. I. Hunter Account No Date 11/16/87 Lab No

Reported by H. L. Bramlet
E. M. Bowne

Approved J. A. McLaughlin

Sample Description

RCRA Samples from various holding tanks.
1) Liquid waste from Building 776 tank 1A and 1B.
2) Liquid waste from Building 779 tank 2A and 2B.

Analysis Results

Samples Cont.
3) Liquid waste from Building 559 tank 1 and 2.
4) Liquid waste from Building 707 tank East and West.
5) Liquid waste from Building 371 tank D717 A and B.
6) Liquid waste from Building 371 tank D718.

Analysis Results

CORROSIVITY

Sample	Date of Sampling	Date of Analysis	pH
1)	11/13/87 8:30 AM By L. H. Swenson	11/13/87 By 10:00 AM By E. Bowne/L. Bramlet	6.96
2)	11/13/87 8:30 AM By L. H. Swenson	11/13/87 By 10:00 AM By E. Bowne/L. Bramlet	11.94
3)	11/10/87 9:30 AM By R. P. Teel	11/10/87 By 11:30 AM By E. Bowne	5.24
4)	11/13/87 8:30 AM By L. H. Swenson	11/13/87 By 10:00 AM By E. Bowne/L. Bramlet	7.34
5)	11/10/87 9:30 AM By N. P. Cypher	11/10/87 By 11:30 AM By E. Bowne	8.17
6)	11/10/87 9:30 AM By N. P. Cypher	11/10/87 By 11:30 AM By E. Bowne	8.08

The pH was done according to 9040. The instrument was a Model 801A digital pH/MV meter. Buffer calibrations were 3.00, 7.00 and 10.00 purchased from a commercial vendor.

RF 23950 (3 - 79) PPQC 4-7.3

IGNITABILITY

Sample	Date of Sample	Date of Analysis	Result
1)	11/5/87 10:00 AM By R. Sprague/L. Bramlet Storage in refrigerator	11/10/87 By 10:30 PM By E. Bowne	Flashpoint at 31C. green and yellow flame
2)	Same	11/10/87 By 10:30 PM By E. Bowne	No flashpoint Range: 15 to 70C.
3)	11/10/87 9:30 AM By R. P. Teel	11/10/87 By 10:30 PM By E. Bowne	No flashpoint Range: 15 to 70C.
4)	11/5/87 9:30 AM By R. Sprague/L. Bramlet Storage in refrigerator	11/10/87 By 10:30 PM By E. Bowne	No flashpoint Range: 12 to 70C.
5)	11/10/87 9:30 AM By N. P. Cypher	11/10/87 By 10:30 PM By E. Bowne	No flashpoint Range: 12 to 70C.
6)	Same	11/10/87 by 10:30 PM By E. Bowne	No flashpoint Range: 12 to 70C.

Flashpoint was done by ASTM method D 93-80 (Pensky-Martens closed cup tester).

REACTIVITY

Sample	Date of Sample	Date of Analysis	Cyanide	Sulfide
1)	11/13/87 8:30 AM By L H. Swenson	11/13/87 By 2:30 PM By H. Bramlet	8/13/15	3/4/5
2)	11/13/87 8:30 AM By L. H. Senson	11/13/87 by 2:30 PM By H. Bramlet	1/1/1	<1/<1/<1
3)	11/10/87 9:30 AM By R. P. Teel	11/10/87 by 10:30 PM By H. Bramlet	0/0/0	0/0/0
4)	11/13/87 8:30 AM By L. H. Swenson	11/10/87 by 10:30 PM by H. Bramlet	0/0/0	0/0/0
5)	11/10/87 9:30 AM BY N. P. Cypher	11/10/87 by 10:30 PM By H. Bramlet	0/0/0	0/0/0
6)	Same	Same	0/0/0	0/0/0

Commercial "Drager" tubes were used and the results above are in microliters read directly from the printed scale at 5, 10, and 15 minute intervals.

Analysis was done by the attached "Test Method for the Determination of Reactive Cyanide and Sulfide Containing Wastes Final Method" with exceptions noted here.

A. No pH meter was used.

B. A nitrogen gas cylinder was used instead of a pump. Flow of nitrogen was metered by a commercially calibrated flow gauge.

C. Ten ml of sample were used.

D. Gas evolution was done in one stage by adding an excess of sulfuric acid so that only "total" cyanide or sulfide was measured as described in the report.

E. Only cyanide or sulfide was done during a run since too much backpressure resulted when doing both at the same time.

F. The apparatus was set up as shown except that a gas inlet was used in place of the pH electrode and a pump was not used.

G. The cyanide reference solution (at a nominal 1 mg/ml) gave a 35 microliter reading (15 minutes) for a .5 ml aliquot and a 10 microliter reading for a .1 ml aliquot.

H. The sulfide reference sulution (at a nominal 680 ppm) gave a 65 microliter reading (15 minutes) for a .5 aliquot and a 10 microliter reading for a .1 ml aliquot.

GROSS ALPHA ON LIQUID PORTION OF SAMPLE

Sample	Date of Sample	Date of Analysis	Result
1)	10/2/87 By G. E. Brown	By 11/23/87 H. Bramlet/D. Avery	174 d/m/ml
2)	Same	Same	2 d/m/ml
3)	10/29/87 By G. E. Brown	By 11/5/87 H. Bramlet/D. Avery	211 d/m/ml
4)	10/2/87 By G. E. Brown	By 10/23/87 H. Bramlet/D. Avery	*
5)	Same	Same	*
6)	Same	Same	*

* Sample counted less than two sigma above background. Method of analysis:

A. Three ml of sample was decanted, placed on a large disk, and flamed.

B. The disk was counted on a Nuclear Measurements Corp. PC-4 (gas proportional counter) for one hour.

C. Backgrounds ran 6 to 8 counts per hour.

GROSS ALPHA

Since the solids were deemed to be a significant part of the sample from an alpha standpoint, 50 ml of sample was filtered, weighed, dissolved, and counted so that a total alpha count per ml of the sample could be calculated.

Sample	Weight	Solids Alpha Count	Total Alpha
1)	.0244 g/50 ml	99 d/m/ml	273 d/m/ml
2)	.0510	13	15
3)	.1420	38	249
4)	.2642	16	16
5)	.0186	2	2
6)	.7404	12	12

GROSS BETA

The sample, custody, and analysis dates are the same as for the gross alpha. The same disks were counted for beta as for alpha. Uncertainty in the beta counting efficiency could be ten percent.

Sample	Beta in Solid	Beta in Liquid	Total Beta
1)	106 d/m/ml	116 d/m/ml	222 d/m/ml
2)	12	141	153
3)	29	267	296
4)	*	*	*
5)	1	*	1
6)	*	*	*

* Sample counted less than two sigma above background.

AMERICIUM

The custody, date of sample, and date of analysis are the same as "Gross Alpha on Liquid Portion of Sample".

For Americium, the sample was mixed and a 5 ml portion withdrawn for counting a picker spectroscaler 4R well detector.

Sample	Americium
1)	5.7×10^{-12} g Am/ml
2)	*
3)	5.7×10^{-12} g Am/ml
4)	*
5)	*
6)	*

* Sample counted less than two sigma above background.

235-URANIUM

The custody, date of sample, and date of analysis are the same as "gross alpha on liquid portion of sample".

For Uranium, the sample was mixed and a 5 ml portion withdrawn for counting in a picker spectroscaler 4R well detector.

Backgrounds are currently running around 300 counts per minute. All of the samples counted less than two sigma above background.

239-Pu

The custody, date of sample, and date of analysis are the same as "gross alpha on liquid portion of Sample". Since we use 1.379E11 d/m/g for 239-Pu, then if all the alpha were from 239-Pu ("worst case" or all 239-Pu) we simply divide the total alpha by this number to get the following results.

Sample	239-Pu
1)	1.97E-3 mg/l
2)	1.09E-4
3)	1.81E-3
4)	1.16E-4
5)	1.45E-5
6)	8.70E-5

TOTAL URANIUM

The date of sample and custody is the same as for "gross alpha on liquid portion of sample". The date of analysis was 11/12/87 in 771 Building using a scintrex laser fluorometer. A direct standard addition method was used to minimize interferences which cause quenching effects.

The total Uranium in solution was less than 1E-4 g/l in all samples.

Essentially all of the Uranium in the samples was present in the suspended solids.

Sample	Uranium
1)	*
2)	*
3)	4.2×10^{-4} g/l
4)	5.9×10^{-4} g/l
5)	*
6)	4.3×10^{-4} g/l

* Below detection limit.

GAMMA EMITTING ISOTOPES

Two hour counts were made on one liter volumes of sample at two inches distance. A nuclear data 683 pulse height analyser and coax germanium detector was used to collect spectra in the energy range .05 to 1.0 MeV. An examination was made of the spectra in the 662 region to determine the presence of 137-Cs. No evidence was found of 137-Cs. A commercial 137-Cs source was used to certify the operational capability of the counting system

Since 90-Sr has no gamma peaks, no attempt was made to check for it by gamma spectroscopy.

ATTACHMENT J

RESULTS OF TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) ANALYSES

ROCKY FLATS PLANT

SECTION 1.0 - SLUDGE SAMPLING AND ANALYSIS PROCEDURES, 1988

Rockwell International personnel sampled the solidified sludge from several drums of TRU waste at the Rocky Flats Plant. The collected samples were placed in ziplock polyethylene bags. Rockwell personnel recorded the sample numbers and the drum numbers from which the sample were collected. They delivered the bags to the on site Weston, Inc. trailer where Weston personnel placed the bags in stainless steel containers that resembled one gallon paint cans. The cans were stored in coolers while Weston verified that the samples were able to be shipped to the lab. Ice was added to the coolers to preserve the samples. Weston shipped the samples overnight to the Envirodyne Engineers Laboratory in St. Louis, Missouri via commercial courier. The samples arrived at the laboratory within about two days after they were collected. Formal chain of custody procedures were followed.

The samples were analyzed for volatile organic aromatics (VOA) at the Envirodyne Engineers laboratory in St. Louis, Missouri. The samples were first prepared by following the Contract Laboratory Program (CLP) Statement of Work. They used the Zero Head Extraction (ZHE) procedure without any modifications. They also performed a Toxicity Characteristic Leaching Proceure (TCLP) analysis on each sample. No modifications were made to the procedure.

TOXICITY CHARACTERISTICS LEACHING PROCEDURES (TCLP)
TEST RESULTS - INORGANIC SLUDGES,
ROCKY FLATS PLANT

VOLATILE ORGANIC AROMATIC COMPOUNDS@

VOA COMPOUND	DETECTION LIMITS (µ g/kg)	VFS-08-88-01 (µ g/l)	VFS-08-88-02 (µ g/l)	VFS-08-88-03 (µ g/l)
Acetone	10	36	24	22
n-Butyl alcohol	*	ND	ND	ND
Carbon disulfide	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
Cyclohexanone	*	ND	ND	ND
1,2-Dichlorobenzene	*	ND	ND	ND
Ethyl Acetate	*	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Ethyl ether	*	ND	ND	ND
Isobutanol	*	ND	ND	ND
Methyl Isobutyl ketone	10	ND	ND	ND
Methylene chloride	5	30	26	26
Methyl ethyl ketone	10	ND	ND	ND
Tetrachloroethylene	5	ND	ND	ND
Toluene	5	ND	ND	ND
1,1,1-trichloroethane	5	ND	ND	ND
1,1,2-trichloro-1,2,2-trifluoroethane	*	ND	ND	ND
Trichloroethylene	5	ND	ND	ND
Trichlorofluoromethane	10	ND	ND	ND
Xylene	5	ND	ND	ND

SURROGATE COMPOUNDS	PERCENT RECOVERY	PERCENT RECOVERY	PERCENT RECOVERY
1,2-Dichloroethane-D4	90	92	92
Toluene-D8	100	99	99
p-BFB	102	101	102

ND= None Detected.
* = Library Search had no detection limit.
@ Copied from Envirodyne Engineers Report of Analysis 12161 Lackland Road, St. Louis, MO 63146. Report Date: September 30, 1988.

TOXICITY CHARACTERISTICS LEACHING PROCEDURE (TCLP)
TEST RESULTS - INORGANIC SLUDGES,
ROCKY FLATS PLANT

VOLATILE ORGANIC AROMATIC COMPOUNDS@

VOA COMPOUND	DETECTION LIMITS (μ g/kg)	EXTR. BLANK (μ g/l)	EXTR. BLANK (μ g/l)	METHOD BLANK (μ g/l)
Acetone	10	5	37	4
n-Butyl alcohol	*	ND	ND	ND
Carbon disulfide	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
Cyclohexanone	*	ND	ND	ND
1,2-Dichlorobenzene	*	ND	ND	ND
Ethyl Acetate	*	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Ethyl ether	*	ND	ND	ND
Isobutanol	*	ND	ND	ND
Methyl Isobutyl ketone	10	ND	ND	ND
Methylene chloride	5	29	27	21
Methyl ethyl ketone	10	ND	ND	ND
Tetrachloroethylene	5	ND	ND	ND
Toluene	5	ND	ND	ND
1,1,1-trichloroethane	5	ND	ND	ND
1,1,2-trichloro-1,2,2-trifluoroethane	*	ND	ND	ND
Trichloroethylene	5	ND	ND	ND
Trichlorofluoromethane	10	ND	ND	ND
Xylene	5	ND	ND	ND

SURROGATE COMPOUNDS	PERCENT RECOVERY	PERCENT RECOVERY	PERCENT RECOVERY
1,2-Dichloroethane-D4	105	93	108
Toluene-D8	103	99	103
p-BFB	102	101	102

ND= None Detected.
* = Library Search had no detection limit.
@ Copied from Envirodyne Engineers Report of Analysis 12161 Lackland Road, St. Louis, MO 63146. Report Date: September 30, 1988.

TOXICITY CHARACTERISTICS LEACHING PROCEDURES (TCLP)
TEST RESULTS - INORGANIC SLUDGES,
ROCKY FLATS PLANT

VOLATILE ORGANIC AROMATIC COMPOUNDS@

VOA COMPOUND	DETECTION LIMITS (μ g/kg)	METHOD BLANK (μ g/l)	METHOD BLANK (μ g/l)	METHOD BLANK (μ g/l)
Acetone	10	3	20	14
n-Butyl alcohol	*	ND	ND	ND
Carbon disulfide	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
Cyclohexanone	*	ND	ND	ND
1,2-Dichlorobenzene	*	ND	ND	ND
Ethyl Acetate	*	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Ethyl ether	*	ND	ND	ND
Isobutanol	*	ND	ND	ND
Methyl Isobutyl ketone	10	ND	ND	ND
Methylene chloride	5	23	11	9
Methyl ethyl ketone	10	ND	ND	ND
Tetrachloroethylene	5	ND	ND	ND
Toluene	5	ND	ND	ND
1,1,1-trichloroethane	5	ND	ND	ND
1,1,2-trichloro-1,2,2-trifluoroethane	*	ND	ND	ND
Trichloroethylene	5	ND	ND	ND
Trichlorofluoromethane	10	ND	ND	ND
Xylene	5	ND	ND	ND

SURROGATE COMPOUNDS	PERCENT RECOVERY	PERCENT RECOVERY	PERCENT RECOVERY
1,2-Dichloroethane-D4	95	92	93
Toluene-D8	99	99	101
p-BFB	86	100	99

ND= None Detected.
* = Library Search had no detection limit.
@ Copied from Envirodyne Engineers Report of Analysis 12161 Lackland Road, St. Louis, MO 63146.
Report Date: September 30, 1988.

HALOGENATED ORGANIC COMPOUNDS
TEST RESULTS - INORGANIC SLUDGES,
ROCKY FLATS PLANT,
40 CFR Part 268, APPENDIX III VOLATILES@

APPENDIX III VOLATILES	DETECTION LIMITS (µ g/kg)	VFS-08-88-01 (µ g/kg)	VFS-08-88-02 (µ g/kg)	VFS-08-88-03 (µ g/kg)
Bromodichloromethane	5	ND	ND	ND
Bromomethane	10	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
2-chloro-1,3-butadiene	*	ND	ND	ND
Chlorodibromomethane	5	ND	ND	ND
Chloroethane	10	ND	ND	ND
2-chloroethylvinyl ether	5	ND	ND	ND
Chloroform	5	ND	ND	ND
Chloromethane	10	ND	ND	ND
3-chloropropene	10	ND	ND	ND
1,2-dibromo-3-chloropropane	10	ND	ND	ND
1,2-dibromomethane	10	ND	ND	ND
Dibromomethane	10	ND	ND	ND
Trans-1, 4-dichloro-2-butene	10	ND	ND	ND
Dichlorofluoromethane	10	ND	ND	ND
1,1-dichloroethane	5	ND	ND	ND
1,2-dichloroethane	5	ND	ND	ND
1,1-dichloroethylene	5	ND	ND	ND
Trans-1,2-dichloroethylene	5	ND	ND	ND
1,2-dichloropropane	5	ND	ND	ND
Trans-1,3-dichloropropene	5	ND	ND	ND
Cis-1,3-dichloropropene	5	ND	ND	ND
Iodomethane	5	ND	ND	ND
Methylene Chloride	5	56	61	64
1,1,1,2-tetrachloroethane	5	ND	ND	ND
1,1,2,2-tetrachloroethane	5	ND	ND	ND
Tetrachloroethene	5	ND	ND	ND
Tribromomethane	5	ND	ND	ND
1,1,1-trichloroethane	5	ND	ND	ND
1,1,2-trichloroethane	5	ND	ND	ND
Trichloroethane	5	ND	ND	ND
Trichloromonofluoromethane	10	ND	ND	ND
1,2,3-trichloropropane	5	ND	ND	ND
Vinyl Chloride	10	ND	ND	ND

SURROGATE COMPOUNDS	PERCENT RECOVERY	PERCENT RECOVERY	PERCENT RECOVERY
1,2-Dichloroethane-D4 Rec. A	95	96	96
1,2-Dichloroethane-D4 Rec. B	99	95	96
Toluene-D8	93	95	93
p-BFB	78	80	78

ND= Not Detected.
* = Library Search had no detection limit.
@ Copied from Envirodyne Engineers Report of Analysis 12161 Lackland Road, St. Louis, MO 63146.
Report Date: September 30, 1988.

HALOGENATED ORGANIC COMPOUNDS (TCLP) TEST RESULTS - INORGANIC SLUDGES, ROCKY FLATS PLANT, 40 CFR Part 268, APPENDIX III VOLATILES@

APPENDIX III VOLATILES	DETECTION LIMITS (μ g/kg)	METHOD BLANK (μ g/kg)	METHOD BLANK (μ g/kg)
Bromodichloromethane	5	ND	ND
Bromomethane	10	ND	ND
Carbon Tetrachloride	5	ND	ND
2-chloro-1,3-butadiene	*	ND	ND
Chlorodibromomethane	5	ND	ND
Chloroethane	10	ND	ND
2-chloroethylvinyl ether	5	ND	ND
Chloroform	5	ND	ND
Chloromethane	10	ND	ND
3-chloropropene	10	ND	ND
1,2-dibromo-3-chloropropane	10	ND	ND
1,2-dibromomethane	10	ND	ND
Dibromomethane	10	ND	ND
Trans-1, 4-dichloro-2-butene	10	ND	ND
Dichlorofluoromethane	10	ND	ND
1,1-dichloroethane	5	ND	ND
1,2-dichloroethane	5	ND	ND
1,1-dichloroethylene	5	ND	ND
Trans-1,2-dichloroethylene	5	ND	ND
1,2-dichloropropane	5	ND	ND
Trans-1,3-dichloropropene	5	ND	ND
Cis-1,3-dichloropropene	5	ND	ND
Iodomethane	5	ND	ND
Methylene Chloride	5	19	12
1,1,1,2-tetrachloroethane	5	ND	ND
1,1,2,2-tetrachloroethane	5	ND	ND
Tetrachloroethene	5	ND	ND
Tribromomethane	5	ND	ND
1,1,1-trichloroethane	5	ND	ND
1,1,2-trichloroethane	5	ND	ND
Trichloroethane	5	ND	ND
Trichloromonofluoromethane	10	ND	ND
1,2,3-trichloroprompane	5	ND	ND
Vinyl Chloride	10	ND	ND

SURROGATE COMPOUNDS	PERCENT RECOVERY	PERCENT RECOVERY
1,2-Dichloroethane-D4 Rec. A	97	100
Toluene-D8	93	103
p-BFB	77	87

ND= Not Detected.

* = Library Search had no detection limit.

@ Copied from Envirodyne Engineers Report of Analysis 12161 Lackland Road, St. Louis, MO 63146. Report Date: September 30, 1988.

HALOGENATED ORGANIC COMPOUNDS
TEST RESULTS - INORGANIC SLUDGES,
ROCKY FLATS PLANT,
40 CFR Part 268, APPENDIX III SEMIVOLATILES@

SEMIVOLATILE APPENDIX III	DETECTION LIMIT (μ g/kg)	VFS-08-88-01	VFS-08-88-02	VFS-08-88-03
Bis (2-chloroethoxy) methane	330	ND	ND	ND
Bis (2-chloroethyl) ether	330	ND	ND	ND
Bis (2-chloroisopropyl) ether	330	ND	ND	ND
p-Chloroaniline	330	ND	ND	ND
Chloropenzilate	330	ND	ND	ND
p-Chloro-m-cresol	330	ND	ND	ND
2-Chloronaphthalene	330	ND	ND	ND
2-Chlorophenol	330	ND	ND	ND
3-Chloropropionitrile	330	ND	ND	ND
a-Dichlorobenzene	330	ND	ND	ND
o-Dichlorobenzene	330	ND	ND	ND
p-Dichlorobenzene	330	ND	ND	ND
3,3-Dichlorobenzidine	660	ND	ND	ND
2,4-Dichlorophenol	330	ND	ND	ND
2,6-Dichlorophenol	330	ND	ND	ND
Hexachlorobenzene	330	235	175	191
Hexachlorobutadiene	330	ND	ND	ND
Hexachlorocyclopentadiene	330	ND	ND	ND
Hexachloroethane	330	ND	ND	ND
Hexachloropropene	1600	ND	ND	ND
Pentachlorobenzene	330	ND	ND	ND
Pentachloroethane	330	ND	ND	ND
Pentachloronitrobenzene	660	ND	ND	ND
Pentachlorophenol	1600	ND	ND	ND
Pronamide	660	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	660	ND	ND	ND
2,3,4,6-Tetrachlorophenol	660	ND	ND	ND
1,2,4-Trichlorobenzene	330	ND	ND	ND
2,4,5-Trichlorophenol	1600	ND	ND	ND
2,4,6-Trichlorophenol	330	ND	ND	ND

ND= Not Detected.
@ Copied from Envirodyne Engineers Report of Analysis 12161 Lackland Road, St. Louis, MO 63146. Report Date: September 30, 1988.

SECTION 2.0 - SLUDGE SAMPLING AND ANALYSIS PROCEDURES, 1989

In 1989, Rockwell International personnel sampled the solidified sludge from several drums of TRU waste at the Rocky Flats Plant. The collected samples were placed in ziplock polyethylene bags. Rockwell personnel recorded the sample numbers and drum numbers from which the samples were collected. The bags were delivered to the onsite Weston, Inc. trailer where Weston personnel placed the bags in stainless steel containers that resembled one gallon paint cans. The cans were stored in coolers while Weston verified that the samples were able to be shipped to the lab. Ice was added to the coolers to preserve the samples. Weston shipped the samples overnight to the Envirodyne Engineers Laboratory in St. Louis, Missouri via commercial courier. The samples arrived at the laboratory within about two days after they were collected. Formal chain of custody procedures were followed.

The samples were analyzed for volatile organic aromatics (VOA) at the Envirodyne Engineers laboratory in St. Louis, Missouri. The samples were first prepared by following the Contract Laboratory Program (CLP) Statement of Work. They used the Zero Head Extraction (ZHE) procedure described in 40 CFR 268, Appendix I without any modifications. They also performed a Toxicity Characteristic Leaching Proceure (TCLP) analysis described in 40 CFR 268, Appendix I for metals on each sample. No modifications were made to the procedure. They also analyzed the samples for BNAs using standard procedure SW-8270. No modifications were made to this procedure.

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) TEST RESULTS - INORGANIC SLUDGES, ROCKY FLATS PLANT

TCLP METALS

PARAMETER	UNITS	EXTRACTION BLANK	% RCVRY	60779	% RCVRY	67492	% RCVRY	57492 DUP	% RCVRY
Cadmium	(ug/l)	<20	7	<20	84	<20	88	<20	52
Lead	(ug/l)	<100	97	307	87	<100	85	<100	86
Nickel	(ug/l)	<40	96	184	87	399	87	390	85
Silver	(ug/l)	<50	101	1240	100	245	MSA	276	89

PARAMETER	UNITS	68034	% RCVRY	69573	% RCVRY	59559	% RCVRY	69558	% RCVRY
Cadmium	(ug/l)	<20	82	<20	78	<20	80	<20	78
Lead	(ug/l)	<100	82	<100	79	<100	81	189	MSA
Nickel	(ug/l)	779	MSA	927	MSA	411	99	1270	MSA
Silver	(ug/l)	232	95	314	91	452	90	844	NSA

PARAMETER	UNITS	70046	% RCVRY
Cadmium	(ug/l)	47	91
Lead	(ug/l)	<100	82
Nickel	(ug/l)	1220	93
Silver	(ug/l)	172	90

TOTAL METALS

PARAMETER	UNITS	60779	67492	67492 DUP	68034	69573	59658	69558	70046
Chromium	(mg/kg)	100.1	231	223	313	307	84.8	395	327
Amenable Cyanide	(mg/kg)	<3.3	<3.9		<3.3	<3.5	<2.7	<3.1	<3.7
Cyanide	(mg/kg)	4.5	5.8		4.5	8.2	3.6	<3.1	5.2

SITE ID	TCLP METHANOL (ug/ml)	% RCVRY
Method Blank	<5.7	
60779	<5.7	
67492	<5.7	
68034	<5.7	
69573	<5.7	
59658	<5.7	
69558	<5.7	
69558 MS		110
69558 MSD		120
70046	6.2	

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) TEST RESULTS - INORGANIC SLUDGES, ROCKY FLATS PLANT

TCLP VOA COMPOUND	DETECTION LIMITS (ug/l)	BLANK (ug/l)	50779 (ug/l)	57492 (ug/l)	69034 (ug/l)	69573 (ug/l)
Acetone	10	ND	37	55	38	43
Bromodichloromethane	5	ND	ND	ND	ND	ND
Bromoform	5	ND	ND	ND	ND	ND
Bromomethane	10	ND	ND	ND	ND	ND
Carbon Disulfide	5	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND	ND
2-Chloro-1,3-Butadiene	5	ND	ND	ND	ND	ND
Chlorodibromomethane	5	ND	ND	ND	ND	ND
Chloroethane	10	ND	ND	ND	ND	ND
2-Chloroethylvinyl Ether	10	ND	ND	ND	ND	ND
Chloroform	5	ND	ND	ND	ND	ND
Chloromethane	10	ND	ND	ND	ND	ND
3-Chloropropene	100	ND	ND	ND	ND	ND
Cyclohexanone	1000	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	5	ND	ND	ND	ND	ND
1,2-Dibromomethane	5	ND	ND	ND	ND	ND
Dibromomethane	5	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	10	ND	ND	ND	ND	ND
Trans-1,4-Dichloro-2-Butene	5	ND	ND	ND	ND	ND
Dichlorofluoromethane	10	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND	ND	ND
1,1-Dichloroethylene	5	ND	ND	ND	ND	ND
1,2-Dichloroethylene (total)	5	ND	ND	ND	ND	ND
Trans-1,3-Dichloropropene	5	ND	ND	ND	ND	ND
Cis-1,3-Dichloropropene	5	ND	ND	ND	ND	ND
Ethyl Acetate	100	ND	ND	ND	ND	ND
Ethyl Benzene	5	ND	ND	ND	ND	ND
Ethyl Ether	5	ND	ND	ND	ND	ND
Iodomethane	5	ND	ND	ND	ND	ND
Isobutanol	500	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	10	ND	<DL	<DL	<DL	<DL
Methyl Isobutyl Ketone	10	ND	ND	ND	ND	ND
Methylene Chloride	5	ND	ND	ND	<DL	ND
N-Butyl Alcohol	100	ND	ND	ND	ND	170
1,1,1,2-Tetrachloroethane	5	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND
Tetrachloroethylene	5	ND	ND	ND	ND	6
Toluene	5	ND	ND	ND	<DL	<DL
1,1,1-Trichloroethane	5	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	ND	ND	ND
1,1,2-Trichloro- 1,2,2-Trifluoroethane	50	ND	ND	ND	ND	ND
Trichloroethylene	5	ND	ND	ND	ND	ND
Trichlorofluoromethane	5	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND	ND	ND
Xylenes (total)	5	ND	ND	ND	ND	ND
Vinyl Chloride	10	ND	ND	ND	ND	ND
SURROGATE COMPOUNDS		% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY
1,2-Dichloroethane-D4		93	97	97	99	99
Toluene-D8		93	94	95	107	101
p-BFB		98	97	100	104	102

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) TEST RESULTS - INORGANIC SLUDGES, ROCKY FLATS PLANT
(CONTINUED)

TCLP VOA COMPOUND	DETECTION LIMITS (ug/l)	56958 (ug/l)	TCLP BLANK (ug/l)	69558 (ug/l)	70046 (ug/l)	70046 RERUN (ug/l)
Acetone	10	30	30	73	ND	26
Bromodichloromethane	5	ND	ND	ND	ND	ND
Bromoform	5	ND	ND	ND	ND	ND
Bromomethane	10	ND	ND	ND	ND	ND
Carbon Disulfide	5	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND	ND
2-Chloro-1,3-Butadiene	5	ND	ND	ND	ND	ND
Chlorodibromomethane	5	ND	ND	ND	ND	ND
Chloroethane	10	ND	ND	ND	ND	ND
2-Chloroethylvinyl Ether	10	ND	ND	ND	ND	ND
Chloroform	5	ND	ND	ND	ND	ND
Chloromethane	10	ND	ND	ND	ND	ND
3-Chloropropene	100	ND	ND	ND	ND	ND
Cyclohexanone	1000	ND	ND	ND	ND	ND
1,2-Dibromo-3-Chloropropane	5	ND	ND	ND	ND	ND
1,2-Dibromomethane	5	ND	ND	ND	ND	ND
Dibromomethane	5	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	10	ND	ND	ND	ND	ND
Trans-1,4-Dichloro-2-Butene	5	ND	ND	ND	ND	ND
Dichlorofluoromethane	10	ND	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND	ND	ND
1,1-Dichloroethylene	5	ND	ND	ND	ND	ND
1,2-Dichloroethylene (total)	5	ND	ND	ND	ND	ND
Trans-1,3-Dichloropropene	5	ND	ND	ND	ND	ND
Cis-1,3-Dichloropropene	5	ND	ND	ND	ND	ND
Ethyl Acetate	100	ND	ND	ND	ND	ND
Ethyl Benzene	5	ND	ND	ND	ND	ND
Ethyl Ether	5	ND	ND	ND	ND	ND
Iodomethane	5	ND	ND	ND	ND	ND
Isobutanol	500	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	10	<DL	ND	ND	<DL	ND
Methyl Isobutyl Ketone	10	ND	ND	ND	ND	ND
Methylene Chloride	5	ND	ND	ND	ND	ND
N-Butyl Alcohol	100	65	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND
Tetrachloroethylene	5	ND	ND	ND	ND	ND
Toluene	5	15	ND	<DL	<DL	ND
1,1,1-Trichloroethane	5	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	ND	ND	ND	ND	ND
Trichloroethylene	5	ND	ND	ND	ND	ND
Trichlorofluoromethane	5	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND	ND	ND
Xylenes (total)	5	ND	ND	ND	ND	ND
Vinyl Chloride	10	ND	ND	ND	ND	ND
SURROGATE COMPOUNDS		% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY
1,2-Dichloroethane-D4		104	100	94	116*	125*
Toluene-D8		98	95	100	110*	111*
p-BFB		105	100	95	112	111

*High surrogate recoveries.

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) TEST RESULTS - INORGANIC SLUDGES, ROCKY FLATS PLANT
(CONTINUED)

ACID COMPOUNDS	DETECTION LIMITS (ug/l)	60779 (ug/l)	69573 (ug/l)	68034 (ug/l)	BLANK (ug/l)	67492 (ug/l)	59658 (ug/l)
2-Methyl Phenol	10	ND	ND	ND	ND	ND	ND
4-Methyl Phenol	10	ND	ND	ND	ND	ND	ND
4-Chloro-3-Methyl Phenol	10	ND	<DL	ND	ND	<DL	ND
2-Chlorophenol	10	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	10	ND	ND	ND	ND	ND	ND
2,6-Dichlorophenol	50	ND	ND	ND	ND	ND	ND
Pentachlorophenol	10	ND	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	50	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	50	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	10	ND	ND	ND	ND	ND	ND
SURROGATE COMPOUNDS		% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY
2-y-Phenol		15*	9*	8*	49	30	59
Phenol-D6		93	30	14	31	35	35
2,4,6-Tribromophenol		66	64	58	93	67	77

BASE/NEUTRAL COMPOUNDS	DETECTION LIMITS (ug/l)	60779 (ug/l)	69573 (ug/l)	68034 (ug/l)	BLANK (ug/l)	67492 (ug/l)	59658 (ug/l)
Bis(2-Chloroethoxy) Methane	10	ND	ND	ND	ND	ND	ND
Bis(2-Chloroethyl) Ether	10	ND	ND	ND	ND	ND	ND
Bis(2-Chloroisopropyl) Ether	10	ND	ND	ND	ND	ND	ND
p-Chloroaniline	10	ND	ND	ND	ND	ND	ND
Chloropenzilate	10	ND	ND	ND	ND	ND	ND
2-Chloronapthalene	10	ND	ND	ND	ND	ND	ND
3-Chloropropionitrile	10	ND	ND	ND	ND	ND	ND
a-Dichlorobenzene	10	ND	ND	ND	ND	ND	ND
o-Dichlorobenzene	10	ND	ND	ND	ND	ND	ND
p-Dichlorobenzene	10	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	20	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	10	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	10	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	10	ND	ND	ND	ND	ND	ND
Hexachloroethane	10	ND	ND	ND	ND	ND	ND
Hexachloropropene	10	ND	ND	ND	ND	ND	ND
Nitrobenzene	10	ND	ND	ND	ND	ND	ND
Pentachloroethane	10	ND	ND	ND	ND	ND	ND
Pentachlorobenzene	10	ND	ND	ND	ND	ND	ND
Pentachloronitrobenzene	10	ND	ND	ND	ND	ND	ND
Pronamide	10	ND	ND	ND	ND	ND	ND
Pyridine	10	ND	ND	ND	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	10	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	10	ND	ND	ND	ND	ND	ND
SURROGATE COMPOUNDS		% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY
Nitrobenzene-d5		31*	10*	20*	79	50	72
2-Fluorobiphenyl		42*	39*	45	66	57	67
Terphenyl-d14		84	89	97	77	101	86

*Low surrogate recoveries.

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) TEST RESULTS - INORGANIC SLUDGES, ROCKY FLATS PLANT
(CONTINUED)

ACID COMPOUNDS	DETECTION LIMITS (ug/l)	BLANK (ug/l)	69558 (ug/l)	70046 (ug/l)	BLANK (ug/l)	BLANK (ug/l)	RERUN 60779 (ug/l)	RERUN 68034 (ug/l)	RERUN 69573 (ug/l)
2-Methyl Phenol	10	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl Phenol	10	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-Methyl Phenol	10	ND	ND	<DL	ND	ND	ND	ND	<DL
2-Chlorophenol	10	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	10	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dichlorophenol	50	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	10	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6-Tetrachlorophenol	50	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	50	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	10	ND	ND	ND	ND	ND	ND	ND	ND
SURROGATE COMPOUNDS		% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RVCRY
2-y-Phenol		57	52	40	45	53	36	40	44
Phenol-D6		42	44	46	25	31	23	25	28
2,4,6-Tribromophenol		102	40	63	64	72	65	61	61

BASE/NEUTRAL COMPOUNDS	DETECTION LIMITS (ug/l)	BLANK (ug/l)	69558 (ug/l)	70046 (ug/l)	BLANK (ug/l)	BLANK (ug/l)	60779 (ug/l)	68034 (ug/l)	69573 (ug/l)
Bis(2-Chloroethoxy) Methane	10	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-Chloroethyl) Ether	10	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-Chloroisopropyl) Ether	10	ND	ND	ND	ND	ND	ND	ND	ND
p-Chloroaniline	10	ND	ND	ND	ND	ND	ND	ND	ND
Chloropenzilate	10	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronapthalene	10	ND	ND	ND	ND	ND	ND	ND	ND
3-Chloropropionitrile	10	ND	ND	ND	ND	ND	ND	ND	ND
a-Dichlorobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND
o-Dichlorobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND
p-Dichlorobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND
3,3-Dichlorobenzidine	20	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	10	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	10	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	10	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloropropene	10	ND	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND
Pentachloroethane	10	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND
Pentachloronitrobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND
Pronamide	10	ND	ND	ND	ND	ND	ND	ND	ND
Pyridine	10	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4,5-Tetrachlorobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND
SURROGATE COMPOUNDS		% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY	% RCVRY
Nitrobenzene-d5		72	71	52	75	84	59	62	73
2-Fluorobiphenol		70	83	71	67	75	63	70	72
Terphenyl-d14		86	81	95	100	92	77	81	79

ATTACHMENT K

RESULTS OF EXTRACTION PROCEDURE (EP) TOXICITY DATA ANALYSES

SECTION 1.0 - FILTER MEDIA SAMPLING AND ANALYSIS AT ROCKY FLATS PLANT, 1987

A sample of filter media (IDC 338) was prepared using EP Tox Method 1310 of EPA Manual SW-846 (1986). The extract was analyzed using ICP-AES according to Method 6010 of EPA Manual SW-846 and EPA Test Method 200.7. Mercury and selenium were analyzed using established procedures for hydride generation AAS.

Original results from the analyses are provided and indicate that all metals are below EP TOX maximum concentrations.

North American Space Operations
Rocky Flats Plant
P O Box 464
Golden, Colorado 80402-0464

To	Account No.	Date	Lab. No.
L.A.Abila file	986070-00	7/31/87	AL 587.529

Reported by G.E. Brown and D.B. Stuit

Approved K.J. Grossaint

Sample Description

Filter Media Sample, Requisition #68917

Analysis Results

The sample was prepared for elemental analyses using the EP Toxicity Test Method as outlined in section 2.1.4 and 1310 in "Test Methods for Evaluating Solid Waste", EPA Manual SW-846 (1986).

The EP extract was analyzed by Inductively Coupled Plasma Atomic Emission Spectroscopy for six metals using method 6010 in EPA Manual SW-846 and EPA test method 200.7. Mercury and selenium were determined using established procedures for hydride generation atomic absorption spectroscopy.

The results are as follows:

Element	Result (mg/l)	EP Tox Maximum Concentration (mg/l)
Arsenic	0.2	5.0
Barium	23	100.0
Cadmium	< 0.1	1.0
Chromium	< 0.1	5.0
Lead	< 0.1	5.0
Mercury	< 0.0005	0.2
Selenium	< 0.002	1.0
Silver	< 1.0	5.0

Internal reference numbers: ICP-2087, AAST-5767

SECTION 2.0 - SLUDGE FILTER CAKE SAMPLING AND ANALYSIS AT LOS ALAMOS, 1987-88

In 1987, twelve sludge filter cake (IDC 003) samples were collected and analyzed for metals content. Sludge from a 20,000 gallon mixed storage tank was filtered in a vacuum filter. LANL personnel collected the samples from the edge of the filter cake and delivered them directly to an onsite laboratory. They were stored in a refrigerator. The samples were prepared and analyzed following the EPA standard method for EP Toxicity, SW-846 method 1310. No formal chain of costody procedures were followed; however, the same person who collected the samples delivered them to the laboratory.

LANL SLUDGE (IDC 003) METALS ANALYSIS

SAMPLE NUMBER	SAMPLE DATE	PERCENT SOLIDS	METALS CONCENTRATIONS, mg/l[(a)]									
			ARSENIC	BARIUM	CADMIUM	LEAD	MERCURY	SELENIUM	SILVER	TOTAL CHROMIUM	NICKEL	THALLIUM
87.73915	10/13/87	30.5	ND	0.31	0.022	<0.04	0.00029	ND	0.024	0.034	0.89	NA
88.73901	1/28/88	25.1	0.0029	0.28	0.0051	0.041	0.00021	ND	0.029	0.023	0.14	NA
87.73912	8/4/87	29.3	0.0068	0.65	0.019	<0.04	ND	ND	0.019	<0.02	NA	NA
87.73911	7/1/87	40.7	ND	0.58	0.0017	0.13	ND	ND	0.014	<0.02	NA	NA
88.73903	3/21/88	23.2	0.0058	0.68	<0.001	<0.04	ND	ND	0.017	<0.02	0.082	NA
88.73908	8/5/88	27.7	0.0026	0.16	0.0020	ND	0.017	ND	0.032	ND	0.059	NA
88.73906	7/6/88	30.0	0.0022	0.98	0.027	0.088	0.027	0.0046	0.034	0.050	1.0	0.0019
88.73905	6/1/88	24.8	0.0020	0.94	0.028	0.15	0.00076	0.0050	0.029	0.049	0.94	0.0020
88.73904	5/2/88	27.7	ND	1.1	0.037	<0.04	0.00066	0.0030	0.035	0.090	1.3	0.0020
88.73902	2/19/88	24.9	0.0029	0.39	0.0041	0.048	0.0011	ND	0.089	<0.02	0.43	NA
87.73919	12/3/87	28.6	NA	0.23	<0.001	<0.04	0.00047	ND	0.034	<0.02	0.26	NA
87.73916	11/8/87	27.3	ND	0.37	0.026	0.078	0.00026	ND	0.020	0.054	0.76	NA
Detection Limit			0.002	0.01	0.001	0.04	0.0002	0.001	0.003	0.02	0.04	0.001

(a) ND = None detected
NA = Not analyzed

SECTION 3.0 - SLUDGE SAMPLING AND ANALYSIS AT MOUND, 1985

Mound personnel collected three sludge samples (IDC 836) in August 1985. All three samples were of either dried sludge or cemented sludge that had cured. At least one sample of each type was collected. The samples were collected in teflon sample bottles with press-on lids. The assay was determined and the samples were shipped to the NUS Corporation laboratory in Pittsburgh, Pennsylvania by common carrier. The samples arrived at the laboratory within about two days of being collected. No formal chain of custody procedures were followed; however, the person who collected the samples also prepared and shipped them to NUS.

The NUS laboratory analyzed the samples for leachable metals using the EP Toxicity procedure (Number 1310) in EPA SW-846. No modifications were made to the procedure.

MOUND SLUDGE (IDC 836) METALS ANALYSIS

SAMPLE NUMBER	SAMPLE DATE	METALS CONCENTRATIONS, mg/l[(a)] ARSENIC	BARIUM	CADMIUM	LEAD	MERCURY	SELENIUM	SILVER	CHROMIUM
15081908L	6/11/85	0.001	<0.1	0.012	0.07	<0.0002	<0.004	0.03	0.13
15081909L	6/11/85	0.001	<0.1	0.012	0.05	<0.0002	<0.004	0.03	0.15
15081910L	3/18/85	0.002	<0.1	0.007	0.08	<0.0002	<0.004	0.03	0.24
Detection Limit		0.002	0.01	0.001	0.04	0.0002	0.001	0.003	0.02

(a) ND = None detected
NA = Not analyzed

ATTACHMENT L

SUMMARY OF HEADSPACE GAS ANALYSIS IN ROCKY FLATS PLANT (RFP) SAMPLING PROGRAM - FY 1988

1.0 INTRODUCTION

A summary of the volatile organic components (VOC) from the headspace of 22 TRU-waste drums generated at Rocky Flats Plant is provided for the four waste types defined in the Trupact-II Content Codes (Attachment A). These analyses were initially reported in the Trupact-II Safety Analysis Report (SAR), and represent preliminary data on laboratory sheets sent to International Technology (IT) Corporation (drum numbers 741204577, 74703446, 002800658, 242533, 234906 and 3201073) and results reported by Roggenthen et al. (1989; Attachment M). Four of the drums (41450, 58642, 74402387 and 240658) lacked any information on the headspace VOC gases, and it is unclear from Roggenthen et al. (1989) if this indicates the gases were present but below the detection limit or an analysis was not performed. The headspace void is defined as the space between the rigid drum liner and outer-most waste bag.

SUMMARY OF ROCKY FLATS PLANT
GAS HEADSPACE SAMPLING PROGRAM*

IDC	Drum Number	Waste Type	Date Drum Filled	Gas Sample Analysis[a,b] (Head Space) (Vol %) CCl_4	TRIC	FREON	CH_2Cl_2
800	62542	I	6-21-88	ND[c]	ND	ND	ND
800	59728	I	6-20-88	ND	ND	ND	ND
800	62815	I	7-10-88	ND	ND	ND	ND
001	7411-2808	I	4-9-73	ND	ND	ND	ND
001	7411-2578	I	2-9-73	ND	ND	ND	ND
001	7412-03850	I	8-2-84	ND	ND	ND	ND
001	7412-02917	I	9-7-83	ND	ND	ND	ND
001	7412-03492	I	3-9-84	ND	ND	ND	ND
336	41450	III	6-7-88	NR[d]	NR	NR	NR
330	58642	III	6-7-88	NR	NR	NR	NR
337	74402387	III	1-22-73	NR	NR	NR	NR
442	240658	II	6-22-83	NR	NR	NR	NR
003	74316881	IV	4-3-84	3.9	ND	0.3	ND
003	74317069	IV	12-5-84	1.5	ND	0.8	ND
001	741204577	I	3-26-85	ND	ND	ND	ND
007	74703446	I	1-7-85	ND	ND	ND	ND
003	74316930	IV	5-25-84	ND	ND	ND	ND
003	2500484	IV	4-17-85	3.5	0.8	ND	0.8
440	002800658	II	9-28-82	NR	0.4	NR	NR
480	242533	II	2-21-84	NR	0.1	NR	NR
480	234906	II	2-21-84	NR	ND	NR	NR
300	3201073	II	12-5-83	NR	ND	NR	NR

[a] CCl_4 = Carbon tetrachloride
TRIC = 1,1,1 - Trichloroethane
FREON = 1,1,2 - Trichloro - 1,2,2 - Trifluoroethane
CH_2Cl_2 = Methylene chloride (dichlormethane)

[b] Detection limit: 500 ppm for all gases

[c] Not detected

[d] Not reported

*This table has been modified from the TRUPACT-II SAR (February 1989)

ATTACHMENT M

WASTE DRUM GAS GENERATION SAMPLING PROGRAM AT ROCKY FLATS PLANT DURING FY 1988

WASTE DRUM GAS GENERATION SAMPLING PROGRAM AT ROCKY FLATS, 1987 AND 1988

GAS SAMPLING AND ANALYSIS PROCEDURES

Twenty-two Rocky Flats Plant (RFP) contact-handled (CH) transuranic (TRU) waste drums were sampled for gas composition. Five of the drums represented newly generated waste (<6 months old) at RFP. The other drums sample were retrieved from Idaho National Engineering Laboratory (INEL). Samples were taken between each of the confinement layers in the drums. The drums were moved into the airlock of the size reduction facility at RFP and each layer of the containment was sampled. The samples were analyzed using mass spectrometry for thirteen inorganic and organic components. A more detailed description of the sampling and analytical procedures is provided in the RFP informal report by Roggenthen, McFeeters and Nieweg entitled "Waste Drum Gas Sampling Program, at Rocky Flats" prepared by Rockwell International in March 1989.

The gas samples were taken in ten milliliter stainless steel Nupro sampling bottles. The bottles were first evacuated by the laboratory to .02 torr in the laboratory. The vacuum pump with a pressure gauge and all the necessary valves were connected to the drum and the sample bottle was attached. The sampling device was evacuated to between one and five microns and the system was leak tested. The samples were taken by puncturing the appropriate layer inside the drum with a needle or awl, opening the valves and allowing the gas to enter the sample bottle. On the sample data sheets the sample number, drum number, sample bottle number, etc. were recorded. No formal chain of custody procedures were followed for transporting the samples to the lab. The personnel who conducted the sampling delivered the samples to the lab. Some of the samples were delivered by a courier service. In those cases, the laboratory representative who received the samples had to sign a receipt for the samples; and, the receipt was returned to the person who collected the samples.

The samples were analyzed by a DuPont Model CEC 21-104 mass spectrometer within one or two days of being collected. The instrument was calibrated for inorganic components using pure gases. A certified gas standard for the inorganic components was analyzed once on each shift during which the drum gas samples were analyzed. The organics expected to be present were determined in the Clements and Kudera study.
Standard organics samples were prepared by drawing approximately 0.5 milliliters of the liquid into a capillary tube. The capillary tube was immersed in liquid nitrogen to extract the absorbed air out of the organic liquid. Then the liquid was vaporized and injected into the spectrometer. One standard was prepared for each of the components suspected to be present in the gas samples. Fragmentation was used to differentiate between similar organic compounds. The organic standards were prepared and analyzed only once near the beginning of the analysis phase.

DRAFT

WASTE DRUM GAS GENERATION SAMPLING PROGRAM AT ROCKY FLATS

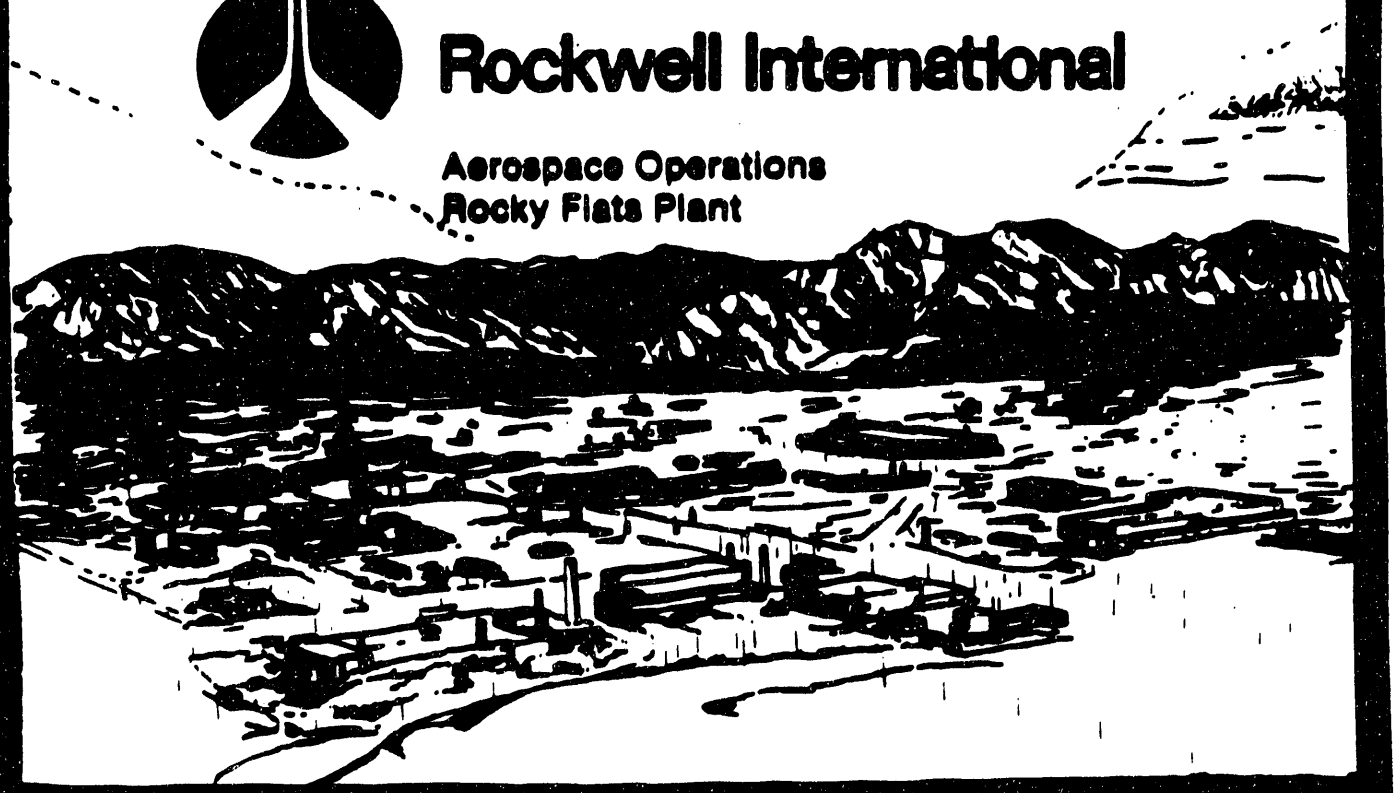
D. K. Roggenthen
T. L. McFeeters
R. G. Nieweg

RFP 4311

March 1989

Rockwell International

Aerospace Operations
Rocky Flats Plant



WASTE DRUM GAS GENERATION SAMPLING PROGRAM AT ROCKY FLATS

DRAFT

D. K. Roggenthen
T. L. McFeeters
R. G. Nieweg

PROCESS SYSTEMS DEVELOPMENT
Waste Process Development

March 1989

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U. S. Department of Energy
Contract DE-AC04-76D03533

KWIC Index:

G Values
Gas Generation
Hydrogen Permeability
TRU Waste

"REVIEWED FOR CLASSIFICATION"
By
Date 4/4/89

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TABLE OF CONTENTS

ABSTRACT 1

INTRODUCTION 2

EXPERIMENTAL PROCEDURE 3
Gas Generation 3
Hydrogen Permeability 12
Sludge Sampling 13

RESULTS AND DISCUSSION 14
Waste Drum Sampling 14
Hydrogen Permeability 19

CONCLUSIONS AND RECOMMENDATIONS 22

REFERENCES 24

APPENDIX A 25

APPENDIX B 38

LIST OF FIGURES

Figure 1. Sampling Device 4
Figure 2. Solidified Sludge Waste Drum 5
Figure 3. Sectioned Combustible Waste Drum 7
Figure 4. Gas Sampling Individual Waste Bags 8
Figure 5. Specially Prepared 55-Gal Drum 9

LIST OF TABLES

Table 1. Solidified Waste Gas Sampling 15
Table 2. Individual Waste Bag Drum Gas Sampling 17
Table 3. Volatile Organic Analysis of Sludge Samples 20

ABSTRACT

Rocky Flats Plant (RFP) Transuranic (TRU) Waste Drums were sampled for gas composition. Combustibles, plastics, Raschig rings, solidified organic sludge and solidified inorganic sludge TRU waste forms were sampled. Plastic bag material and waste samples were also taken from some of the solidified sludge waste drums. A vacuum system was used to sample each layer of containment inside a waste drum, including individual waste bags. G values were calculated for the waste drums. The analytical results indicate that very low concentrations of potentially flammable or corrosive gas mixtures will be found in vented drums. G(H2) was usually below 1.6, while G(Total) was below 4.0. Hydrogen permeability tests on the different types of plastic waste bags used at RFP were also conducted. Polyvinylchloride was slightly more permeable to hydrogen than polyethylene for new or creased material. The permeability of aged material to hydrogen was slightly higher than for new material. Solidified organic and inorganic sludges were sampled for volatile organics. The analytical results from both drums of the solidified organic sludges shows concentrations were above detection limits for 4 of the 36 volatile organics analyzed. The analytical results for four of the five solidified inorganic sludges shows that concentrations were below detection limits for all volatile organics analyzed.

INTRODUCTION

Rocky Flats Plant (RFP) Transuranic (TRU) waste will be shipped in the TRUPACT-II container to the Waste Isolation Pilot Plant (WIPP). The Nuclear Regulatory Commission (NRC) must issue a Certificate of Compliance for TRUPACT-II to allow shipment of waste. In determining the RFP waste forms and potential shipping categories and characteristics, questions have arisen about: 1) the gas generation of the waste material, 2) the migration of gases through the packaging materials, and 3) the volatile organic content of the sludge.

To answer questions about gas generation of the waste material, actual gas compositions were requested to establish minimum and maximum values for hydrogen and organic solvents. Waste drums used in this study were either newly-generated at RFP or RFP generated waste drums stored at Idaho National Engineering Laboratory (INEL) and returned to RFP for examination. The waste forms are identified by item description code (IDC). The waste forms sampled contained wet combustibles, dry combustibles, plastics, Raschig rings, solidified organic sludge, and solidified inorganic sludge. Each containment layer inside the waste drum was punctured with a needle and a sample of gas was collected in gas-tight bottles and analyzed by mass spectrometry for inorganic and organic gases. The G value was calculated which estimates the amount of gas generated per 100 eV of absorbed energy.

To answer questions about migration of gases through the packaging materials, the polyethylene (PE) and polyvinyl chloride (PVC) packaging materials used at RFP were tested for hydrogen permeability. The plastic material tested was recently purchased (new), new but bent (creased), and in waste drums for greater than 5 years (aged). Some of the aged plastic samples had been exposed to actinide activity. The permeation rates were determined by dynamic mass spectrometry.

To answer questions about the volatile organic concentrations solidified organic and inorganic sludges were sampled and analyzed for flammable and nonflammable volatile organics. The solidified organic sludges were generated in 1984 and 1985. The solidified inorganic sludges were either generated in 1983 and 1984 or 1973.

EXPERIMENTAL PROCEDURE

Gas Generation

Gas generation sampling was performed inside each layer of containment, including individual waste bags, in RFP generated waste drums. The TRU waste was either newly generated at RFP or RFP generated waste stored at INEL and returned for examination. The TRU waste consisted of wet and dry combustibles, plastics, Raschig rings, solidified organic sludges and solidified inorganic sludges. All sampling was performed in the airlock of the Size Reduction Facility (SRF). A vacuum pump and sampling device, Figure 1, were used to obtain the samples. The sampling device was connected to the vacuum pump approximately 24 hours before beginning any waste drum sampling. The sampling device was checked for leaks and repaired before any sampling.

Sludge Waste Drum Sampling Procedure

The typical solidified sludge (IDC 001, 003, and 800) waste drum contains a rigid liner, a PE round-bottom bag, and a PVC bag. The sludge was inside the PVC bag. Figure 2 shows a sectioned diagram of a sludge drum and the sampling points. To sample the sludge waste drum, two people wearing full face masks and protective clothing stood inside the SRF airlock. The waste drum was moved into the airlock and the drum lid removed. The lid of the PVC rigid liner was punctured with an awl. The awl was removed as the needle on the sampling device was lowered into the same hole. A gas sample was then taken inside the rigid liner. Next the rigid liner lid was removed, exposing the round bottom PE bag (outer bag). The outer bag was pulled up and isolated to allow a gas sample to be taken between the outer bag and the PVC bag (inner bag). The needle on the sampling device punctured the outer bag and a gas sample was taken. Two inch tape was placed over the area of the needle puncture to reseal the bag and prevent any personnel contamination. The outer and inner bag were pulled up and isolated to allow a gas sample to be taken between the inner bag and the waste material. The needle on the sampling device punctured both bags and a gas sample was taken. Two inch tape was placed over the area of the needle puncture. The rigid liner lid and drum lid were replaced and the drum was sealed and returned to the waste custodian.



Figure 1. Sampling Device

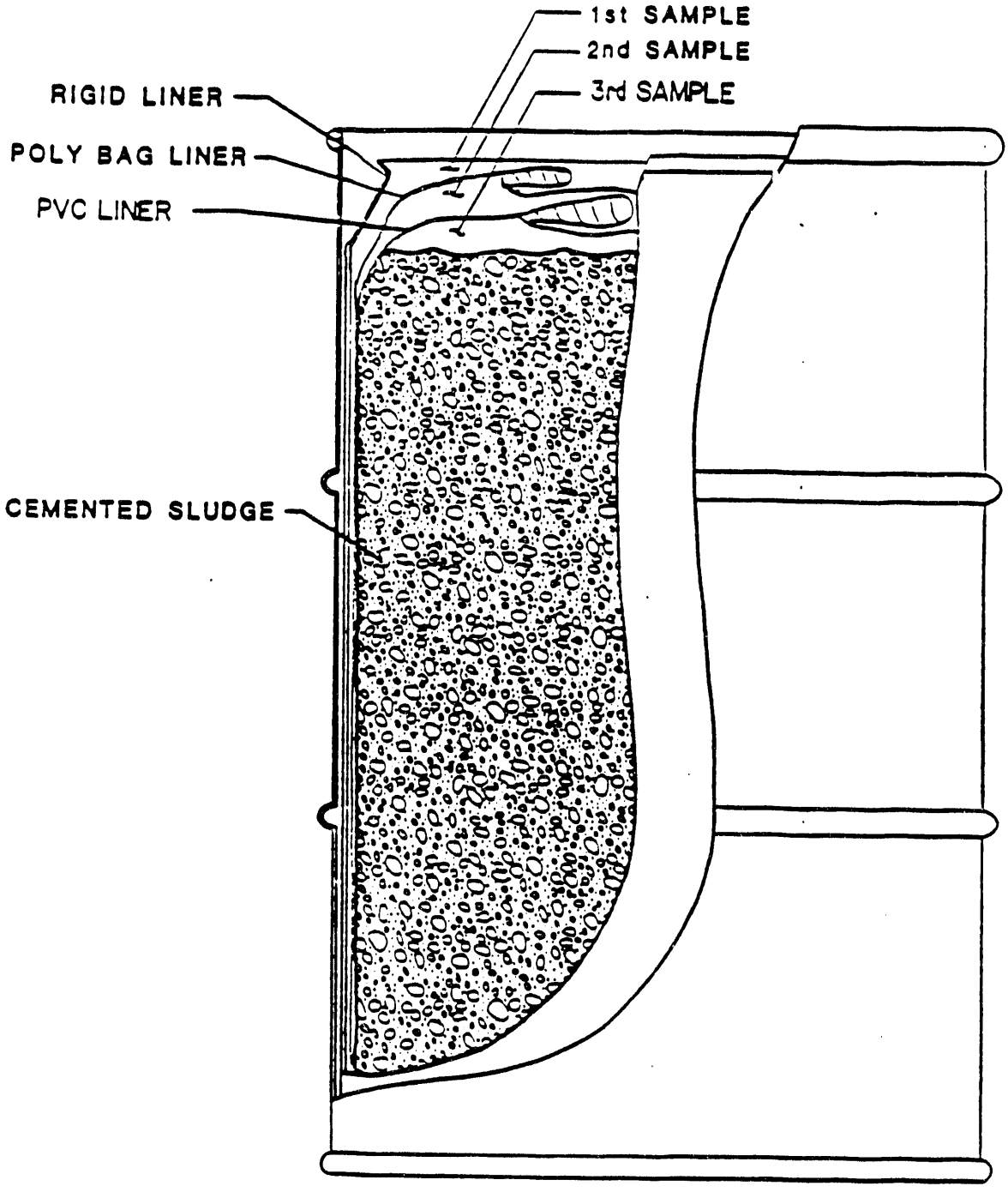

Figure 2. Solidified Sludge Waste Drum

Individual Waste Bag Sampling Procedure

The individual waste bag sampling procedure was used for all IDC's other than IDC 001, 003, and 800. The waste drums sampled usually contained a PE round bottom bag (outer bag), a PVC bag (inner bag), and groups of the waste material wrapped inside small bags. For some of the waste forms, a rigid liner or cardboard liner was required before the PE round bottom bag. For some of the waste forms, a PVC bag was not used. The individual waste bag sampling procedure followed the sludge waste drum sampling procedure except: 1) the outer bag was cut open after the gas sample was taken, and 2) the inner bag was cut open after the gas sample was taken. With the outer and inner bags open, individual waste bags were removed from the drum one at a time. The waste was usually contained within two plastic bags. The plastic bag's material varied depending on the origin of the waste.

The individual waste bags removed from the drum had an outer waste bag and an inner waste bag. The waste material was inside the inner waste bag. Figure 3 shows a sectioned diagram of the waste drum containing individual waste bags and the gas sampling points. A gas sample was collected between the outer waste bag and the inner waste bag using the sampling device. The needle of the sampling device punctured the outer bag and a gas sample was taken. Two inch tape was placed over the area of the needle puncture. A gas sample was also collected between the inner bag and the waste. The sampling device needle punctured both the outer and inner waste bag, Figure 4. Two inch tape was placed over the area of the needle puncture.

Each individual waste bag was placed into a special 55-gallon drum for assay. The special 55-gallon drum was prepared by placing a cardboard box and a round cardboard piece inside the plastic lined drum, shown in Figure 5. The special 55-gallon drum was closed and assayed at the passive/active neutron (PAN) counter. With such small amounts of waste per drum, by positioning the individual waste bag in the center third of the drum an assay with less reflective background was obtained. The above procedure was followed for each waste bag sampled.

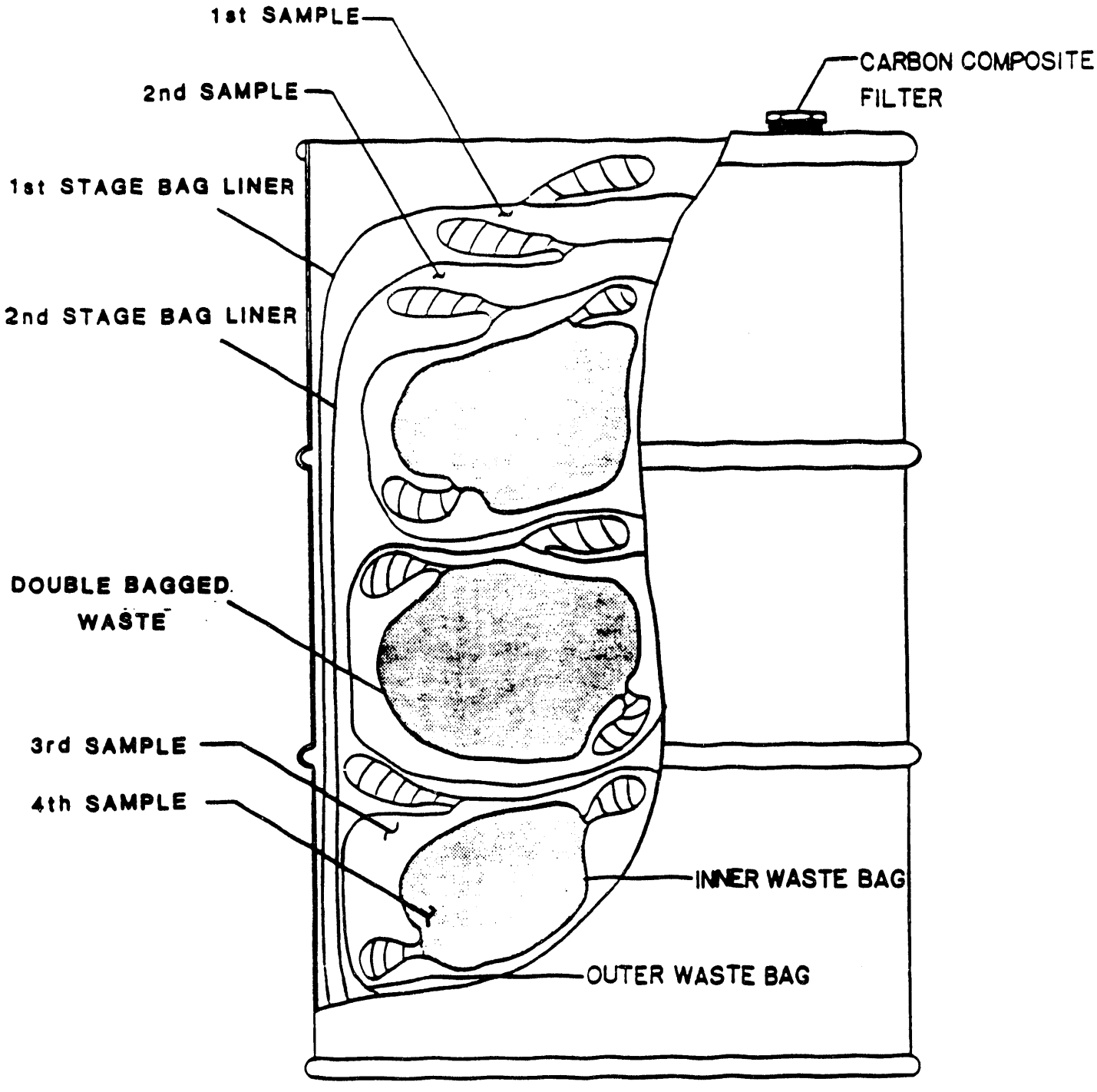

Figure 3. Sectioned Combustible Waste Drum



Figure 4. Gas Sampling Individual Waste Bags

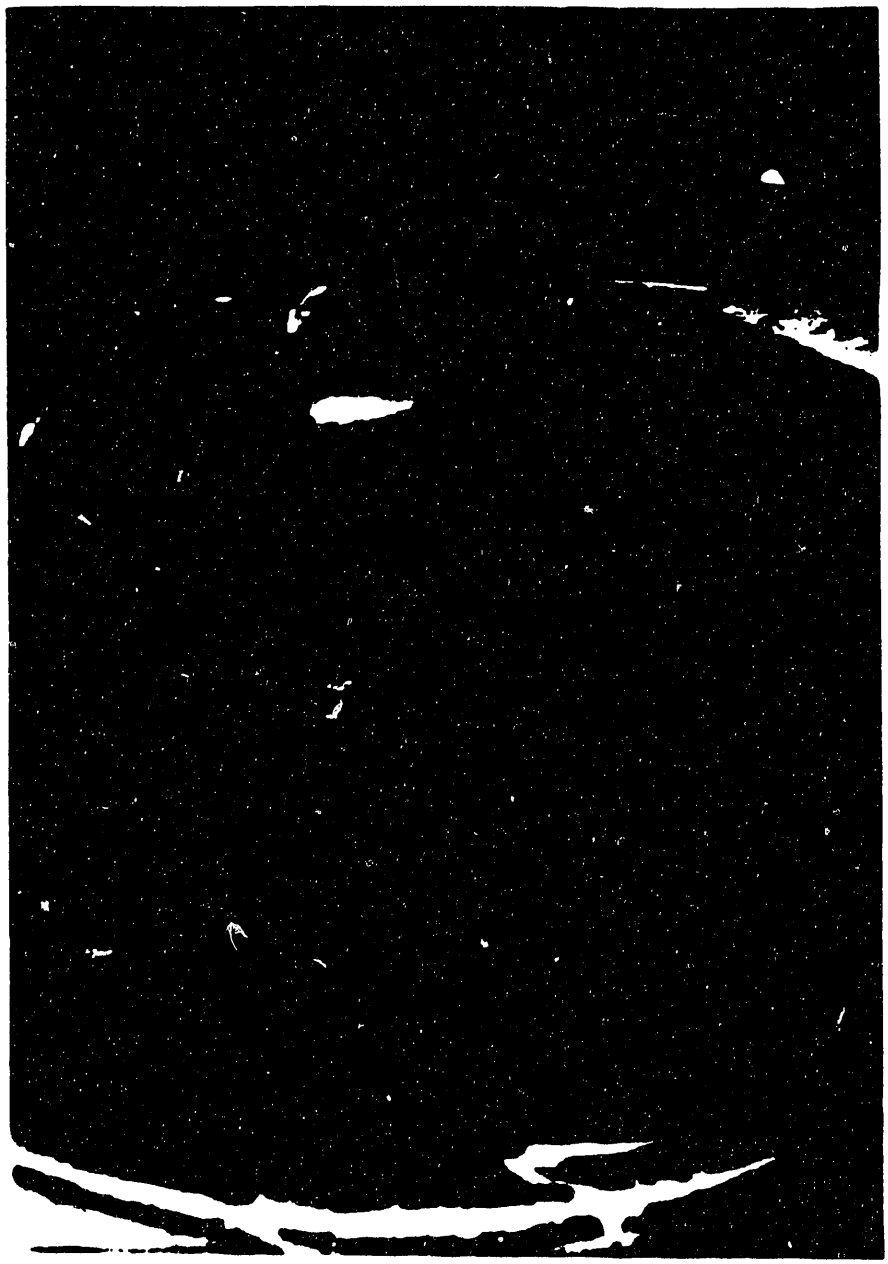

Figure 5. Specially Prepared 55-Gal Drum

Gas Sampling Procedure

A gas sample was collected inside a 10 ml evacuated sampling bottle. The sampling device shown in Figure 1 consisted of a Cajon VCO^{R} connection to a 10 ml valved sampling bottle, a valved pressure gauge, a 0.5 micron sintered metal filter, a valve before the vacuum pump, and a valved syringe needle. The sampling device was connected to the vacuum pump before sampling any waste drum and evacuated to less than 50 microns of mercury. The sampling device was evacuated to less than 80 microns of mercury between samples. The gas sample was taken using the needle of the sampling device to punctured the plastic bag.

The valves on the sampling manifold (Figure 1) were positioned in the following order to take a sample: 1) the pressure gauge valve (V2) was open, 2) the vacuum valve (V3) was shut, 3) the needle was inserted through the plastic bag, 4) the needle valve (V4) was opened, and 5) the sample bottle valve (V5) was opened. The gas sample was collected once the sample bottle was filled. The valves were positioned in the following order to replace the filled sample bottle with an empty sample bottle: 1) the needle valve (V4) was closed, 2) the sample bottle valve (V5) was closed, 3) the vacuum valve (V3) was closed, 4) the filled sample bottle was removed, 5) an empty sample bottle was attached, 6) the sample bottle valve (V5) was opened, 7) the pressure gauge valve (V2) was closed, 8) vacuum valve (V3) was opened, and 9) the pressure gauge valve (V2) was reopened approximately 1 to 2 minutes after opening V3. The vacuum evacuated the sampling device and bottle to less than 80 microns of mercury. The sample bottle valve (V2) was closed. The sampling device was then prepared for the next sample.

Drum Assay and G Value Calculation Requirements

To calculate the drum assay and the G value for each waste drum, the following information was required. If the waste form was a sludge or did not contain individual bags of waste, the entire waste drum was assayed in the PAN counter. The individual waste bags were weighed on a platform scale. Individual waste bag dimensions of circumference and length were also taken. If the waste drum contained individual waste bags, waste bags were sampled and repackaged into a 55-gallon drum for assaying at the PAN counter. Any unsampled waste bags in the original waste drum were also repackaged and assayed in the PAN counter. The PAN drum counter gives results in passive and active mass (gm). The active mass was usually the value used in the drum assay calculations. Sludge drums were measured for the amount of free space available inside the rigid liner. The type of rigid liner was also determined. For filtered drums, the carbon

composite filters have a minimum diffusion coefficient of 1.9 E-6 moles/sec/mole fraction of hydrogen. The minimum diffusion coefficient for hydrocarbons was six orders of magnitude lower and considered insignificant. The minimum diffusion coefficient was determined at standard pressure and 23 °C.[1]

Using information from above, the drum assay was calculated. The drum assay is the total alpha activity from inside a drum or the sum of all individual waste bags inside a drum. The total alpha activity was calculated by multiplying the specific activity of each radioactive element by the weight of each radioactive element. The specific activity (curie per gram) is a constant. The specific activity values were taken from the Solid Waste Information Management System (SWIMS) data base. The weight of each radioactive element was calculated from the active mass value reported by the PAN counter. The active mass value was assumed to be only plutonium unless an analysis of the waste form or the origin of the waste gave additional information on americium or uranium content.

The waste drum void volume was also calculated. The total drum void volume includes: 1) the space between the rigid liner and the 55-gallon drum, 2) inside the rigid liner, the space above the sludge or outside of the individual waste bags, and 3) the void space inside the individual waste bags. RFP specifications were used to obtain dimensional information for the rigid liners and the 55-gallon drum. Knowing the type of rigid liner, I, II or III, the void space between the inside of the 55-gallon drum and the outside of the rigid liner was calculated. The three types of rigid liners have approximately the same outside volume but the method of lid closure varied. The inside dimensions of each rigid liner type was obtained for calculating the void space outside of the individual waste bags or above the sludge. When individual waste bags were combined into one drum for assay, the average package dimension was used. The solidified sludge waste was assumed to contain no void space. The void space for the individual waste bags was determined by subtracting the volume of the individual waste bag from the volume of waste. Individual waste bags were assumed to be right circular cylinders for volume calculations. The volume of waste was determined by dividing the density of the waste into the weight of an individual package or the net weight of the drum. A density of 1.0 kg/l for combustibles and plastics and a density of 2.8 kg/l for the raschig rings was assumed.

Using information from above, the G value was calculated. The G value is determined by dividing the amount of gas generated per 100 eV of absorbed energy. All calculations used standard pressure, and room temperature (23 °C or 74 °F). The moles of gas generated were calculated from the ideal gas law based

on the void volume of the drum, the diffusion rate of hydrogen out of filtered drums, and the analytical results. The moles of gas were calculated for hydrogen, carbon dioxide, and the total of all nonchlorinated compounds except nitrogen, argon, and oxygen. Except for individual waste bags, the highest total analytical results were used. Changes in the concentration of oxygen were not accounted for in these calculations. The absorbed energy is calculated from the total alpha activity calculations and the length of time since the drum had been sealed. The G values for each drum were calculated from the following equation:

$$G = \frac{\text{moles gas X (6.02 E23 molecules/mole)}}{\text{((curie Pu) X (5.23 E4 100eV/dist) + (curie Am) X (5.64 E4 100eV/dist)) X (days drum sealed) X (3.7 E10 dist/s-Ci) X (8.64 E4 s/day)}}$$

Hydrogen Permeability

The hydrogen permeability values were obtained for bag material samples by dynamic mass spectrometry measurements. The PE and PVC plastic material was obtained from recently purchased bags (new or creased) and from bags which had been in waste drums since 1984 or 1973 (aged). The creased bag material was recently purchased material which had been bent repeatedly until perpendicular creases in the plastic material were permanent. The 1984 and 1973 waste drum plastic material was taken from areas in contact with either 1) the headspace gas or 2) the sludge waste. The aged plastic samples were taken from waste drums which had been sampled for gas generation. The permeability coefficient values are arithmetic means obtained from ten flowrate determination at 6 pressure points ranging from 16 to 600 torr for new or creased material and 3 pressure points ranging from 150 to 600 torr for aged material.

The dynamic mass spectrometry measured hydrogen flowrates at nominal pressure points by recording spectral peaks. The analytical plastic samples are held in a modified screen-supported sample holder located in the manifold between a hydrogen reservoir and the mass spectrometer. The analytical samples were 1 sq. cm. and had been cut from 6 inch squares of bag material. Before any measurements were taken, the manifold was evacuated and the hydrogen reservoir pressurized to one of the nominal pressures. The permeability coefficient values are obtained after normalizing background corrected values for area (1 sq. cm.), pressure (1 torr), and sample thickness (1 inch). The procedure is explained further in Appendices A & B.

Sludge Sampling

Solidified organic and inorganic sludges were sampled and analyzed for potentially flammable and nonflammable volatile organics. The solidified organic and inorganic sludge waste drums were initially examined for gas generation. Then, the waste drums were moved into the vault of the SRF facility. Inside the SRF facility, approximately 5 grams of sludge was sampled from the side of the waste. The sludge samples were then analyzed by Gas Chromatography/Mass Spectrometry (GC/MS) for 34 target compounds (EPA List) and two alcohol compounds commonly used at RFP (Table 3 - Results and Discussion Section). RFP Production Support Laboratory performed the analytical work.

RESULTS AND DISCUSSION

Waste Drum Sampling

Gas Generation

Sixteen drums of waste were sampled for gas generation composition. The sixteen drums included one drum each of wet combustible (IDC 336), dry combustible (IDC 330), plastic (IDC 337), and Raschig rings (IDC 442), four drums of organic solidified sludge (IDC 003) and eight drums of inorganic solidified sludge (IDC 001 and 800). G values were not calculated for a dry combustible drum, an organic solidified sludge and three of the inorganic solidified sludge drums because of incomplete assay or package size information.

Because of a 5 vol % hydrogen limit inside drums to be shipped in TRUPACT-II one drum would not have been shippable. Drum 741203492, a solidified inorganic sludge, was pressurized, exceeded the 5 vol % hydrogen limit, and had a potentially flammable mixture of gases inside the drum. However if the drum had been vented, potentially flammable mixture of gases would not have been likely and the drum would be shippable in TRUPACT-II.

G value limits have been proposed for the materials being shipped inside TRUPACT-II. The upper bounding G values for flammable gas are 3.1 and 4.1 for the TRUPACT-II.[2] The flammable gas G value includes hydrogen, methane, and ethane. The maximum G(Flam Gas) calculated was 3.1 for solid organic materials packaged in cardboard and plastic. Materials with a calculated G(Flam Gas) greater than 4.1 are not allowed in quantities greater than 1 wt % for TRUPACT-II shippable waste.

The G(H2) and G(Total) values for the inorganic solidified sludge ranged from 0.005 to 1.6 and 0.006 to 4.0 (Table 1), respectively. The G(H2) and G(Total) values for the organic solidified sludge range from 0.02 to 0.5 and 0.04 to 0.6 (Table 1), respectively. The G(H2) and G(Total) values for the individual waste bag drums ranged from 0.08 to 5.4 and 1.1 to 10.8 (Table 2), respectively. With the exception of one high G value drum, the G value would not prevent the shipment of any of these drums even though most of these drums were not vented.

The high G value drum had been closed less than 10 days when the gas sampling was performed. Drum 41450 (IDC 336) had a G(H2) and G(Total) of 5.4 and 10.8, respectively. This drum would have had acceptable G values if the drum had been sampled after additional time. The drum is discussed below.

TABLE 1 SOLIDIFIED WASTE GAS SAMPLING

DRUM NUMBER	LOC CODE	SAMPLING DATE	DATE DRUM CLOSED	GROSS WEIGHT (KG)	DRUM VENTED	DRUM ASSAY Pu (GM)	DRUM ASSAY Am (GM)	DRUM ASSAY U (GM)	CALCULATED DRUM ASSAY (CI/DRUM)	GAS SAMPLE ANALYSIS CO2 (VL%)	H2 (VL%)	Ar (VL%)	O2 (VL%)	N2 (VL%)	HDn (VL%)	C2H6 (VL%)	CH4 (VL%)	CCl4 (VL%)	TCA e (VL%)	FRM 11 (VL%)	CH2Cl2 (VL %)	CALCULATED VOID VOLUME (LITERS)	CALCULATED G VALUE G(H2)	G(CO2)	G(TOT)	SAMPLE LOCATION	GENERAL COMMENTS
62542	800	7 18 88	6 21 88	219	NO	2 6	0 0		0 245 b													47 9	0 35	0 35	0 7		
						3					81 9	1 0	17 1	200cd												RIGID LINER	TYPE III RIGID LINER LID HAD A GASKET
										400 c	84 5	1 0	14 4	400 c												OUTER BAG	
										200 c	85 6	1 0	13 3	550 c												INNER BAG	
59728	800	7-18-88	6 29 88	200	NO	1 7	0 07	0 6	2 233													38 7	0 03	0 07	0 10		
						2				0 1	77 9	0 9	21 1	400 c												RIGID LINER	TYPE III RIGID LINER LID HAD A GASKET
										300 c	79 2	0 9	19 8	550 c												OUTER BAG	
										450 c	78 8	0 9	20 2	400 c												INNER BAG	
67815	800	7 18 88	7-10 88	236	NO	1 7	0 0	1 7	0 145													38 7	1 6	2 4	4 0		
						2				600 c	81 4	1 0	17 5	400 c												RIGID LINER	TYPE III RIGID LINER LID HAD A GASKET
										500 c	81 7	0 9	17 3	400 c												OUTER BAG	
										200 c	86 5	1 0	12 4	600 c												INNER BAG	
74117808	001	9 14 88	4 9 73	238	YES a	4 7	0 8		N/A													N/A		N/A			
										0 3	83 6	1 0	15 0	0 1												RIGID LINER	TYPE I RIGID LINER
										0 1	83 8	1 0	15 1	TRACE												OUTER BAG	
										0 1	83 3	1 0	15 5	0 1												INNER BAG	SLUDGE SAMPLED
74112578	001	9 14 88	2 9 73	251	YES a	2 5	0 4		N/A													N/A		N/A			
										0 3	82 0	1 0	16 6	0 1		0 1										RIGID LINER	TYPE I RIGID LINER
										0 1	80 2	0 9	18 7	0 1												OUTER BAG	
										0 1	79 3	0 9	19 6	0 1												INNER BAG	BLACK COLORED SLUDGE + FLY ASH, SLUDGE SAMPLED
741203850	001	9 14 88	8 2 84	229	NO	6 41	2 41		N/A													66 4		N/A			
										0 1	78 0	0 9	20 9	0 1												RIGID LINER	TRACE OF OIL IN SAMPLE. TYPE II RIGID LINER
										0 1	78 2	0 9	20 7	0 1												OUTER BAG	TRACE OF OIL IN SAMPLE
										0 1	77 8	0 9	21 1	0 1												INNER BAG	TRACE OF OIL IN SAMPLE. SLUDGE SAMPLED
741202917	001	9 15 88	9 7 83	231	NO	3 4	1 6		22 13													60 5	0 005	0 0002	0 006		
						3				0 1	61 6	0 7	35 4	2 0	0 2											RIGID LINER	TYPE II RIGID LINER
										0 1	55 6	0 7	40 4	2 7	0 4	0 1										OUTER BAG	
										0 1	67 4	0 8	30 2	1 3	0 2											INNER BAG	SLUDGE SAMPLED
741203492	001	9 15 88	1 9 84	212	NO	11 1	2 31		23 07													66 4	0 019	0 0	0 020		DRUM PRESSURIZED
						11				0 1	56 5	0 7	33 3	9 2	0 3											RIGID LINER	CEMENT BETWEEN BAGS TYPE II RIGID LINER
											56 1	0 6	33 3	9 6	0 4											OUTER BAG	TRACE OF OIL IN SAMPLE
										0 1	60 3	0 7	31 2	7 5	0 2											INNER BAG	SLUDGE SAMPLED

TABLE 1. SOLIDIFIED WASTE GAS SAMPLING

DRUM NUMBER	IDC CODE	SAMPLING DATE	DATE DRUM CLOSED	GROSS WEIGHT (KG)	DRUM VENTED	DRUM ASSAY Pu (GM)	DRUM ASSAY Am (GM)	DRUM ASSAY U (GM)	CALCULATED DRUM ASSAY (CI/DRUM)	GAS SAMPLE ANALYSIS CO2 (VLX)	H2 (VLX)	Ar (VLX)	O2 (VLX)	N2 (VLX)	NOx (VLX)	C2H6 (VLX)	CH4 (VLX)	CCl4 (VLX)	TCA e (VLX)	FRM f (VLX)	CH2Cl2 (VL %)	CALCULATED VOID VOLUME (LITERS)	CALCULATED G VALUE G(H2)	G(CO2)	G(TOT)	SAMPLE LOCATION	GENERAL COMMENTS
74316881	003	10-4-88	4-3-84	196	NO	035			N/A													72 3		N/A			
										TRACE	88.3	1 1	2 0	4 2		0 2	0 1	3 9		0.3					RIGID LINER	TYPE II LINER
										TRACE	87.7	1 1	4.7	4 1		0 2	0 1	2 1							OUTER BAG	PACKAGING WAS YELLOW COLORED
74317069	003	10-4-88	12-5-84	184	NO	7 66			0 164 b													69 2	0 5	0 04	0 6		
						8				0 1	79 8	1 0	15.6	1 2		0 1	0 1	1 5		0 0						RIGID LINER	TYPE II LINER
										0 1	79 3	1 0	15 7	1 3		0 2	0 1	1 5		0 0					OUTER BAG	PACKAGING WAS YELLOW COLORED
										0 1	78 6	1 0	19 0	0 2						0 3					INNER BAG	GREENISH COLORED SLUDGE
74316930	003	1-27-89	5-25-84	184	NO	2 0	0 0		0 167 b													46 4	0 02	0 02	0 04		
						2				0 3	80 5	0 9	10 4	0 1												RIGID LINER	TYPE III LINER
										0 1	79 5	0 9	19 4	0 1											OUTER BAG	OUTER BAG BREACHED; GREENISH COLORED SLUDGE SAMPLED
2500484	003	1-27-89	4-17-85	200	NO	036	0 0		0 74 b													60 1	0 07	0 07	0 14		
						0				TRACE	82 9	0 9	11 0	0 1				3 5	0 0		0 0					RIGID LINER	SHELLED ORGANICS INSIDE TYPE III RIGID LINER
										0 1	81.2	0 9	14 4	0 1				2 3	0 5		0 5					OUTER BAG	NO INNER BAG; GREENISH COLORED SLUDGE SAMPLED

a INEL filter

b Only Pu content in calculation

c VALUE OF UNITS IN PPM

d AT DETECTION LIMITS

e TCA = 1,1,1-Trichloroethane

f FRM = FREON TF

TABLE 2 INDIVIDUAL WASTE BAG DRUM GAS SAMPLING

DRUM NUMBER	IDC CODE	SAMPLING DATE	DATE DRUM CLOSED	GROSS WEIGHT (KG)	DRUM VENTED	WASTE BAG NUMBER	DRUM ASSAY Pu (GM)	DRUM ASSAY Am (GM)	DRUM ASSAY U (GM)	WASTE BAG DIMENSIONS (CIRCUMFERENCE X LENGTH) (INCH X INCH)	CALCULATED VOID VOLUME (LITERS)	CALCULATED DRUM ASSAY b (Ci/DRUM)	GAS SAMPLE ARALYSIS CO2 (VL%)	N2 (VL%)	Ar (VL%)	O2 (VL%)	H2 (VL%)	NOx (VL%)	CH4/ C2H6 (VL%)	CALCULATED G VALUE G(H2)	G(CO2)	G(TOT)	SAMPLE LOCATION	INDIVIDUAL WASTE BAG CONTENTS	GENERAL COMMENTS
41450	336	6-16-88	6-7-88	40	NO		0	0	0		196.6	0 488								5 4	5 4	10 8			
				2 66		1A	2 0			NA		0.146	0 1	78.3	1 0	20.6	0 1						WASTE BAG	PLASTIC BOTTLES	TYPE III RIGID LINER
				5 345		1B	4 0			NA		0 151	700 d	77 3	0 9	21 7	200de						WASTE BAG	PLASTIC BOTTLES	WASTE BAG REPACKAGED
				5 32		1C	4 0			NA		0 191	0.1	77 7	0 9	21 2	0 1						WASTE BAG	PLASTIC	
58642	330	6 16 88	6-7-88	51	YES		0	0	0												NA				24 INDIVIDUAL WASTE BAGS
				1 135		2A	0			NA	NA	8 68 E -3	3 6	77 1	0 9	18 4							WASTE BAG	PLASTIC, PINT CONT	DRUM ASSAY SHEET DIFFICULT TO READ TYPE III LINER
				7 495		2B	0			NA	NA	5 36 E -5	9.0	85 1	1 0	4 8	500 d						WASTE BAG	PAPER, GLOVES	
				1 44		2C	0			NA	NA	5 83 E -3	2 6	77.5	0.9	19 0	200de						WASTE BAG	PINT CONTAINERS	
				1 48		2D	0			NA	NA	3 69 E -3	8.6	81 5	1 0	8.7							WASTE BAG	PLASTIC GLOVES	
				1 00		2E	0			NA	NA	3 94 E -3	0 3	78 2	1 0	8 7							WASTE BAG	PINT CONT, GLOVES	
				0 72		2F	0			NA	NA	1 43 E -3	3 9	79.2	0.9	16 0	200de						WASTE BAG	PINT CONT, GLOVES	
				1 575		2G	0			NA	NA	5 26 E -3	2 9	78 0	1 0	18 1	400 d						WASTE BAG	PINT CONT, GLOVES	
				0 755		2H	0			NA	NA	1 22 E -3	2.2	78 1	0 9	18 8							WASTE BAG	PINT CONT, GLOVES	DRUM NO WRONG ON ASSAY SHEET USED TID TO MATCH
				0 37		2I	0			NA	NA	3 79 E -4	4.0	86 2	1 0	8.5		0.3					WASTE BAG	PLASTIC GLOVES	
				35		REMAINDER	NA			NA		NA													CONTAINED 15 WASTE BAGS OF UNKNOWN CONTENT
74402387	337	9 12 88	1 22 73	55	YES a		0 0	0 0				0 062								0 16	0 9	1 1			DRUM RETRIEVED FROM INEL STORAGE 1983
													1 4	80 6	1 0	16 9	0 03		0 08				RIGID LINER		TYPE I RIGID LINER LID CONCAVE BEFORE SAMPLING
													1 2	81 6	1 0	16 1			0 06				OUTER BAG		FILTER INSTALLED IN OCT 1987 AND EXAMINED IN INEL
													1 2	79 9	1 0	17 8	0 04		0 02				INNER BAG		SWEPP IN JULY 1988
				0 15		1A	0			25 25 x 14	11 49	4 76 E -3	0 6	77 7	1 0	20 7	0 04		0 04				OUTER WASTE		
													0 9	79 1	0 9	19 0	0 05		0 05				INNER WASTE	PLASTIC BOTTLE	REPACKAGED
				0 35		1B	0			22 5 x 15	9 55	0 013	0 1	77 4	0 9	21 4	0 04		0.06				INNER WASTE	PLASTIC BOTTLE	OUTER BAG BREACHED & PLASTIC COLOR IS DARK BROWN
				1 975		1C	0			26 2 x 14 8	66 47	0 010												5 PLASTIC BOTTLES	ALL INDIVIDUAL WASTE PACKAGES BREACHED
				14 5		1D	0			25 8 x 14 7 c	85 76 c	0 035												8 PLASTIC BOTTLES	ALL INDIVIDUAL WASTE PACKAGES BREACHED
240658	442	9-12-88	8-22 83	127	NO		4 0	0 0		NA	174 9	0 029								0 08	1 5	1 8			
							0 39						0 4	79 1	1 0	19 4	0 02e		0 06				RIGID LINER		TYPE III RIGID LINER
													0 4	78 7	0 9	19 9			0 08				OUTER BAG		WET VERMICULITE BETWEEN BAGS
													0 4	78 8	0 9	19 8			0 08				INNER BAG	RASCHIG RINGS	3 INDIVIDUAL WASTE BAGS UNSEEN THROUGH INNER BAG

a INEL FILTER TYPE

b Pu ONLY IN CALCULATIONS

c BASED ON AVERAGE PACKAGE DIMENSIONS

d VALUE OF UNITS IN PPM

e AT DETECTION LIMITS

Drum 41450, a wet combustible, had a G(H2) and G(Total) of 5.4 and 10.8. There are five factors which contributed to the high G values.

- The first factor is the analytical results from inside the individual waste bags were used for all of the void space in the moles of gas generated calculation. In such a short period, the drum had probably not established equilibrium. Therefore, a lower hydrogen concentration inside the rigid liner void space could have lowered the G values significantly.

- The second factor was the length of time that the drum had been closed (nine days). The G value calculation was influenced by the length of time the drum had been closed based on the moles of gas generated. If the moles of gas generated has been generated over 90 days, the G values would have been lowered to a tenth (0.54 and 1.1) of the calculated values (5.4 and 10.8).
- The third factor was analytical error. The detection limit for hydrogen is 200 ppm. The analytical results are reported to the nearest 100 ppm from 200 to 500 ppm. Above 500 ppm, the analytical results are reported to the nearest tenth of a volume percent.
- The fourth factor was the individual waste bags had accumulated inside the drum for several days before the drum was closed.
- The fifth factor was that the drum was not vented.

Possible assumptions which could introduce some error into the G value calculation are: 1) that all gases remained inside a non-filtered, sealed drum with a semi-permeable gaskets, 2) that the gas composition remain the same from the day the drum is closed until it is sampled, 3) that individual waste bags were accumulating in the drum before closing, and 4) that all the 'radiologic decay on the waste inside individual waste bags contacted the plastic material[3]. Error can also be introduced into the G value calculation because of analytical and PAN drum assay error.

Organic Concentration of Sludge

Two IDC 003 organic solidified sludge drums were sampled for headspace gas composition and for organic compounds in the sludge. Both drums were originally generated at RFP, stored at INEL and returned to RFP for examination. Drum 74316930 was generated in 1984. Drum 2500484 was generated in 1985. Both drums contained some organic compounds in the sludge at total concentrations of less than 8 ppm. Only drum 2500484 contained any organic compounds in the headspace and the total concentration was only 5.1 vol %.

Five IDC 001 inorganic sludge drums were sampled for headspace gas composition and for organic compounds in the sludge. The five drums were originally generated at RFP, then stored at INEL and returned to RFP for examination. Three of the five drums were filled in 1983 or 1984. The remaining two drums were filled in 1973. Only one (7411-2808) of the five drums contained sludge with organic compounds above the detection limits. The analytical results are shown in Table 3. Waste in drum 7411-2808 had been generated at RFP in 1973 and had a filter vent (INEL filter - installed in October 1987) in the drum lid. The sludge contained 9 organic compounds (ppm concentrations) out of the 36 compounds analyzed. The gas samples of the same drum showed no trace of the organic compounds within the layers of containment (Table 1). Therefore, the sludge has retained volatile organic compounds.

Hydrogen Permeability

The hydrogen permeability study used PVC and PE plastic material cut from new bags or from bags used in packaging waste at RFP. The plastic material samples were approximately 6 X 6 inch square. New and creased plastic materials had ten permeation rate measurements made at six pressure points ranging from approximately 16 to 600 torr. Aged plastic material had ten permeation rate measurements made at three pressure points between 150 and 600 torr.

The hydrogen permeability results in Appendix A show no statistically valid differences in the permeability coefficient values between new and creased plastic material. The permeability coefficient values given below were obtained at pressures between 150 and 600 torr. The data obtained at 75 torr and below contain significant levels of variation. The reasons for the inaccuracy are not completely understood at this time. Therefore, the lower permeability coefficient values (pressures between 150 and 600 torr) are reported and provide a margin of safety. Permeability coefficient values of 1.67×10^{-15} and 1.64×10^{-15} (moles/sec)-inch/cm^2-torr were obtained for new and creased PE, respectively. Values of 2.84×10^{-15} and 2.82×10^{-15} (moles/sec)-inch/cm^2-torr were obtained for new and creased PVC, respectively.

The hydrogen permeability results in Appendix B show an increase in the permeability coefficient for the 16 year old PVC and PE plastic materials. The permeability coefficient for the 5 year old PVC and PE plastic showed no significant change from new or creased material. The permeability coefficient for PVC showed no variation between the material which had been exposed to air mixtures or sludge. Permeability coefficient values of 1.9×10^{-15} and 5.4×10^{-15} (moles/sec)-inch/cm^2-torr were obtained for 5 and 16 year old aged PE,

Table 3. Volatile Organic Analysis of Sludge Samples[a]

Volatile Compounds(ppm)	7411-2808	7412-02917	7412-03492	7412-03850	7411-2578	7431-6930	250-0484
1,1-Dichloroethene	.1U	.1U	.1U	.1U	.1U	.1U	80[b]
1,2-Dichloroethene(Total)	7.8	.1U	.1U	.1U	.1U	.1U	.1U
Chloroform	1.8	.1U	.1U	.1U	.1U	.1U	.1U
1,1,1-Trichloroethane	8.8	.1U	.1U	.1U	.1U	.1U	.1U
Tetrachloroethene	1.7	.1U	.1U	.1U	.1U	1.2	40[b]
1,1,2,2-Tetrachloroethane	4.7	.1U	.1U	.1U	.1U	.1U	.1U
Toluene	0.9	.1U	.1U	.1U	.1U	.1U	.1U
Ethylbenzene	5.3	.1U	.1U	.1U	.1U	.1U	.1U
Styrene	9.6	.1U	.1U	.1U	.1U	.1U	.1U
Total Xylenes	19.0	.1U	.1U	.1U	.1U	.1U	.1U
Carbon Tetrachloride	.1U	.1U	.1U	.1U	.1U	2.2	700[b]
Freon TF	.2U	.2U	.2U	.2U	.2U	4.0	.2U

U Analyzed, not detected

a Other volatile organic compounds analyzed for but were not detected include: 1) propanol, 2) butanol, 3) chloroethane, 4) methylene chloride, 5) acetone, 6) carbon disulfide, 7) 1,1-dichloroethane, 8) 1,2-dichloroethane, 9) 2-Butanone, 10) vinyl acetate, 11) bromodichloromethane, 12) 1,2-dichloropropane, 13) cis-1,3-dichloropropene, 14) trichloroethene, 15) dibromochloromethane, 16) 1,1,2-trichloroethane, 17) benzene, 18) trans-1,3-dichloropropene, 19) bromoform, 20) 4-methyl-2-pentanone, 21) 2-hexanone, 22) chlorobenzene, 23) chloromethane, and 24) bromomethane. All detection limits are .2 or .1 ppm for above compounds.

b Concentrations in ppb.

respectively. Values of 2.8×10^{-15} and 7.8×10^{-15} (moles/sec)-inch/cm^2-torr were obtained for 5 and 16 year old aged PVC, respectively.

Although permeabilities vary with ageing, the permeability coefficient ratio (PVC/PE) was fairly consistent. The permeability coefficient ratio (PVC/PE) was slightly lower for the aged material at 1.47 and 1.46 for 5 year old and 16 year old plastic, respectively, and was 1.70 for new or creased material. Based on the small data base, the effects of ageing are consistent for PE and PVC materials. Therefore, the data indicates the PVC material should not allow as much hydrogen accumulation inside the waste bags.

CONCLUSIONS AND RECOMMENDATIONS

The three separate areas which have been covered are: 1) gas generation by RFP generated waste, 2) the hydrogen permeability of various plastics, and 3) the ability of the solidified sludges to retain volatile organic compounds.

RFP generated waste has varying concentrations of hydrogen, carbon dioxide, various hydrocarbons, and nitrogen oxides in the headspace and individual waste bags in the sixteen drums sampled. The calculated G(Total) values for the sixteen drums did not exceed any bounding G Value. Only one of the sixteen drums sampled exceeded the bounding G(Flam Gas) value of 3.1. The G(Total) for the organic solidified sludge ranged from 0.04 to 0.06. The G(Flam Gas) for the organic solidified sludge ranged from 0.02 to 0.5. The G(Total) for the inorganic solidified sludge ranged from 0.006 to 4.0. The G(Flam Gas) for the inorganic solidified sludge ranged form 0.005 to 1.6. The G(Total) for the individual waste bag drums ranged from 1.1 to 10.8. The G(Flam Gas) for the individual waste bag drums ranged from 0.08 to 5.4. The drum with high G values had been closed for 9 days and was not vented. One of the inorganic solidified sludge drums was pressurized, exceeded the 5 vol % hydrogen limits allowable in TRUPACT II and had a potentially flammable mixture of gases inside the drum. If the drum had been vented, potentially flammable mixture of gases or the 5 vol% hydrogen concentration would not have been likely.

Possible assumptions which could introduce some error into the G value calculation are: 1) that all gases remained inside a non-filtered, sealed drum with a semi-permeable gaskets, 2) that the gas composition remain the same from the day the drum is closed until it is sampled, 3) that individual waste bags were accumulating in the drum before closing, and 4) that all the radiologic decay on the waste inside individual waste bags contacted the plastic material[3].

The hydrogen permeability of the various plastics used on plant site was tested using new (recently purchased) and old (in waste drums 5 and 16 years) materials. Some of the old material had been exposed to radioactivity. The hydrogen permeability tests show the plastic material's permeability may be slightly affected by age but not by radiologic exposure. The PVC material was more permeable to hydrogen than the PE material.

Both of the organic solidified sludges sampled showed detectable amounts of volatile organic compounds. The concentration levels ranged from 40 ppb to 4.0 ppm for four organic compounds. Organic compounds were also detected in the headspace of one of the drums with a total concentration of 5.1 vol %.

Four of the five inorganic solidified sludges sampled showed no detectable volatile organic compounds or alcohols in the sludge. One of the five sludges did show concentrations ranging from 0.9 to 19 ppm for nine organic compounds. Since organic compounds were not detected in the headspace gas sampling, the inorganic solidified sludges retained low concentrations of organic compounds.

Recommendations based on the data in this report include:

1) additional gas sampling on RFP generated waste which has been performed and will be reported in later publications;
2) additional gas sampling for other waste forms which is also planned;
3) venting of all TRU waste drums; and
4) establish a minimum time period at RFP before the drums can be shipped in TRUPACT-II.

REFERENCES

1. "Safety Analysis Report For The TRUPACT-II Shipping Package Docket Number 71-9218", Appendix 3.6.9 - Gas Release Assessment, February 1989, Nuclear Packaging, Inc., Seattle, Washington.

2. "Safety Analysis Report For The TRUPACT-II Shipping Package Docket Number 71-9218", Appendix 3.6.7 - Effective G Values for TRUPACT-II Waste Forms, February 1989, Nuclear Packaging, Inc., Seattle, Washington.

3. "Safety Analysis Report For The TRUPACT-II Shipping Package Docket Number 71-9218", Appendix 3.6.8 - Radiolytic G Values For Waste Materials, February 1989, Nuclear Packaging, Inc., Seattle, Washington.

APPENDIX A

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FILE

AL588.593
SEPT 8, 1988

H2 PERMEABILITY COEFFICIENTS

POLYETHYLENE
POLYVINYLCHLORIDE

Hydrogen permeability coefficients were determined for samples of polyethylene and polyvinylchloride in "new" and "creased" condition.
A modified sample holder and an increased statistical base provide improved reliability for values presented in this report.

Summary

No statistically valid difference in permeability existed between "new" and "creased" polyethylene or polyvinylchloride, in spite of visible crease lines sustained by the polyethylene.

Permeability coefficient values of 1.67 and 1.64 x 10-15 (see note for units) were obtained for "new" and "creased" polyethylene respectively. Corresponding values of 2.84 x 10-15 and 2.82 x 10-15 were obtained for "new" and "creased" polyvinylchloride. Polyvinylchloride thus appears to be about 1.7 times as permeable to hydrogen (ratio of permeability coefficients) as the polyethylene of the samples analyzed.

Note

$$Q = \frac{\text{(moles/second) x inches thickness}}{\text{square centimeters x torr}}$$

Experimental

Permeation rates were determined by dynamic mass spectrometry as previously described (AL588.396). The sample holder was modified by including a screen support for the thin film samples to reduce or prevent the stretching/thinning deformation previously observed after application of permeant pressure. This modification succeeded as very little to no sample deformation was observed in this series of experiments.

Ten (10) permeation rate measurements were made at each of six (6) permeant pressure points ranging from approximately 16 to 600 torr. A permeability coefficient was calculated from each permeation rate measured and the mean and relative standard deviation of these values recorded.

The sample was then removed and "damaged" or "creased" by sharply bending the disc on a line through its center, rotating the sample 90 degrees and again sharply bending the disc through the center on a line at right angles to the first. This "creasing" action left visible quadrant lines in the polyethylene sample but had no visible effect on the polyvinylchloride.

The same permeation rate measurement series was again performed, and the mean value and relative standard deviation determined for "damaged" materials.

Results and Discussion

Results are presented in Tables 1 and 2 and in Figures 1 through 8. Table 1 presents permeability coefficients determined from "new" and "damaged" or "creased" samples. The permeability coeffecients listed are mean values, and the differences between "new" and "creased" values are less than the relative standard deviations of either data set for both materials. Thus "crease" damage effects appear to be insignificant in overall permeability, even when visible lines result (polyethylene) from the creasing action.

Figures 1 through 4 are plots of area normalized hydrogen (H2) flowrates plotted versus permeant pressure. They show the ten permeation rates determined at each of the six pressures used, and illustrate the relatively constant slope or rate of change of permeation rate with applied pressure for all samples.

When statistical analysis was applied to all permeability coefficients determined in each experiment, the relative standard deviations (coefficient of variance) were unexpectedly high for all four, about 40 percent. Further examination of data indicated that more variation existed at lower pressures, and plots of actual permeability coefficient values versus pressure were prepared for each experiment. These plots, Figures 5 through 8, clearly show the expected increase in variation at lower pressures does occur in all four experiments. They also clearly show another unexpected factor. All experiments show a permeability coefficient varying inversely with pressure at and below 75 torr, with stable and constant values found at 150 to 600 torr. A larger variation of values at lower pressures was expected due to more error in their measurement, and this type error is normally random. No explanation is currently available for the obvious increase in calculated permeability coefficient values as minimum detectible flowrates are approached.

In any case permeability coefficients calculated from data obtained at pressures of 75 torr and below appear suspect, and results presented in Table 1 are from the 30 data points obtained at pressures of 150 to 600 torr. Table 2 contains and compares results (mean permeability coefficient value, relative standard deviation) based on the full 16 to 600 torr data and the results based on only the 150 to 600 torr range.

The values presented in Table 1 are considered the most reliable for the reasons discussed (Figures 5 through 8; Table 2), but all experimental data obtained are presented via Table 2 for consideration and evaluation.

Report by T L MCFEETERS

Approved by L K FULKS

TABLE 1

HYDROGEN PERMEABILITY COEFFICIENTS

POLYETHYLENE
POLYVINYLCHLORIDE

MATERIAL	Q	R.S.D. (%)
POLYETHYLENE (0.009")		
NEW	1.67 x 10-15	9.59
CREASED	1.64 x 10-15	4.83
POLYVINYLCHLORIDE (0.0115")		
NEW	2.84 x 10-15	4.51
CREASED	2.82 x 10-15	4.34

$$Q = \frac{\text{(moles/sec) x inches thickness}}{\text{square centimeter x torr}}$$

R.S.D. = relative standard deviation

TABLE 2

HYDROGEN PERMEABILITY COEFFICIENTS

POLYETHYLENE
POLYVINYLCHLORIDE

DESCRIPTION		Q	R.S.D. (%)
POLYETHYLENE (0.009")			
NEW	150-601 torr 30 data points	1.67 x 10-15	9.59
	12-601 torr 60 data points	2.21 x 10-15	40.4
CREASED	150-599 torr 30 data points	1.64 x 10-15	4.83
	15-599 torr 60 data points	2.40 x 10-15	44.1
POLYVINYLCHLORIDE (0.0115")			
NEW	151-603 torr 30 data points	2.84 x 10-15	4.51
	14-603 torr 60 data points	3.97 x 10-15	41.8
CREASED	150-600 torr 30 data points	2.82 x 10-15	4.34
	18-600 torr 60 data points	3.84 x 10-15	39.0

$$Q = \frac{\text{(moles/sec) x inches thickness}}{\text{square centimeter x torr}}$$

R.S.D. = relative standard deviation

Fig. 1

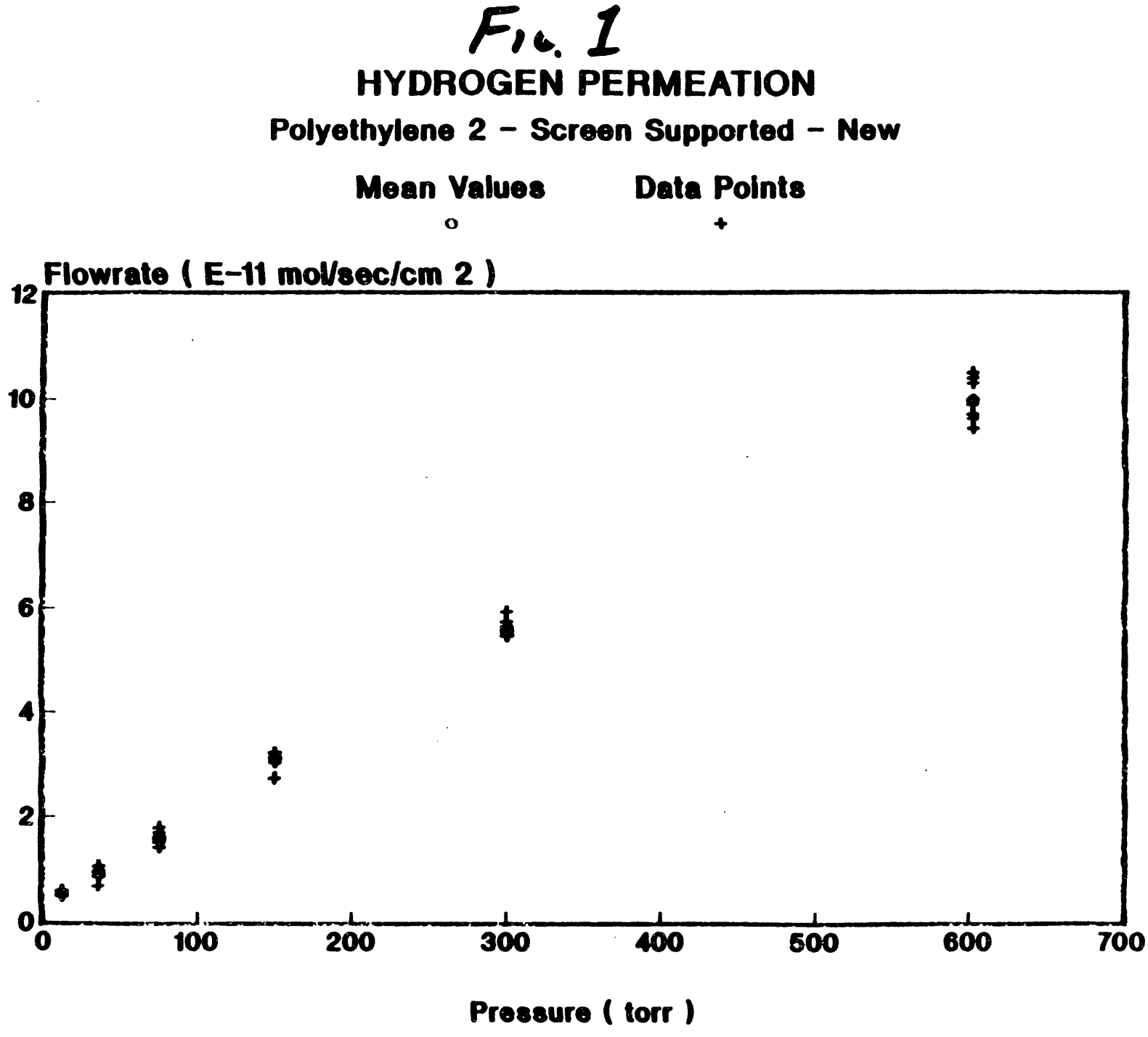

HYDROGEN PERMEATION
Polyethylene 2 – Screen Supported – New
Mean Values
o
Data Points
+
Flowrate (E-11 mol/sec/cm 2)
12
10
8
6
4
2
0
0
100
200
300
400
500
600
700
Pressure (torr)

FIG 6

HYDROGEN PERMEATION

Polyethylene 2 – Screen Supported – Creased

Mean Values o Data Points +

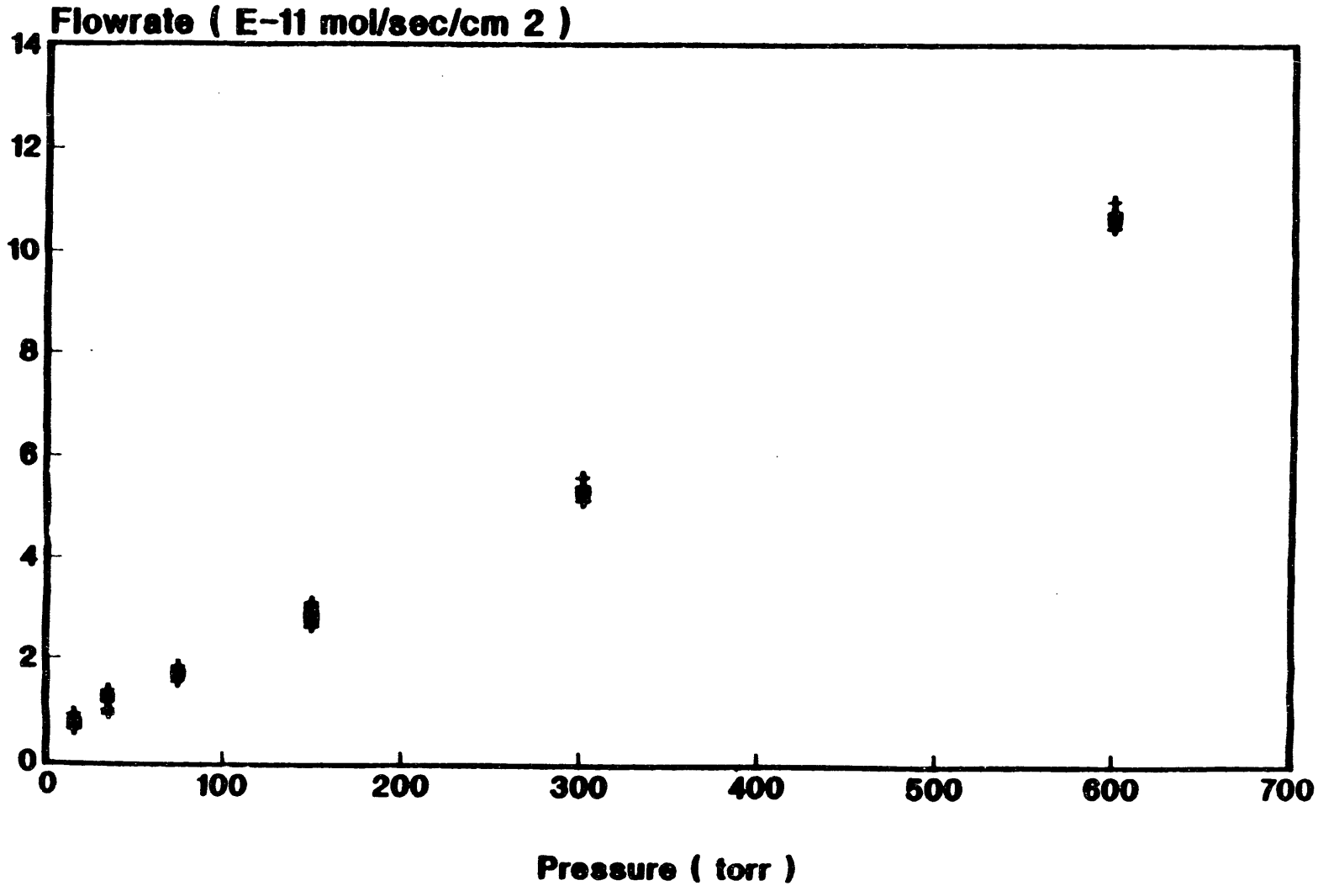


FIG.

HYDROGEN PERMEATION

Polyvinylchloride 2 – Screen Supported – New

Mean Values o Data Points +

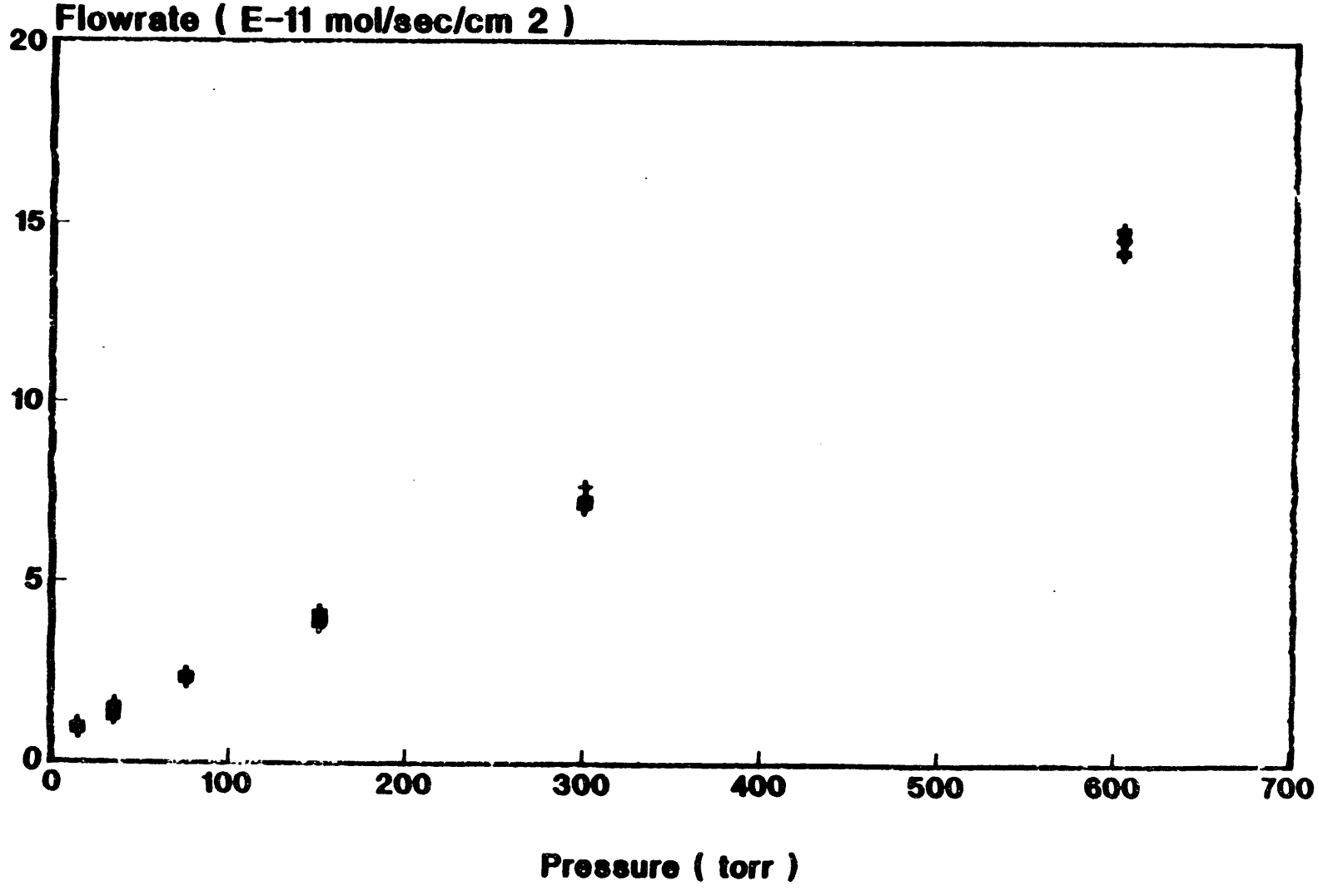


Fig 4

HYDROGEN PERMEATION

Polyvinylchloride 2-Screen Supported-Creased

Mean Values o Data Points +

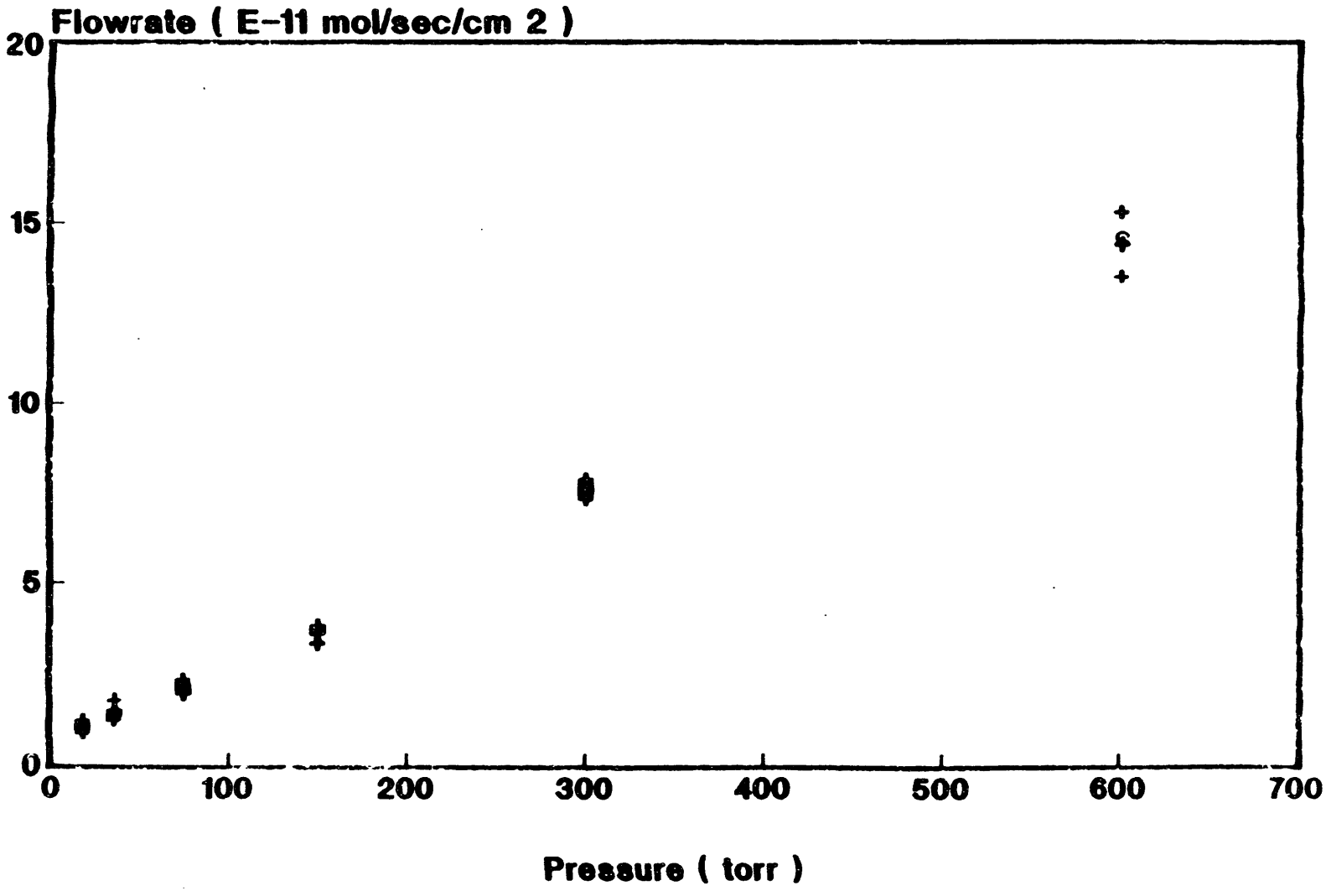


Fig 3

HYDROGEN PERMEATION

Polyethylene 2 - Screen Supported - New

Data Points

+

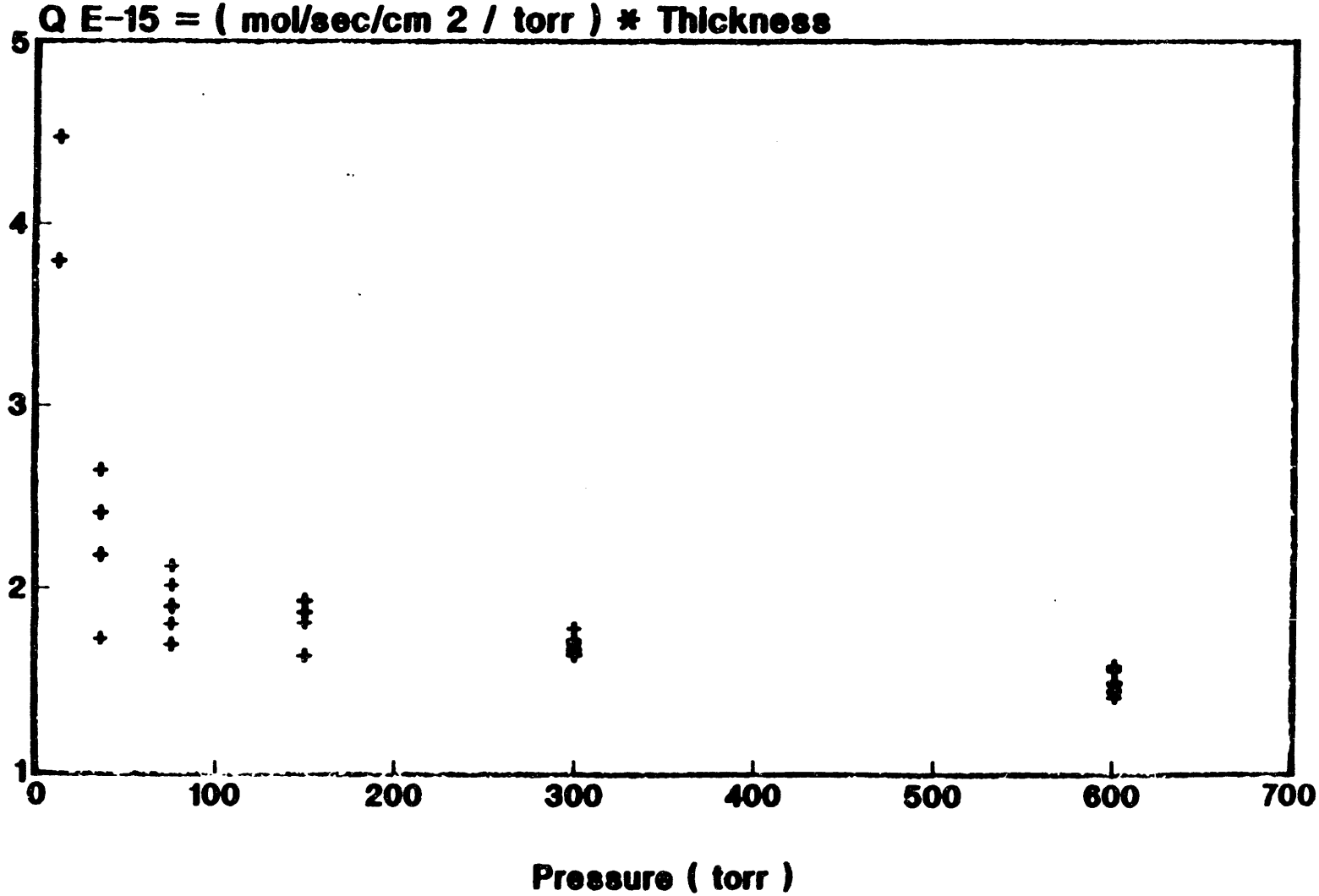


Fig 6

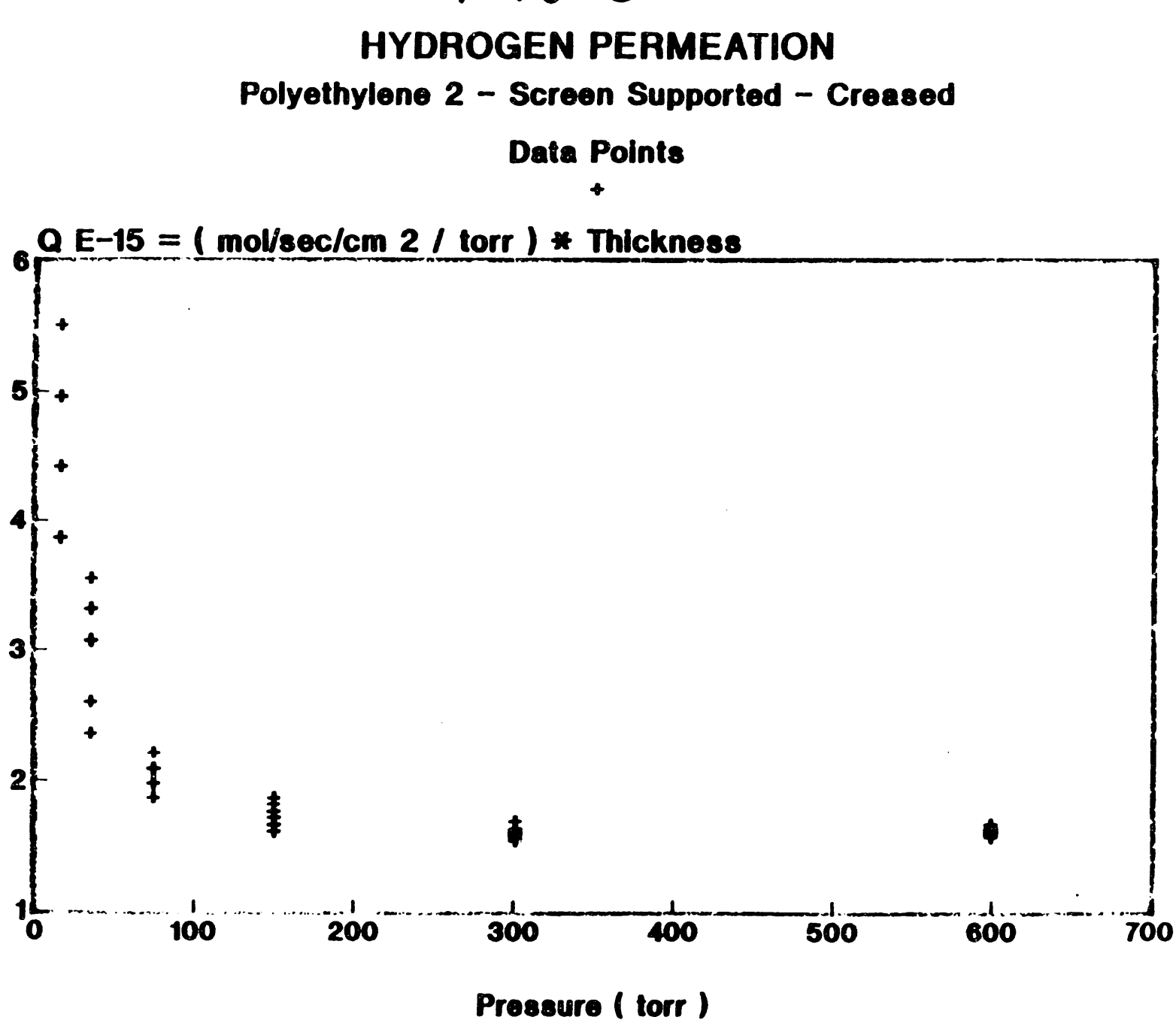

HYDROGEN PERMEATION
Polyethylene 2 - Screen Supported - Creased
Data Points
Q E-15 = (mol/sec/cm 2 / torr) * Thickness
6
5
4
3
2
1
0
100
200
300
400
500
600
700
Pressure (torr)

Fig 7

HYDROGEN PERMEATION

Polyvinylchloride 2 – Screen Supported – New

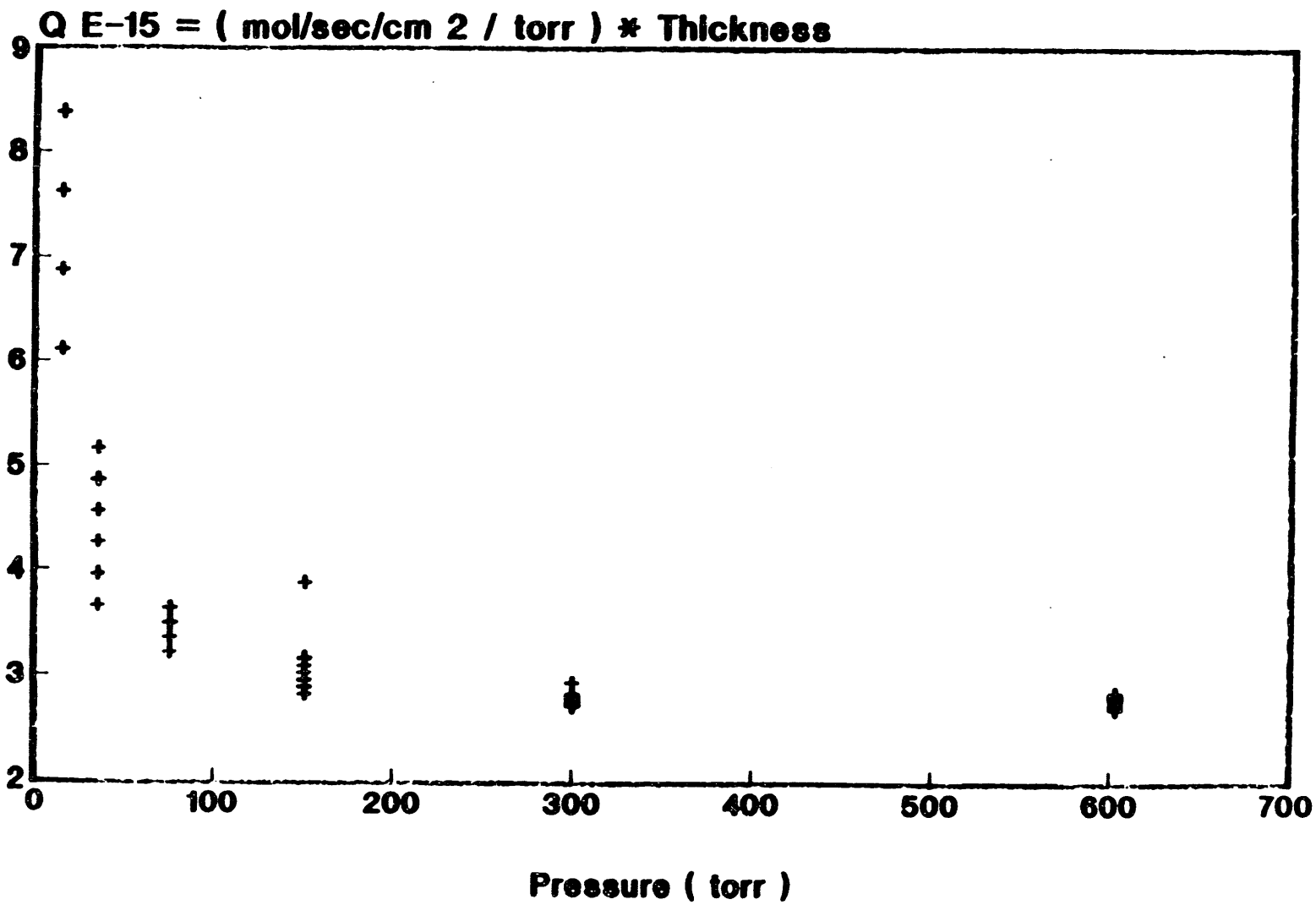
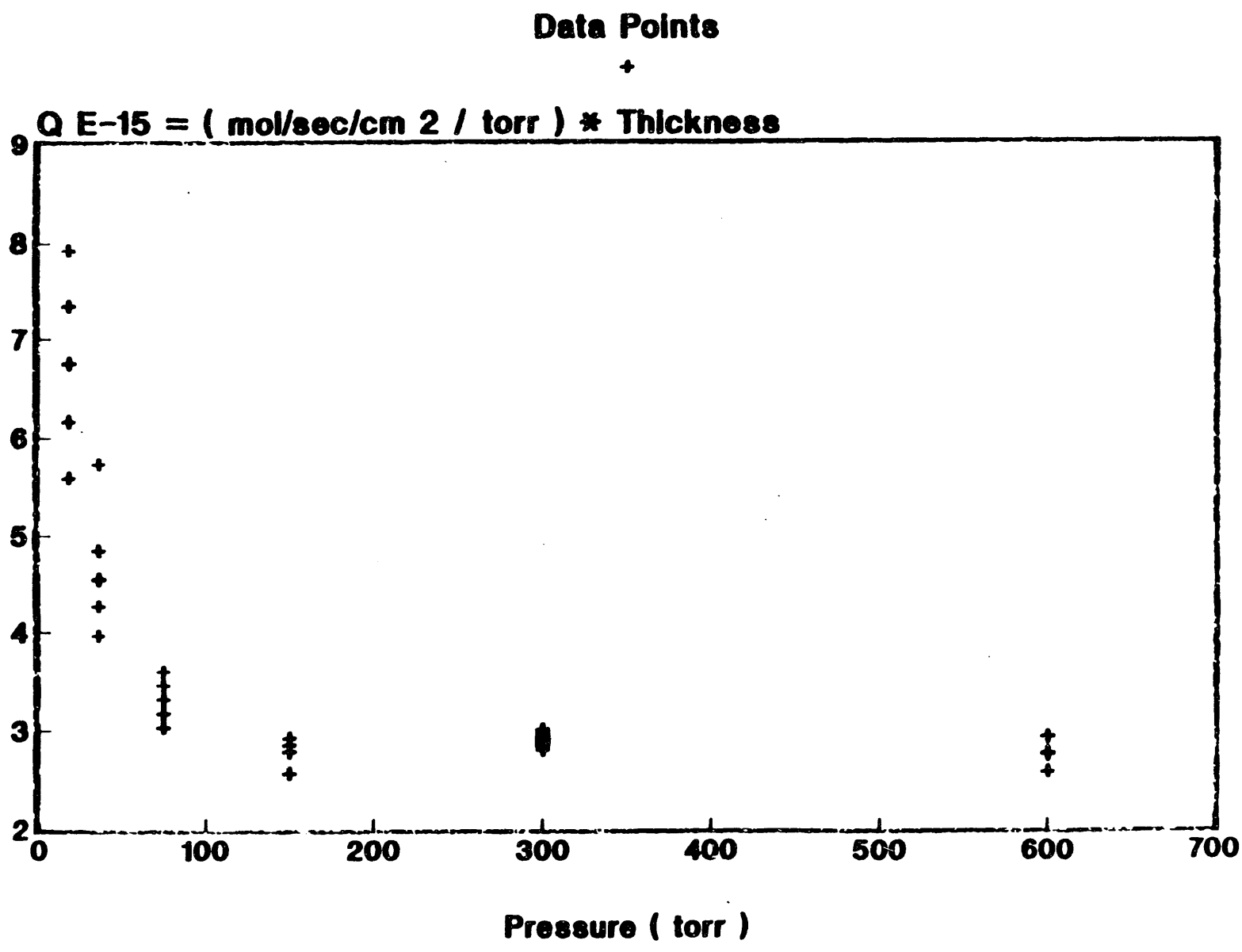


FIG 8

HYDROGEN PERMEATION

Polyvinylchloride 2-Screen Supported-Creased



APPENDIX B

Blakeslee, J.
Roggenthen, D.
Saiki, R.
File

AL588.657
9/26/88

HYDROGEN PERMEABILITY COEFFICIENT DETERMINATIONS OF RADIOACTIVE WASTE EXPOSED DRUM LINERS

DRUM # 741-203492 (3/9/84)
741-12578 (2/9/73)

Hydrogen permeability coefficients were determined for a series of samples of polyethylene and polyvinylchloride materials from waste drum liners that have been in physical contact with various forms of radioactive waste. The irradiated material permeability coefficients were determined by dynamic mass spectrometry measurements. This report presents the analytical results obtained and a brief discussion of the method and experimentation.

Summary

Hydrogen permeability coefficient (Q) values for polyvinylchloride (PVC) and polyethylene (PE) were about 2.8 and 1.9 x 10-15 (see note below for units) respectively for 1984 packed drum liners and 7.8 and 5.4 x 10-15 respectively for the 1973 package.

Preliminary indications, based on the 6 samples examined and reported here, are that increased package age/exposure increases polyethylene and polyvinylchloride hydrogen permeability. Both materials showed a permeability increase of about 280% for the 1973 package materials compared to 1984 package materials. A consistent but relatively small increase is observed for the 1984 materials compared to the new material values reported (AL588.593), but differences are small and not considered significant.

In spite of the relatively large increase in value with age/exposure the ratio of PVC to PE permeability was very consistent between the two drums (PVC/PE=1.46, 1.47) and only slightly lower than the PVC/PE permeability ratio found for new materials (PVC/PE=1.7, AL588.593).

Experimental

Samples of drum liners, radioactively contaminated, were placed in a glovebox equipped with a particulate filtered dynamic mass spectrometer inlet. Hydrogen permeation rates were then determined by dynamic mass spectrometry, a method involving flow-rate sensitivities, and previously described (1). Qualitative and quantitative traceability is provided for results by Appendix B1, which shows Bureau of Standards traceability in the calibration certificate for the hydrogen leak used in these determinations.

The six (6) samples analyzed and reported here were obtained from two different drums (741-203492, 741-12578) of the same waste type (IDC=1). Three samples (each from a different location within the drum) were taken from each of two drums of waste, and identified by drum number, material type, and location description.

Sample discs were cut from the liner materials and placed in the modified screen-support sample holder (Appendix B2), hydrogen charged to the desired pressure in the reservoir behind the sample, the manifold evacuated, and opened to the mass spectrometer. After flowrate equilibration ten hydrogen flowrate determinations were made at each of three nominal pressure (600, 300, and 150 torr) points by recording spectral peaks. Background corrected values are then compared to the hydrogen standard leak and permeation rate values calculated for each measurement. These values are then normalized for unit area, permeant pressure, and sample thickness (determined by micrometer measurement) to yield permeability coefficient values. The statistical mean and relative standard deviation of the thirty determinations performed on each sample comprise the analytical results presented in this report.

Results

Results are reported in Table 1, and in Figures 1 through 6. Table 1 lists the mean values determined for each of the six samples examined here. Figures 1 through 6 present each sample's experimental results graphically by plotting area normalized permeation rates versus permeant pressure.

1) Mass Spectrometric Method for the Determination of Permeability Coefficients , Saalfield, F., McDowell, M., N. R. L. Report No. 6182, December 30, 1964

Examination of Table 1 shows that PVC permeability to hydrogen does not vary significantly with location within either drum, but that there is considerable difference in permeability between drums of the same waste type (IDC identical) packaged at different times (203492 in 1984; 12578 in 1973). The 1973 PVC package has a hydrogen permeability coefficient 2.76 times as great (i.e. greater permeability) than the 1984 PVC package.

Further examination shows that the ratio of PVC to PE permeability is the same for both drums (203492 = 1.47; 12578 = 1.46) and that the polyethylene bag in the older waste package shows a nearly identical permeability increase (2.78).

The permeability ratio (PVC/PE) of both waste packages (1.46, 1.47) is slightly lower than that observed and previously reported for new PVC and PE liner material (1.70, AL588.593). The permeability values for both materials appear to be slightly higher for the 1984 package than for the previously reported (AL588.593) new materials, but the differences are slight, particularily compared to the differences between the 1973 and 1984 packages.

Figures 1 through 6 are graphical presentations of area-normalized permeation rates plotted versus corresponding permeant pressures. They provide an overview of permeation rate linearity with pressure, possible bias (offset from zero), and the scatter (precision) of the actual 30 measurements performed for the data presented. Examination of these plots show all measurements with reasonable precision, no significant bias, and a reasonable pressure linearity for the six samples examined here.

Report by 
T L MOFEETERS

Approved by 
L K FULKS

TABLE 1

HYDROGEN PERMEABILITY COEFFICIENTS
OF
PLUTONIUM WASTE EXPOSED DRUM LINERS

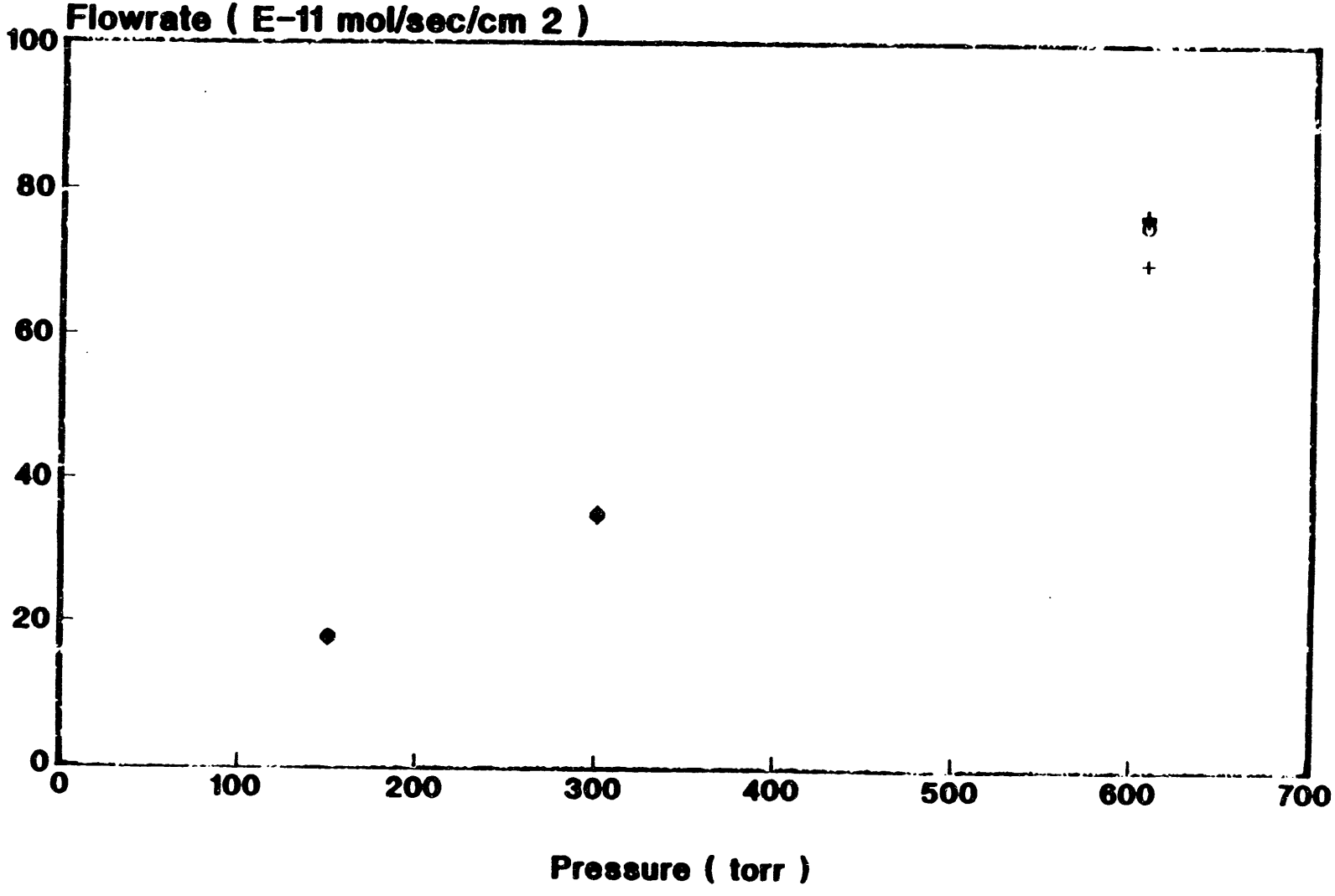
DRUM #	IDC #	MATERIAL (TYPE)	DESCRIPTION (LOCATION)	H2 PERMEABILITY COEFFICIENT Q	R.S.D. (%)
741-203492 (3/9/84)	1	PVC	PIGTAIL AREA INNER BAG NEXT TO SLUDGE	2.93 X 10-15	5.1
		PVC	INNER BAG NEXT TO SLUDGE	2.78 X 10-15	1.9
		PE	RB OUTER BAG	1.94 X 10-15	6.6
741-12578 (2/9/73)	1	PVC	(HORSETAIL SECTION)	7.18 X 10-15	6.5
		PVC	SLUDGE CONTACT	8.56 X 10-15	7.3
		PE	RB	5.40 X 10-15	3.6

F . 1

HYDROGEN PERMEATION

741-12578 PE (R.B.)

Mean Values o **Data Points** +

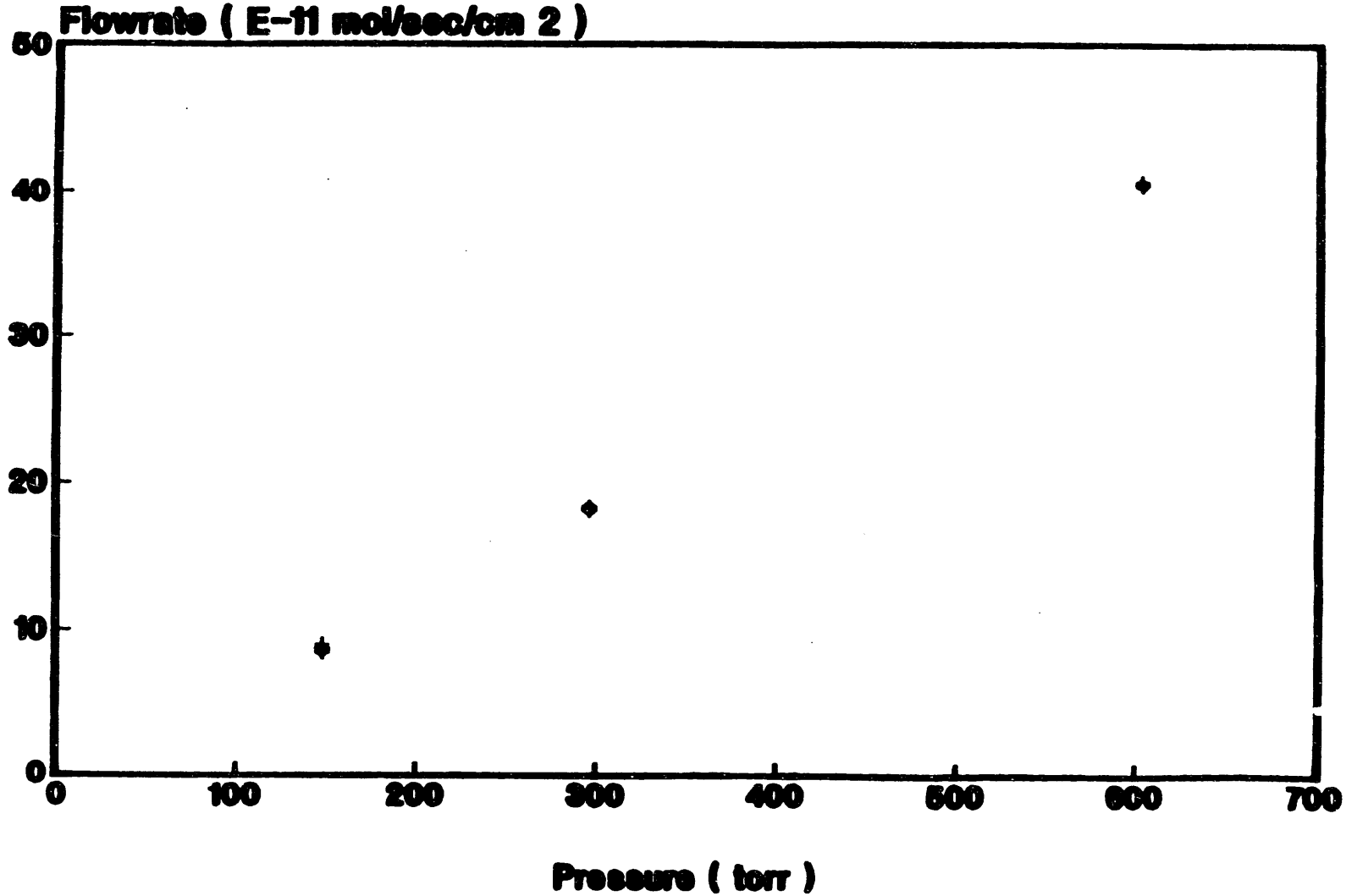


I II E

HYDROGEN PERMEATION

741-12576 PVC (Horsetail Section)

Mean Values o **Data Points** +



F. . 3

HYDROGEN PERMEATION

741-12578 PVC (Sludge Contact)

Mean Values o **Data Points** +

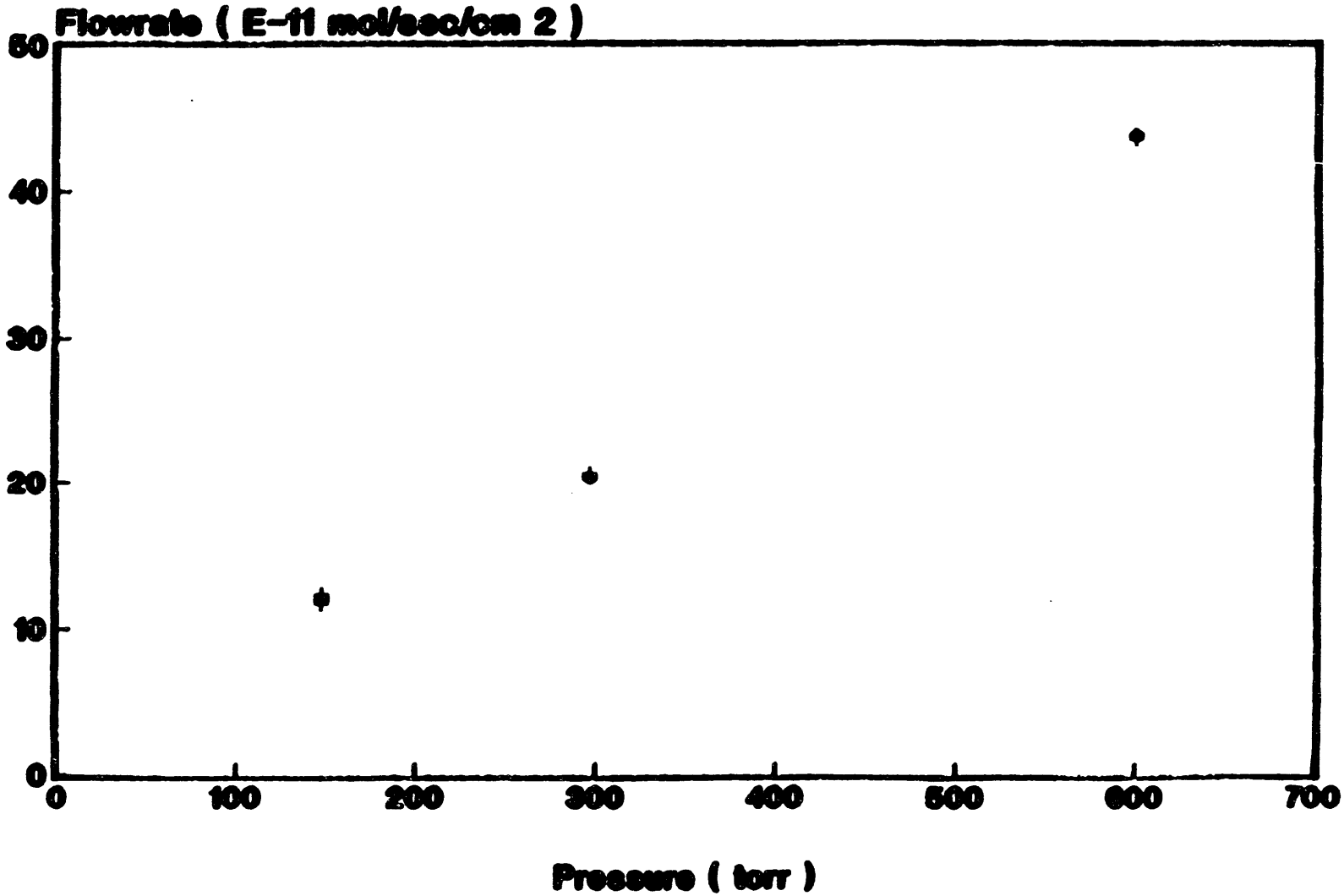


Fig. 4

HYDROGEN PERMEATION

741-203492 PE (R.B. Outer Bag)

Mean Values o Data Points +

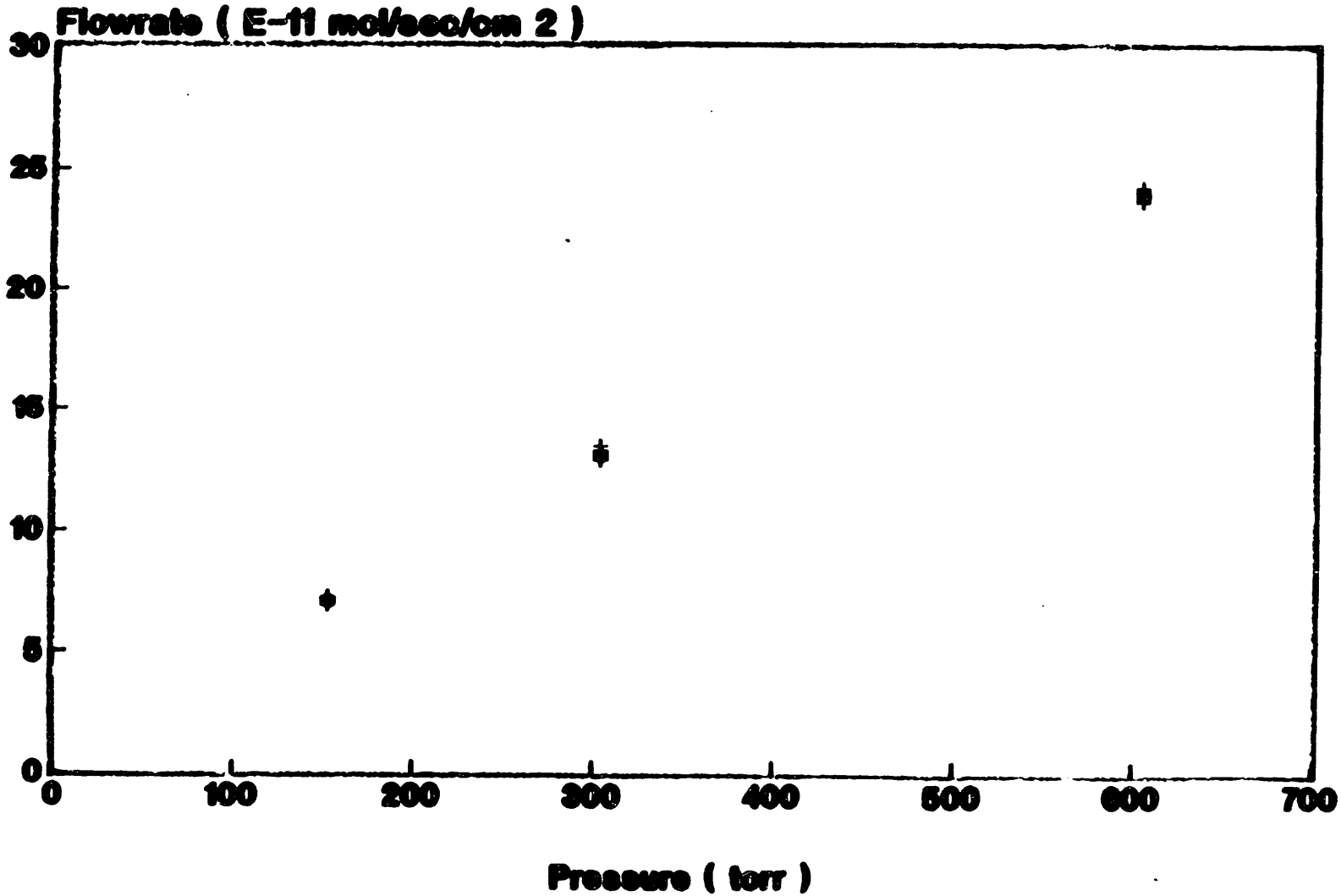
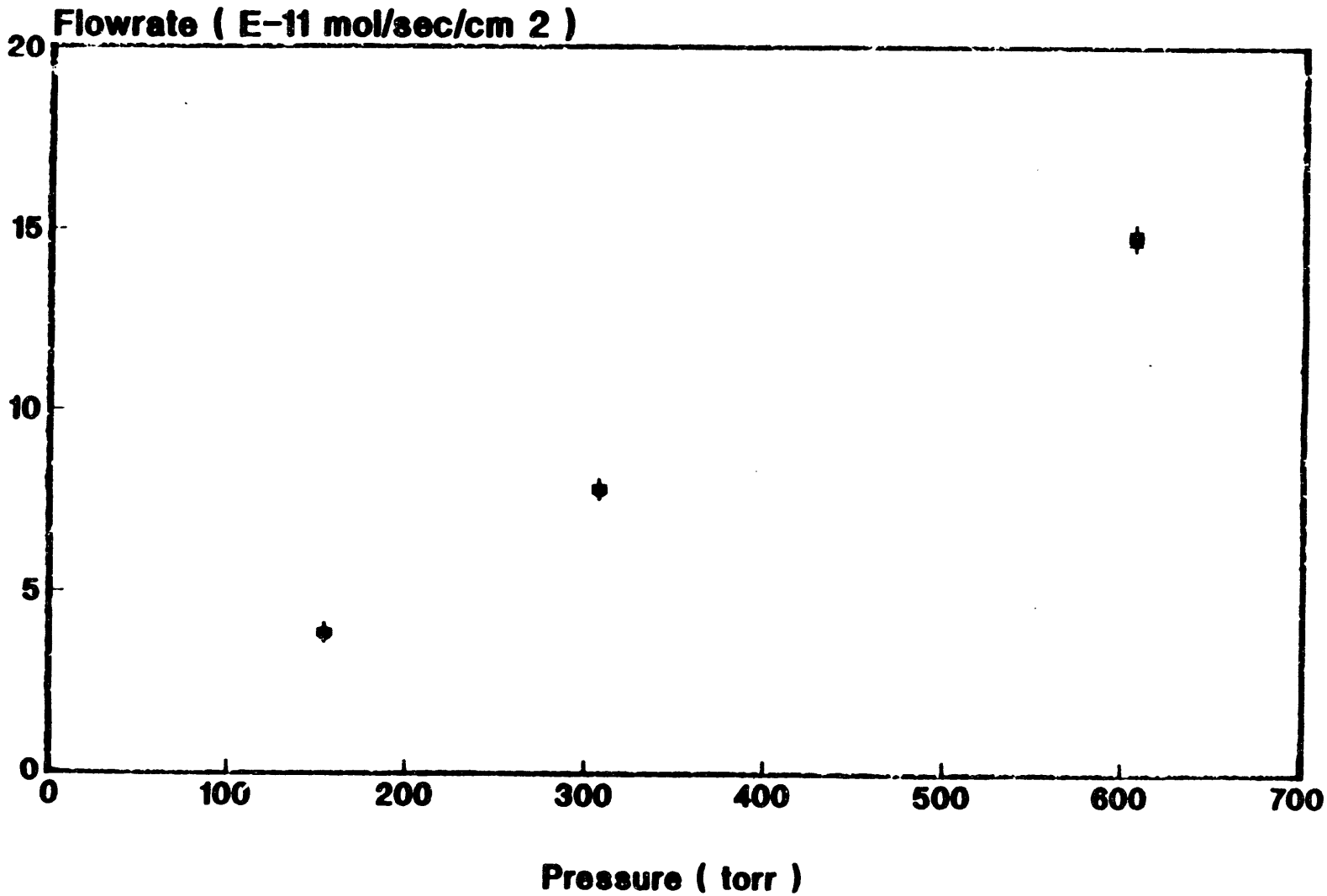


Fig. 5

HYDROGEN PERMEATION

741-203492 PVC (Inner Bag Next to Sludge)

Mean Values o Data Points +

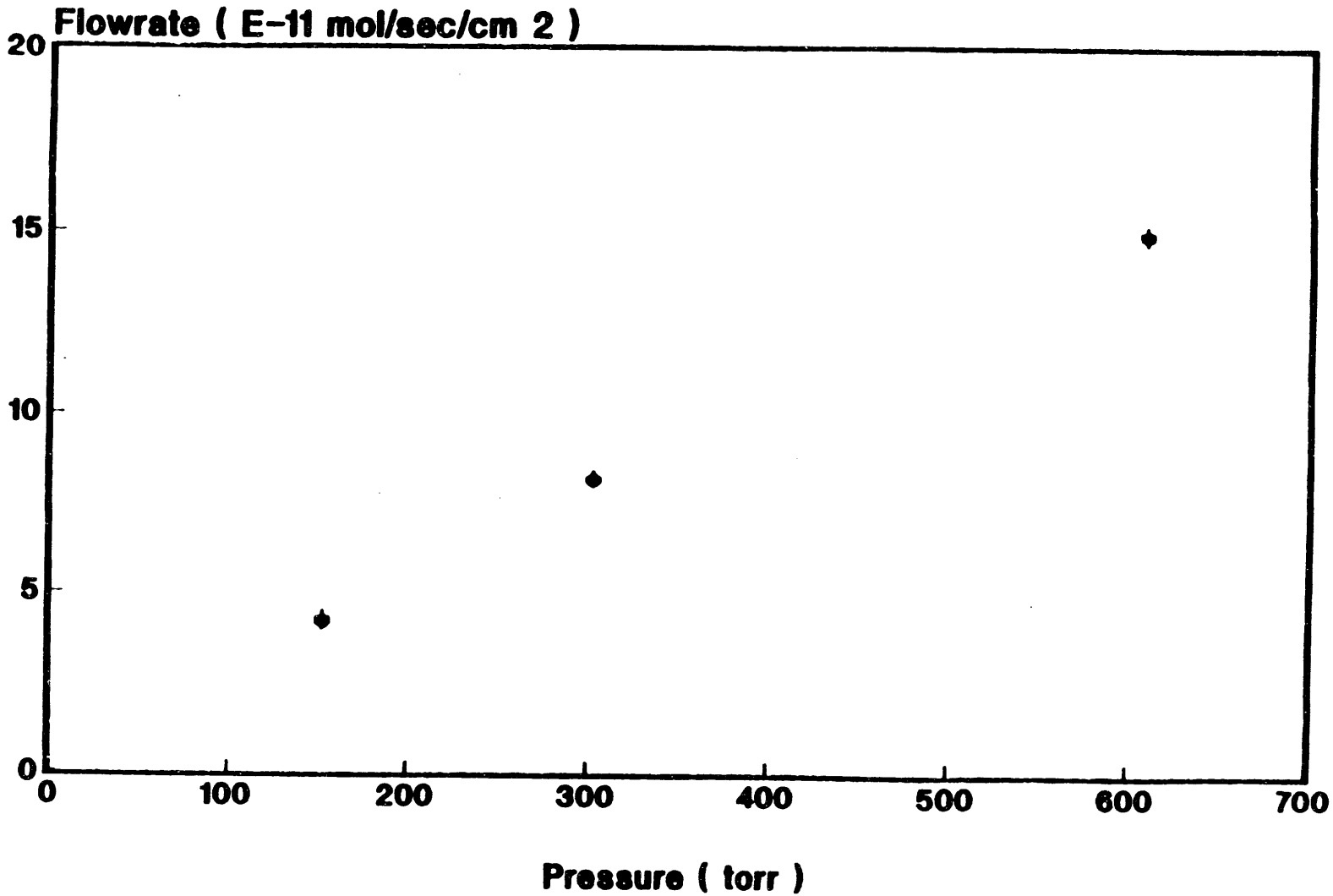


F. .6

HYDROGEN PERMEATION

741-203492 PVC Innerbag Pigtail Near Sludge

Mean Values o Data Points +



APPENDIX B1

H2 STANDARD LEAK
CERTIFICATION OF CALIBRATION

VACUUM INSTRUMENT CORPORATION
2099 Ninth Avenue, Ronkonkoma, NY 11779 (516) 737-0900

CERTIFICATION OF CALIBRATION

MODEL OM-6H

GAS Hydrogen

FILL PRESSURE 200 P.S.I.G

SERIAL NO. 64-960

CAL. DATE 11-11-85

CAL. TEMP. 75°F

TEMP. COEFFICIENT .2%/°F

LEAK RATE 3.79×10^{-6} ATM-CC/SEC

MAX. DEVIATION 2%

10% DROP-OFF LIFE 3.4 Years

CUSTOMER

Rockwell International

This is to certify that the above referenced gas leak was calibrated by Vacuum Instrument Corp.

The basic standards on which the accuracy of this calibration depend includes a Hastings McLeod Gauge and Auxiliary Volume constructed by Teledyne Hastings-Raydist. Pertinent dimensions of the gauge and volume are determined by the use of weights and measures traceable to the United States Department of Commerce, Bureau of Standards. We consider that our close repeatability of leak rates indicates that we are within plus or minus 10 percent of the absolute accuracy in calibration.

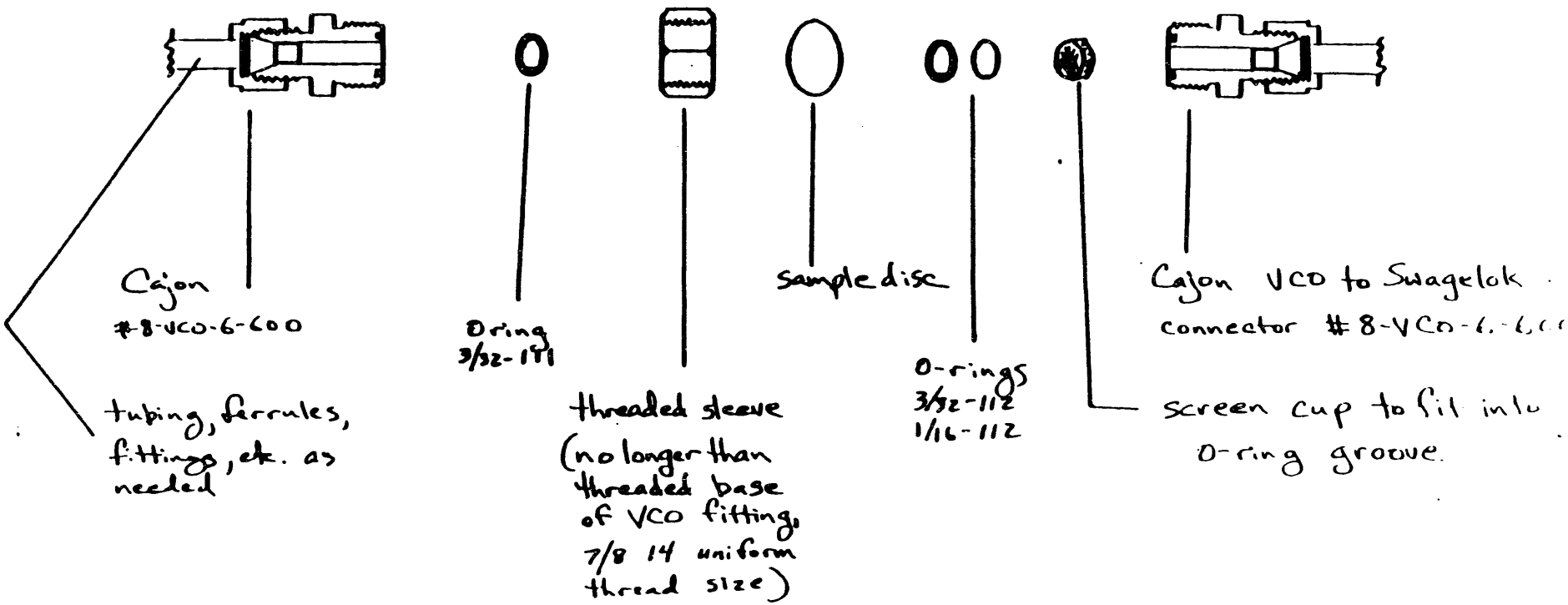
Lisa C. Wood

VACUUM INSTRUMENT CORPORATION

APPENDIX B2

MODIFIED "SCREEN-SUPPORTED" SAMPLE HOLDER

(WORKING SKETCH)


Cajon
#8-VCO-6-C00
tubing, ferrules, fittings, etc. as needed
O ring
3/32-1P1
threaded sleeve
(no longer than threaded base of VCO fitting, 7/8 14 uniform thread size)
sample disc
O-rings
3/32-112
1/16-112
screen cup to fit into O-ring groove.
Cajon VCO to Swagelok connector #8-VCO-6-C00

ATTACHMENT N

TRU WASTE SAMPLING PROGRAM: VOLUME I

TRU WASTE DRUM HEADSPACE SAMPLING PROGRAM, 1983 AND 1984
GAS SAMPLING AND ANALYSIS PROCEDURES

The gas inside 197 drums of retrievably-stored, contact-handled (CH) transuranic (TRU) waste at INEL was sent to the Rocky Flats Plant for gas sampling and characterization. This program provided information on gas generation and evaluated the effectiveness of drum venting/filtering devices. Samples were collected inside the headspace of each drum. Prior to sampling, the drums were sealed (not vented) at INEL. A pressure gauge and sample port were adapted to fit into the bung hole. The samples were analyzed using mass spectrometry for thirteen inorganic and organic components. A more detailed description of the sampling and analytical procedures is provided in the informal report by Clements and Kudera entitled "TRU Waste Sampling Program, Volume I Waste Characterization and Volume II Gas Generation Study" prepared by INEL in September 1985.

The gas samples were collected in 10 milliliter stainless steel Nupro sampling bottles. The bottles were first evacuated by the laboratory to .02 torr. The vacuum pump with a pressure gauge and all the necessary valves were connected to the drum and the sample bottle was attached. The sampling device was evacuated to between 1 and 5 microns and the system was leak tested. The samples were collected by puncturing the lid of the drum with a needle, opening the valves and allowing the gas to enter the sample bottle. On the sample data sheets the sample number, drum number, sample bottle number, etc. were recorded. No formal chain of custody procedures were followed for transporting the samples to the lab. However, the lab technicians conducted the sampling and carried the samples to the onsite lab. Therefore the samples never left the laboratory personnel's custody.

The samples were analyzed by a DuPont Model CEC 21-104 mass spectrometer within one or two days of being collected. The instrument was calibrated for inorganic components using pure gases. A certified gas standard for the inorganic components was analyzed once on each shift during which the drum gas samples were analyzed. Initially, the organic components were unknown. After the first analyses were completed the organic components were determined by analyzing pure organic components and comparing the signal intensity to those from the unknown gas samples.

Standard organic samples were prepared by drawing approximately 0.5 milliliters of the liquid into a capillary tube. The capillary tube was immersed in liquid nitrogen to extract the absorbed air out of the organic liquid. Then the liquid was vaporized and injected into the spectrometer. One standard was prepared for each of the components suspected to be present in the gas samples. Fragmentation was used to differentiate between similar organic compounds. The organic standards were prepared and analyzed only once near the beginning of the analysis phase.

EGG-WM-6503
September 1985

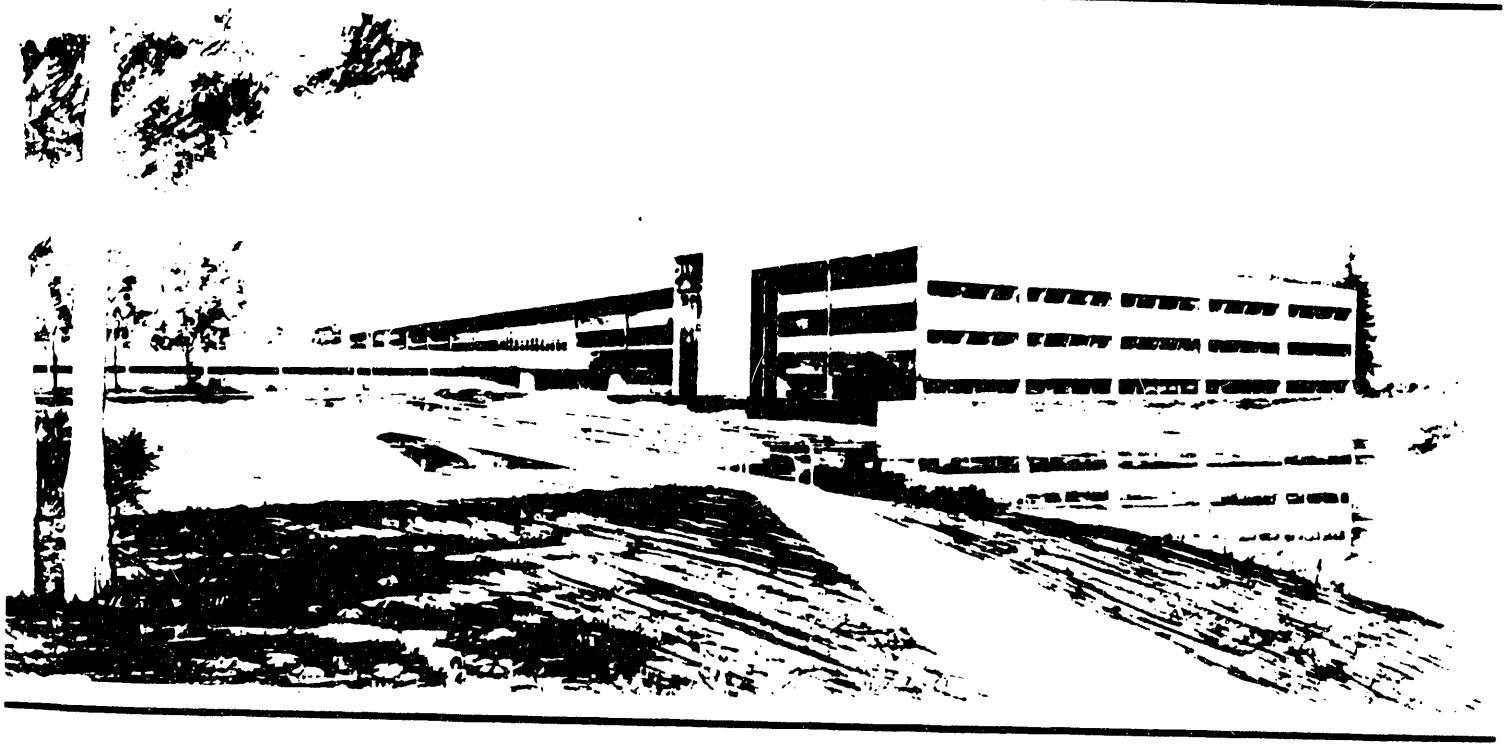
TRU WASTE SAMPLING PROGRAM:

VOLUME I--WASTE CHARACTERIZATION

Thomas L. Clements, Jr.
Donald E. Kudera

Idaho National Engineering Laboratory
Operated by the U.S. Department of Energy

Informal Report



Prepared for the
U.S. DEPARTMENT OF ENERGY
Under DOE Contract No. DE-AC07-76ID01570

EG&G Idaho

EGG-WM-6503

PATENT CLEARED

TRU WASTE SAMPLING PROGRAM: VOLUME I--WASTE CHARACTERIZATION

Thomas L. Clements, Jr.
Donald E. Kudera

Published September 1985

EG&G Idaho, Inc.
Idaho Falls, Idaho 83415

Prepared for the
U.S. Department of Energy
Idaho Operations Office
Under DOE Contract No. DE-AC07-76ID01570

ACKNOWLEDGMENTS

The authors appreciate the efforts of the Idaho National Engineering Laboratory's Radioactive Waste Management Complex Operations Branch, in the collecting, retrieving, and preparing of the transuranic wastes used in this study for shipment to the Rocky Flats Plant. The authors also acknowledge the efforts and data reports produced by personnel at the Rocky Flats Plant. Those efforts of Rocky Flats personnel P. M. Arnold (Waste Systems R&D), E. L. D'Amico (Analytical Laboratory) and W. C. Simmons (Analytical Laboratory) are especially noted. The Rocky Flats data reports include:

- TRU Waste Sampling Program; Retrieved Waste Examination, CSE 83-48, December 1983.
- TRU Waste Sampling Program; Retrieved Waste Examination, CSE 84-035, August 1984.
- TRU Waste Sampling Program; Retrieved Waste Examination and Vented Gas Study, CSE 85-042, August 1985.

The work conducted by J. L. Warren and A. Zerwekh of the Los Alamos National Laboratory in completing the ^{239}Pu and ^{238}Pu waste characterizations is also appreciated. This data is contained in Los Alamos Report LA-10479-MS, TRU Waste Sampling Program, June 1985.

The peer reviews of this document by the following individuals are appreciated:

Facility	Individual
Joint Integration Office	R. L. Morton
Rocky Flats Plant	P. M. Arnold
	A. R. Kazanjian

Facility	Individual
Los Alamos National Laboratory	J. L. Warren
	A. Zerwekh
Hanford	G. A. Beitel
	R. J. Roberts
Savannah River Plant	N. E. Bibler
	B. D. Helton
Sandia National Laboratory	M. A. Molecke

ABSTRACT

Volume I of the TRU Waste Sampling Program report presents the waste characterization information obtained from sampling and characterizing various aged transuranic waste retrieved from storage at the Idaho National Engineering Laboratory and the Los Alamos National Laboratory.

The data contained in this report include the results of gas sampling and gas generation, radiographic examinations, waste visual examination results, and waste compliance with the Waste Isolation Pilot Plant-Waste Acceptance Criteria (WIPP-WAC).

A separate report, Volume II, contains data from the gas generation studies.

SUMMARY

Summarized below are the results from opening and examining 199 drums and 10 boxes of ^{239}Pu-contaminated wastes from the Idaho National Engineering Laboratory (INEL) and 15 drums of ^{239}Pu- and 18 drums of ^{238}Pu-contaminated wastes from the Los Alamos National Laboratory (LANL). A total of 212 INEL waste drums and 41 LANL drums were sampled to determine gas composition.

It should be noted that it was not the intent of the TRU Waste Sampling Program to make policy decisions concerning the management and certification of stored transuranic wastes. However, this report does contain information useful for making such site specific policy decisions.

Idaho National Engineering Laboratory Results

Waste Form Compliance

A total of 209 waste containers were visually examined at the Rocky Flats Plant (RFP). The contents of each were characterized to determine waste form compliance with the WIPP-WAC. Fifty-two (25%) of the containers examined did not meet the requirements of the Waste Isolation Pilot Plant-Waste Acceptance Criteria (WIPP-WAC).[1] Forty-eight contained free liquids, two contained free liquids and compressed gases, and two contained particulates in excess of the allowable WIPP-WAC limits. In addition, two drums were not certifiable because the plutonium content was greater than 200 grams per drum. Uncemented sludges and combustibles were the two waste forms that accounted for the majority of noncompliance with the WIPP-WAC.

Real-Time Radiography

A total of 209 waste containers, consisting of 87 drums and 5 boxes of 6-month-old waste, 37 drums of 3-year-old waste, and 75 drums and 5 boxes of 12-year-old waste, were examined by the INEL Real-Time Radiography (RTR)

system prior to visual examination at Rocky Flats. The results of the RTR exams indicate that the procedure will be a very useful technique for certifying waste. Waste containers were judged to be noncertifiable by the RTR operator if: (a) free liquids, significant quantities of particulates, or compressed gases were present or (b) lead shielding or other dense material prevented the operator from fully evaluating the waste.

It should be noted that the radiographic examinations of waste containers selected for the TRU Waste Sampling Program were conducted during the RTR system technology development phase. During this time period, imaging enhancements were made to the RTR system that resulted in an improvement to the quality of the radiograph which enabled it to be interpreted with increased accuracy by the RTR operators. It should also be noted that the determination of waste form compliance with the WIPP-WAC was conducted by RTR operators who were not fully trained or qualified. A training program was defined, developed and established during the course of the sampling program to support future waste certification operations. Operator qualification requirements were put into effect during this same time period.

The TRU Waste Sampling Program served as an extremely beneficial opportunity that assisted in the further development of the RTR system, the establishment of specific requirements that were incorporated in the training and qualification program, and in the defining of improved operational procedures for conducting the waste examinations.

The RTR examinations resulted in 43 of the 209 containers having been identified as noncertifiable. Thirteen of the 43 were later found to be certifiable during visual examination at the RFP. These 13 containers had been rejected by the RTR for the following reasons: (a) three contained small amounts of liquid (which was not found during visual examination), (b) four contained lead-shielding or other similar dense items that prevented the RTR operator from evaluating the waste as a result of limited x-ray penetration, and (c) six were rejected due to the presence of particulates.

Visual examination of the 209 containers resulted in 52 containers being identified as noncertifiable. The RTR system detected 30 of these containers. The remaining 22 containers all contained small amounts of free liquid. The quantity of liquid ranged from a film of oil to 3.1 L. The RTR videotapes for the 22 waste containers were closely reexamined to determine if the free liquids could be detected. Reexamination indicated liquids could be detected in nine of the 22 containers (cause attributed to operator inexperience during initial RTR examination). The amount of liquid in the nine containers ranged from 15 mL to 1.46 L. In the remaining 13 containers: (a) two contained liquids (1.4 L and 3.1 L) in a situation where the liquid motion was severely restricted (motion of the liquid is needed by the RTR operator in order to be detected); (b) five containers had small amounts of liquids (ranging from a film of oil to 50 mL) that apparently were beyond the RTR system resolution capabilities; and (c) six uncemented sludge drums were found to contain liquids (130 mL to 2.7 L) during visual examination at the RFP, however no liquids were detected during the RTR examination at the INEL prior to shipment to the RFP. It appears that dewatering of the sludge may be occurring during transportation of the waste. Many other uncemented sludge drums were found to contain liquids. Additional study is recommended to determine if the uncemented sludge drums are an acceptable waste form for future emplacement at WIPP.

Gas Generation

A total of 212 waste drums were sampled to determine the drum pressure, drum void volume, and gas composition. All waste drums, except seven, were sealed with nonpermeable gaskets. These seven drums were generated after early FY-1983 when the RFP began using semi-permeable drum lid gaskets. The results from sampling the waste drums were used to calculate the measured total moles of radiolytic-produced gas for comparison with the expected total moles of radiolytic gas.

The primary reason for comparing measured gas generation values with expected values was to support the Safety Analysis for the Stored Waste Examination Pilot Plant (SWEPP). The expected total moles of radiolytic gas was calculated using G(total gas) values obtained in past laboratory experiments. The results from sampling the waste drums are reported in moles of gas and not G(total gas) values since the laboratory G(total gas) values were obtained under controlled, experimental conditions. Publishing G-values for waste drums would be misleading, and if used in any design calculations, could be inadequate. In taking these factors into consideration, but still meeting the need for comparison between measured and expected values, it was decided to present the gas generation data in terms of moles of gas. Initial gas sampling results of the waste drums indicated that there was considerable variability in the type and quantity of gas present, and between the measured and expected values. In waste drums there are too many factors (radionuclide assay capabilities, gas leakage or diffusion from the drum, other gas-generating mechanisms such as bacterial action) that can influence gas generation calculations.

The measured total moles of radiolytic gas exceeded expected values for some of the waste drums in the Combustible, Glass, Uncemented Sludges, and Leaded Rubber waste form categories. Possible reasons for differences between the measured and expected values include the accuracy of determining the quantity of radionuclides in the waste; the accuracy of the drum storage time; the effects of retrieval, handling, and shipment of the waste; presence of nonradiolytic produced gases, such as CO_2 from bacterial action; and selection of an appropriate laboratory-derived G(total gas) value for drums containing a variety of waste materials.

Several drums, mainly in the Combustible waste form category, had high concentrations of carbon dioxide with little or no hydrogen present. This would seem to indicate that either the hydrogen had leaked from the drum, or another mechanism, possibly bacterial action, may also be generating gas.

The suspected source of gas in noncombustible waste forms (metal, glass, etc.) is from plastics used in packaging the waste. In the Glass waste form category, wet or dried chemical residues on Raschig rings and laboratory glassware may be an additional source for gas generation.

Hydrogen

All waste forms sampled contained detectable concentrations of hydrogen. All drums sampled, except for seven 6-month-old drums, were sealed with nonpermeable gaskets. Seventy-seven drums (37%) of the 210 analyzed drums contained greater than 1% hydrogen. Of this group, 29 (14%) waste drums contained hydrogen concentrations greater than 4% but less than 5% oxygen. These drums were from the Combustible, Metal, Glass, Uncemented Sludges, Cemented Sludges, Glovebox Gloves, Benelex and Plexiglas, Resins and Mixed Waste waste form categories. Ten drums (5%) contained greater than 4% hydrogen and greater than 5% oxygen, and were potentially flammable. Eight of these drums were in the Uncemented Sludge category, one in the Concrete and Brick category, and one in the Resins category. Hydrogen can be generated in virtually any waste form category as long as organic material, such as plastic packaging, and alpha-emitting radionuclides are present. Hydrogen was found in all age categories of waste sampled.

Los Alamos National Laboratory Results

Waste Form Compliance

A total of 33 waste containers, 18 ^{238}Pu containers and 15 ^{239}Pu containers, were visually examined at LANL and the contents characterized to determine waste form compliance with the WIPP-WAC. Five (15%) of the containers examined did not meet the WIPP-WAC. Three contained free liquids, one contained particulates in excess of the allowable WIPP-WAC limits, and one contained corrosive material.

Radiography

A total of 34 waste containers, consisting of six drums of 7 and 8-month-old waste, 13 drums of 1-year-old waste, 3 drums of 2 to 2-1/2-year-old waste, six drums of approximately 3-year-old waste, and six drums of approximately 9-year-old waste, were examined by a LANL radiography system. Three containers were listed as "probably" certifiable and one was listed as "apparently yes" for certifiability. The LANL radiography system was not designed to examine waste containers. The radiography system was used primarily to examine the waste containers for safety considerations prior to opening and examination.

Gas Generation/Hydrogen

A total of 41 waste drums were sampled to determine the gas composition. All of the LANL drums were at atmospheric pressure because they are sealed with a sponge-rubber semi-permeable gasket that allows gas in excess of atmospheric pressure to diffuse out of the container. Therefore, it was not possible to measure void volumes by pressure-volume relationships. Void volumes for ten of the drums were computed using weights and densities of the waste material.

The 3-year-old and 9-year-old ^{238}Pu-contaminated waste drums showed negligible concentrations of hydrogen. These drums, however, did contain significant quantities of other radiolytic gases such as carbon dioxide. It appears that hydrogen generation had ceased in these drums, possibly due to depletion of the organic matrices, and any significant quantities of hydrogen had diffused through the semi-permeable drum gasket.

Three of six newly-generated (8-month-old) ^{238}Pu waste drums, however, had elevated levels of hydrogen (greater than 4%). These drums contained in excess of 150 alpha-curies. These drums also contained greater than 9% oxygen and were potentially flammable or explosive.

No ^{239}Pu-contaminated waste drums, from any age category, contained hazardous levels of hydrogen. The ^{239}Pu drums all contained less than 15 alpha-curies.

CONTENTS

ACKNOWLEDGMENTS ii

ABSTRACT iv

SUMMARY v

INEL Results v
LANL Results ix

1. INTRODUCTION 1

1.1 Background 1

1.2 Objectives 1

1.3 Purpose 2

1.4 Quality Assurance and Quality Control 2

2. INEL/RFP DATA 5

2.1 Sampling Program Overview 5

2.1.1 Waste Selection 5
2.1.2 Retrieval Operations 6
2.1.3 Radiographic Examination 7
2.1.4 Waste Examination 7

2.2 Radiographic Examination 14

2.2.1 Radiography Results 19

2.3 Gas Sampling Results 23

2.3.1 Void Volume Determination 23
2.3.2 Gas Sampling 43
2.3.3 Gas Generation 43
2.3.4 Gas Generation Calculations 46
2.3.5 Gas Generation Results 51
2.3.6 Hydrogen 57

2.4 Waste Examinations 57

2.4.1 Waste Examination Results 59

2.5 Waste Form Compliance 59

2.5.1 Immobilization 83
2.5.2 Free Liquids 83

2.5.3 Sludge 83
2.5.4 Pyrophoric Materials 91
2.5.5 Explosives and Compressed Gases 91
2.5.6 Toxic and Corrosive Materials 91
2.5.7 Combustibility 92
2.5.8 Gas Generation 92
2.5.9 Fissile Material 92

3. LANL DATA 93

3.1 Waste Retrieval 93

3.2 Gas Sampling and Analysis 96

3.2.1 Gas Sampling Results 96

3.3 Void Volumes and G-Values 103

3.4 Real-Time Radiography Examinations 104

3.5 Assay of TRU Content 104

3.6 Waste Examination 105

3.6.1 Waste Form Compliance 105

4. REFERENCES 118

Appendix A--WASTE FORM CATEGORIES AND CONTENT CODE DESCRIPTIONS A-1

Appendix B--INEL/RFP RADIOGRAPHIC AND VISUAL EXAMINATION RESULTS B-1

Appendix C--LANL CONTENT CODE DESCRIPTIONS C-1

Appendix D--LANL RADIOGRAPHIC AND VISUAL EXAMINATION RESULTS D-1

TABLES

1. Summary of Visual and RTR Discrepancies 15

2. RTR Summary 21

3. Gas Sampling Results--Combustibles 24

4. Gas Sampling Results--Metals 26

5. Gas Sampling Results--Glass 28

6. Gas Sampling Results--Nonmetal Molds and Crucibles 30

7. Gas Sampling Results--Uncemented Sludges 31

8. Gas Sampling Results--Cemented Sludges and Solutions 34
9. Gas Sampling Results--Concrete, Brick 35
10. Gas Sampling Results--Salts 36
11. Gas Sampling Results--Leaded Rubber 37
12. Gas Sampling Results--Benelex, Plexiglas 38
13. Gas Sampling Results--Resins 39
14. Gas Sampling Results--Mixed Waste-Paper, Metal, Glass, etc. 40
15. Gas Sampling Results--Filters 40
16. Gas Sampling Results--Particulate Waste 41
17. Rocky Flats Plant Gas Standard Analysis 44
18. INEL Gas Standard Analysis 45
19. G(Total Gas) Values 49
20. Hydrogen Results 58
21. Waste Container Component Weights--Combustibles 60
22. Waste Container Component Weights--Metals 61
23. Waste Container Component Weights--Glass 62
24. Waste Container Component Weights--Nonmetal Molds and Crucibles 63
25. Waste Container Component Weights--Uncemented Sludges 64
26. Waste Container Component Weights--Cemented Sludges and Solutions 65
27. Waste Container Component Weights--Concrete, Brick 65
28. Waste Container Component Weights--Salts 65
29. Waste Container Component Weights--Leaded Rubber 66
30. Waste Container Component Weights--Benelex, Plexiglas 66
31. Waste Container Component Weights--Resins 67

32. Waste Container Component Weights--Mixed Waste-Paper, Metal, Glass, etc. 67

33. Waste Container Component Weights--Filters 67

34. Waste Form Compliance with the WIPP-WAC--Combustibles 68

35. Waste Form Compliance with the WIPP-WAC--Metals 70

36. Waste Form Compliance with the WIPP-WAC--Glass 72

37. Waste Form Compliance with the WIPP-WAC--Nonmetal Molds and Crucibles 73

38. Waste Form Compliance with the WIPP-WAC--Uncemented Sludges 74

39. Waste Form Compliance with the WIPP-WAC--Cemented Sludges and Solutions 76

40. Waste Form Compliance with the WIPP-WAC--Concrete, Brick 77

41. Waste Form Compliance with the WIPP-WAC--Salts 78

42. Waste Form Compliance with the WIPP-WAC--Leaded Rubber 79

43. Waste Form Compliance with the WIPP-WAC--Benelex, Plexiglas 80

44. Waste Form Compliance with the WIPP-WAC--Resins 81

45. Waste Form Compliance with the WIPP-WAC--Mixed Waste-Paper, Metal, Glass, etc. 82

46. Waste Form Compliance with the WIPP-WAC--Filters 82

47. Summary of Particle Size Analysis 84

48. Summary of Free Liquid Analysis 86

49. Summary of Sludge pH Analyses 88

50. Summary of Sludge Compositional Analyses 90

51. Results of Gas Analyses for LANL Cell 2, Pit 9, Area G 95

52. Gas Sampling Results--Combustibles (LANL-PU^{238}) 97

53. Gas Sampling Results--Metals (LANL-Pu^{238}) 97

54. Gas Sampling Results--Mixed Waste (LANL-Pu^{238}) 98

55. Gas Sampling Results--Combustibles (LANL-Pu^{239}) 99

56. Gas Sampling Results--Metals (LANL-Pu^{239}) 99
57. Gas Sampling Results--Cemented Sludges (LANL-Pu^{239}) 100
58. Gas Sampling Results--Salts (LANL-Pu^{239}) 100
59. Gas Sampling Results--Mixed Waste (LANL-Pu^{239}) 101
60. Gas Sampling Results--Particulate Waste (LANL-Pu^{239}) 101
61. LANL Gas Standard Analysis 102
62. Waste Container Component Weights--Combustibles (LANL-Pu^{238}) 106
63. Waste Container Component Weights--Metal (LANL-Pu^{238}) 106
64. Waste Container Component Weights--Mixed Waste (LANL-Pu^{238}) 107
65. Waste Container Component Weights--Combustibles (LANL-Pu^{239}) 107
66. Waste Container Component Weights--Metal (LANL-Pu^{239}) 108
67. Waste Container Component Weights--Cemented Sludges (LANL-Pu^{239}) 108
68. Waste Container Component Weights--Mixed Waste (LANL-Pu^{239}) 109
69. Waste Container Component Weights--Particulate Waste (LANL-Pu^{239}) 109
70. Waste Form Compliance with the WIPP-WAC--Combustibles (LANL-PU^{238}) 110
71. Waste Form Compliance with the WIPP-WAC--Metal (LANL-Pu^{238}) 110
72. Waste Form Compliance with the WIPP-WAC--Mixed Waste (LANL-Pu^{238}) 111
73. Waste Form Compliance with the WIPP-WAC--Combustibles (LANL-Pu^{239}) 112
74. Waste Form Compliance with the WIPP-WAC--Metal (LANL-Pu^{239}) 113
75. Waste Form Compliance with the WIPP-WAC--Cemented Sludges (LANL-Pu^{239}) 113
76. Waste Form Compliance with the WIPP-WAC--Mixed Waste (LANL-Pu^{239}) 114

77. Waste Form Compliance with the WIPP-WAC--Particulate Waste ($LANL\text{-}Pu^{239}$) 114

FIGURES

1. Gas Sampling Manifold 10

TRU WASTE-SAMPLING PROGRAM: VOLUME I--WASTE CHARACTERIZATION

1. INTRODUCTION

1.1 Background

The TRU Waste Sampling Program was established to evaluate various types of wastes contaminated with transuranic (TRU) isotopes. The sampling program was conducted at the Idaho National Engineering Laboratory (INEL) and the Los Alamos National Laboratory (LANL). The Rocky Flats Plant (RFP) provided support for work associated with evaluation of ^{239}Pu waste stored at the INEL. LANL conducted all work associated with evaluating ^{238}Pu-contaminated wastes. EG&G Idaho was responsible for the overall program management, quality assurance, and final reporting of the national effort under the direction of the Joint Integration Office (JIO). Tasks conducted by INEL, RFP, and LANL were delineated in the Implementation Plan for the TRU Waste Sampling Program, EG&G-WM-6324, July 1983. Appropriate task descriptions are repeated to provide the reader with background information.

1.2 Objectives

The primary objectives of the overall TRU Waste Sampling Program were:

1. To provide information on gas generation in newly generated and stored TRU wastes.

2. To evaluate the adequacy of venting/filtering devices (carbon composite filter, Hanford vent clip, and the styrene butadiene gasket) for maintaining safe hydrogen levels in sealed waste drums.

3. To determine the adequacy of the INEL real-time radiography system as a nondestructive certification technique.

4. To examine wastes for compliance with the Waste Isolation Pilot Plant-Waste Acceptance Criteria (WIPP-WAC).[1]

1.3 Purpose

The TRU Waste Sampling program report consists of two volumes. The purpose of Volume I, Waste Characterization, is to present the data obtained from sampling, opening and examining various aged transuranic wastes stored at INEL and LANL (objectives 1, 3, and 4 above). This data includes task descriptions, radiographic examination results, gas sampling and INEL gas generation results, waste examination results, evaluation of waste compliance with the Waste Isolation Pilot Plant-Waste Acceptance Criteria (WIPP-WAC) and radiographic examination results. In some cases, the data may be applicable to other Department of Energy (DOE) sites such as in the area of real-time radiography and waste form compliance. In other cases, such as with gas generation, the data may be site specific since the manner in which the wastes are segregated, packaged, sealed, etc. may vary from site to site.

Volume II contains the results of the gas-generation rate studies, and evaluation of the effectiveness of filtering/venting devices for maintaining safe hydrogen levels in sealed waste drums (objective 2 above).

1.4 Quality Assurance and Quality Control

Quality assurance of the data generated by the TRU Waste Sampling Program was provided by management and internal and external review. External peer reviews were conducted by the JIO, RFP, LANL, Rockwell Hanford, Savannah River Plant, and the Sandia National Laboratory.

To ensure that gas sampling and analytical methods were consistent among the participating laboratories, the following special quality control measures were used in addition to established site laboratory procedures and standard practices:

1. Gas Bottles--Bottles or cylinders used to collect gas samples were initially cleaned by evacuating them to less than 2.0×10^{-2} torr (mm/Hg) at 100°C for 2 hours.

2. Measuring Instruments--Instruments (gauges, transducers) used for measuring pressures (subatmosphere and above-atmosphere) were calibrated, as specified by each participating laboratory's quality control program, and were accurate to a minimum of 0.2% of full scale. Pressure measurements are reported in torr (mm Hg).

3. Drum Sealing--Drums required to be completely sealed were considered sealed if pressurized to 155 torr above atmospheric pressure for 3 hours with a pressure loss of no more than 5 torr.

4. Gas Sampling Pressure--The gas sampling manifold and gas sampling bottle were evacuated to less than 2.0×10^{-2} torr before a gas sample was drawn from the drum. After this pressure had been obtained, the valve to the pump was closed and the pressure observed to ensure that the sampling manifold was properly sealed to the drum lid. The seal was adequate if a pressure rise of less than 1.0×10^{-2} torr was observed for 1 minute.

5. Gas Analysis--Mass spectrometry or gas chromatography was used for analyzing gas samples. In either case, the lower limit of detection was 0.1 vol% for each gas. Sensitivity or response factors were established for each type of gas analyzed. At the

beginning of each day, before any gas samples were analyzed, instruments were checked by using one of the gases as an analytical standard for comparison with the established sensitivity or response factor. Results of this test were required to be within ±2% of the established sensitivity or response factor.

6. Gas Standards--A certified gas standard was supplied to each participating laboratory for use when analyzing gas samples. The gas mixture and composition used was the same for each laboratory to allow comparison of analytical results.

   After sensitivity or response factors were established for the analytical instrument, a certified gas sample was analyzed before any gas samples were analyzed. The results of this analysis were reported, by phone, to EG&G Idaho before any further analyses were conducted. A sample of the certified gas was then analyzed for approximately every eight field gas samples analyzed.

7. Other Analyses--Other types of analyses, such as those conducted for particulates and unknown materials, were conducted on an as needed basis. For an unknown material, 90% of the total was required to be identified.

8. Documentation--Each participating laboratory was required to keep appropriate documentation such as: (a) analytical instrument output (spectra or chromatogram) used for establishing sensitivity or response factors; (b) environmental conditions when drums were sampled; (c) all analytical results, including daily instrument checks, variance from established factors, tolerances, certified gas standard results, and (d) appropriate internal analytical and quality control standards and procedures.

2. INEL/RFP DATA

This section contains the task descriptions and data obtained from sampling and characterizing 199 drums and 10 boxes of 6-month-old, 3-year-old, and 12-year-old ^{239}Pu wastes stored at the INEL. The data are divided into four sections (excluding the sampling program overview): radiographic examination, gas sampling, waste examination, and waste form compliance. The data have been subdivided to allow the reader to go to a specific area of interest.

2.1 Sampling Program Overview

2.1.1 Waste Selection

All TRU waste containers used in the sampling program were randomly selected from "certifiable" waste form categories. The term "certifiable" was applied to those waste forms (glass, metal, etc.) that were expected to comply with the waste form requirements of the WIPP-WAC. Each waste form category consists of one or more content codes used to describe the physical content of a waste container (see Appendix A). Certifiable waste forms were previously determined by reviewing the content codes based on INEL waste information records, waste generator records and observing waste-generating processes and waste streams.

Content codes meeting the generic "certifiable" waste form description, e.g. glass, were selected for sampling if available. The 6-month-old containers were selected and set aside from RFP waste shipments received at the INEL Radioactive Waste Management Complex (RWMC). The 3-year-old and 12-year-old RFP wastes were retrieved from interim storage at RWMC. The waste containers were radiographed and shipped to the RFP for sampling and characterization. These tasks were conducted by RFP since INEL does not have the required facilities to open and visually examine waste containers. The term "visual examination" is used to describe the opening and characterization of the waste container contents.

It should be noted that only wastes generated by RFP were used in the sampling program. Wastes shipped to the INEL from other facilities are comparable to RFP-generated waste, and RFP waste constitutes the majority of TRU waste stored at INEL.

2.1.2 Retrieval Operations

Tasks 1 and 2 of the TRU Waste Sampling Program implementation plan[2] provided for the collection or retrieval of 6-month-old, 3-year-old, and 12-year-old TRU wastes at the INEL. The 6-month-old waste was selected and set aside from RFP waste shipments received at the INEL Radioactive Waste Management Complex (RWMC). The 3-year-old waste was retrieved from storage within the air support building currently used to store TRU wastes. The 12-year-old waste was retrieved from the Transuranic Storage Area Pad 1, Cell 5 (TSA-1, Cell 5). TSA-1, Cell 5 was originally filled with waste and closed June 20, 1973. Wastes selected for the TRU Waste Sampling Program were then radiographed, prepared for shipment and returned by railroad in ATMX boxcars to the RFP for sampling, opening, and characterization of the waste. It should be noted that some of the TSA-1, Cell 5 drums were gas-sampled at the INEL as part of Task 3 of the implementation plan. However, not all drums were sampled due to inclement weather at INEL. Drums not sampled at the INEL were sampled at the RFP.

After removal of most of the TSA-1, Cell 5 soil overburden, but prior to actually penetrating the cell, samples were taken to determine the presence of any airborne activity within the cell, soil contamination, and presence of hazardous gases (hydrogen) within the cell. Analysis of the samples indicated no airborne activity, no soil contamination, and no detectable hazardous gases. The condition of the waste containers was found to be fair to good. Corrosion was evident on the metal drums and drum lids. Some labels were in poor condition due to discoloration from condensation. No problems were encountered retrieving the waste drums.

The fiberglass-reinforced-polyester (FRP) coated wooden boxes were generally found to be in good to excellent condition. However, during the retrieval process some breached waste boxes were discovered. It is believed the waste boxes were breached during emplacement of the soil overburden by heavy construction equipment. During remedial action operations, no airborne activity was detected. A small quantity of slightly alpha-contaminated soil was found inside a breached box, but outside the plastic bag lining the box. Any contaminated items found were disposed of as TRU waste.

2.1.3 Radiographic Examination

All waste containers were examined by the INEL RTR system prior to shipment to the RFP for sampling and visual examination of the container contents. The purpose of the RTR examination was to obtain information concerning the capabilities of the RTR system as a nondestructive examination technique for certifying waste to the WIPP-WAC.

Each waste container was examined to determine whether or not the container contents matched the expected contents based on the assigned content code, and to detect any free liquids, compressed gases, or particulates in the waste. The RTR operator then made a decision on the certifiability of the container. It should be noted that containers were originally identified as "not certifiable" if the waste contents did not match the content code or if the operator could not evaluate the waste due to limited x-ray penetration of the container. Approval has since been given to INEL to certify wastes with the wrong content code (as indicated during RTR examination) as long as the waste meets the WIPP-WAC. Penetration of the waste is limited because either materials in the waste are dense or waste drums are lined with lead-sheeting to reduce radiation levels.

2.1.4 Waste Examination

All INEL waste containers were shipped by rail in ATMX cars to Rocky Flats Building 664. The containers were unloaded, surveyed for

surface contamination, and assigned a sequence number to ensure similar wastes (sludges, combustibles, etc.) were grouped together and examined in a predetermined order. Where possible, drums normally drum counted were reassayed by segmented-gamma scan before being transferred to Building 776 for opening and examination. However, some drums were counted by sodium-iodide assay technique. Sludge drums (Content Codes 1, 2, 3, and 7) were assayed by taking a sample for radiochemical analysis during the visual examination. One drum of molten salt was repackaged and assayed in the can counter to obtain more accurate assay results.

2.1.4.1 Drum Assay Differences. Differences in the original and reassay values arise from a variety of causes. The original assay on sludge drums was determined by assigning the gram values of plutonium and americium for a large waste treatment feed batch equally to the approximately 10 drums of sludge. However, the sludge is not homogeneous, resulting in different gram values in each drum when the reassay was determined by taking a representative sample.

The one notable exception to the above explanation is Drum No. 32-01055 (see Section 2.5, Waste Form Compliance tables), which had an original assay of 35 grams plutonium and reassays from 191 to 313 grams plutonium. The drum contained 20 wide-mouth plastic bottles of graphite chunks and 3 bottles of fines. The original assay done in the MD-28 counter in Building 371 indicated the coarse material contained 27 grams and the fines accounted for 8 grams for a total of 35 grams. Upon return to RFP, the segmented drum count indicated 191 grams. During the visual examination, the fines were packaged into 11 cans for assay in the Building 771 can counter. The counter indicated that the fines contained 292 grams of plutonium. The coarse material was redrummed and counted by the south drum counter, with 21 grams of plutonium resulting. Since the segmented drum count before the visual examination, and the Building 771 can counter produced much higher counts than the original count with MD-28, the original count for the three bottles of fines appears incorrect.

No attempt was made to retrieve the original count sheets for all the drum counted drums, but the original and reassays were likely determined in two different instruments that use different variations of gamma-ray counting techniques. The original values were likely determined by the south drum counter in Building 771 and the recounts were indeed determined by the segmented drum counters in Buildings 771 or 707. The south drum counter uses a 100-second count with low resolution NaI detectors for 330-400 KeV gamma radiation and is used to assign plutonium gram values. Matrix attentuation corrections are based on net weights that assume a full drum and calibrations depend on item description code (content code). The segmented drum counter uses a 20-minute count with high purity germanium detectors to achieve better resolution on gamma ray energies and it also provides americium and uranium values. Matrix attentuation corrections are measured for each of 8 or 10 segments and do not depend on fill height of material in the drum. The segmented procedure is generally preferred in principle.

Differences in the original and new count values can be understood by the fact that nondestructive assay (NDA) is based on the physical properties of the waste and detection equipment. Differing background counts can affect the drum counter results, even though the counter is repeatedly adjusted (every 6 samples) with background and standard counts. Also, the gram values are based on probabilities of detecting events occurring in the waste, on the resultant energy being absorbed, reflected or changing energy before hitting the detector. Physical location of radioisotopes in the waste container can affect the counter results and shifting of the waste in transit and handling can help account for differing results.

2.1.4.2 Gas Sampling. In Building 776, the drums were gas sampled to determine drum pressure, drum void volume and gas composition. Figure 1 is a photograph of the gas sampling manifold used at the RFP to sample the drums. The gauge in the photograph indicates the manifold vacuum. Manifold connections are also provided for a drum pressure gauge, a vacuum pump, the sample bomb, a vent, and a tritium sampling port. The drums were

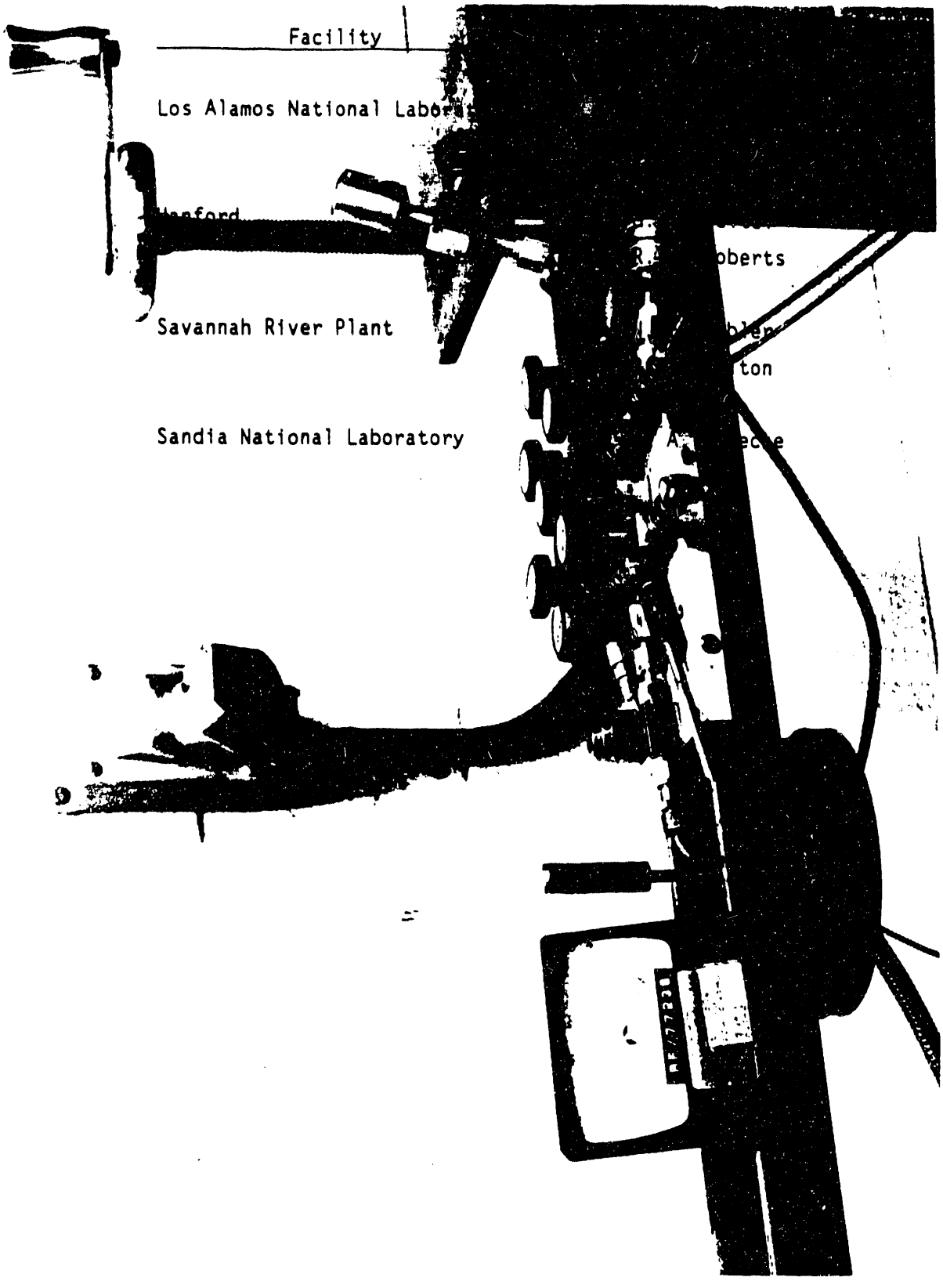


Figure 1. Gas Sampling Manifold.

punctured with a non-sparking copper-beryillium punch that is part of the gas manifold. An extra punch is shown laying near the manifold. The gas pressure was measured when the drum lid was punctured. An attempt was made to puncture the 90-mil rigid polyethylene liner to determine if there was a pressure difference between the liner and the annular space. Due to the flexibility of the rigid liner lid, this effort was only partially successful. For the drums in which the effort was successful, no pressure differences were observed.

A sample of gas was then removed for compositional analysis. The void volume within each drum was determined. Gas analysis included measuring the volume % of hydrogen (H_2), oxygen (O_2), nitrogen (N_2), oxides of nitrogen (NO_x), carbon dioxide (CO_2), carbon monoxide (CO), and hydrocarbons. Gas in waste boxes was not analyzed. Tests conducted at the INEL indicate that boxes are not airtight.

2.1.4.3 Visual Examination. The drum examination commenced by placing the drum in the Size Reduction vault air lock and removing the drum lid to survey for contamination and to check for signs of rust. The drums were placed inside the vault, opened and visually examined to determine type and condition of drum liners, all waste components were weighed, and evaluated for compliance with WIPP criteria. During examination of a waste container (Task 4 of the implementation plan),[2] the following information was obtained: container weight; container condition (dents, bulges, rust, etc.); original content code; original packaging date and location of generation; original and reassay values for radionuclide quantities; physical description of the waste and weight of individual components; physical state (damp or dry) of the waste; evaluation of waste form compliance with the WIPP-WAC; revised content code if container contents did not meet the original content code; waste packaging method; approximate packaging efficiency; presence of liners (lead, 90-mil polyethylene) and condition; and location, type, and quantity of absorbent material. Determination of radionuclide quantities in sludge-type waste was by radiochemical analysis.

2.1.4.4 WIPP-WAC Evaluation. Each waste package was evaluated for compliance with the WIPP-WAC, as specified below:

1. Immobilization: All waste packages within a container were opened and examined for particulate materials. Particulates were collected and analyzed to determine the weight percentage and size distribution of less than 200 µm and less than 10 µm particulates. If any particulate materials were found, the entire mass was taken, if possible, for weight determination and particle size analysis. If the entire amount of particulate could not be collected, the weight was recorded during the visual examination and a representative sample was taken to reduce analysis time. Absorbents added to some waste forms to immobilize free water were not included in this analysis.

   Particle analysis was conducted using appropriate American Society for Testing and Materials (ASTM) standard methods. The procedure used for examining nonwater-soluble particulates was ASTM standard method C371-77, "Wire-Cloth Sieve Analysis of Nonplastic Ceramic Powders" for less than 200 µm diameter particulates. Particulates were analyzed for less than 212 µm particulates instead of less than 200 µm particulates since a 200-µm sieve was not available. The procedure used for determining less than 10-µm particulates was based on ASTM standard method E20-68, "Analysis of Microscopical Methods for Particle-Size Distribution of Particulate Substances of Subsieve Sizes."

2. Free Liquids: The waste, as removed from the waste container, was examined visually to verify the absence of free liquids. Any free liquid found in a container was collected to determine total quantity, and analyzed to identify the liquid or determine composition, and to determine the pH. Infrared (IR) spectroscopy was used to identify the major and minor composition of the liquid, except where the liquid identity was apparent.

It should be noted that the WIPP-WAC criterion for free liquids has changed since inception of this program (from no free liquids allowed to residual liquids being acceptable). To be conservative and consistent in this report, any free liquids found during visual examination were considered to render the waste package noncertifiable. The definition of residual liquid was considered to be a site specific issue, and therefore a quantity was not established.

3. Sludges: The waste, as removed from the waste container, was examined visually to identify the presence of sludge in the waste and to determine whether or not internal corrosion had occurred. The corroded area was photographed. The method for packaging the sludge was recorded. The sludge was sampled and analyzed to determine the pH. Although not required, the major and minor composition of some sludge was determined by IR spectroscopy.

4. Pyrophoric Materials: The waste was examined visually, as removed from the waste container, to determine whether or not spontaneous combustion has occurred in the waste. Any suspect materials were recovered for further analysis.

5. Explosives/Compressed Gases: The waste, as removed from the waste container, was examined visually to identify the presence of unknown or suspect materials and compressed gases (aerosol cans, gas cylinders, etc.). Chemical analyses were conducted to identify the composition of the material. Results of the analyses were compared with 49 CRF 173, Subpart C, to determine whether or not the material was explosive.

   Any vessels capable of being pressurized were checked for puncture holes, drill holes, opened valves, etc. Each vessel was checked to determine if it was pressurized. No internal pressure measurements were taken.

6. Toxic/Corrosive Materials: Unidentified liquids and solids were collected, and the quantity measured, then analyzed to determine material identity and pH. Results of the analysis were compared with 49 CFR 173, Subpart H to determine if the material was a Poison A or Poison B substance. The packaging method for any toxic or corrosive materials was also recorded.

7. Combustibility: The volume % of the combustible content of the waste container, including packaging, was estimated.

8. Gas Generation: The organic material in each waste container was collected and weighed (excludes the 90-mil rigid liner in drums) after the waste had been examined.

The visual examination results are in Appendix B.

2.2 Radiographic Examination

Results of the radiographic examinations are in Appendix B with the general container information and visual examination results, so that comparisons could be made between the results on a container-by-container basis. Table 1 summarizes only the discrepancies between the RTR and visual examination results, including areas in which the RTR did not detect or identify materials, such as particulates, in the waste.

It should be noted that the RTR operator identified the presence of only significant quantities of particulates. Small quantities were not reported if the amount present was judged to be less than 1 weight % of the waste weight. Initially, the RTR operator also rejected waste containers that contained a mixture of wastes or had the wrong content code, even though the waste was certifiable. Upgrades in the RTR imaging system and capability have recently led to approval by the WIPP-WAC Certification Committee to certify wastes with the wrong content codes or containing a

TABLE 1. SUMMARY OF VISUAL AND RTR DISCREPANCIES

Waste Form Category	Container ID Number	Content Code	Visually Certified	RTR Certified	Reason for Discrepancy
Combustibles	02-39453	328	No	Yes	RTR did not detect 4 mL of free liquid in a bag with a filter. Drum was examined prior to enhancements to RTR imaging system. No liquid found when RTR video tape was reexamined.
	42-00291	330	Yes	No	RTR detected a small amount of free liquid and particulates. No free liquids were found during visual examination. Free liquids may have been reabsorbed during shipment and handling of the waste. Quantity of particulates were within WIPP-WAC limits.
	76-02898	330	Yes	No	RTR could not penetrate the lead-lined drum to evaluate the contents.
	389-90609	330	No	No	RTR detected free liquids and four aerosol cans. Free liquids (68 mL) were found during visual examination. No aerosol cans were found.
	02-39465	336	Yes	No	RTR could not penetrate the lead-lined drum to evaluate the contents.
	23-01599	336	No	Yes	RTR did not detect 188 mL of free liquid with wet kimwipes. Drum examined prior to enhancements to RTR imaging system. Liquids found when RTR videotape was reexamined.
	02-40137	336	Yes	No	RTR could not penetrate the lead-lined drum to evaluate the contents.
	92-00419	336	Yes	No	RTR detected small amounts of free liquids. No free liquids found during visual examination--believed to be reabsorbed during handling.
	37-00689	336	Yes	No	RTR detected HEPA filters that contained an unknown amount of particulates. Quantity of fines present was within WIPP-WAC limits.
	90-00039	336	No	Yes	RTR did not detect 295 mL of free liquid found in a bottle of hand lotion. Liquids were found when RTR videotape was reexamined.
	65-00137	336	No	Yes	RTR did not detect 20 mL of free liquid found outside the liner in the bottom of the drum. Liquids were found outside liner when RTR videotape was reexamined.

TABLE 1. (Continued)

Waste Form Category	Container ID Number	Content Code	Visually Certified	RTR Certified	Reason for Discrepancy
	389-85743	337	No	Yes	RTR did not detect 1.4 L of free liquid in a plastic pail. The liquid was under a solidified layer of coating material. No obvious liquid detected when RTR videotape was reexamined since the solidified layer prevented liquid movement.
	746-2906	900	No	Yes	RTR did not detect 15 mL of free liquid found outside the liner in the bottom of the drum. Liquids were found when RTR videotape was reexamined.
	746-2918	900	No	Yes	RTR did not detect 10 mL of free liquid found outside the liner (on the lid and in the drum bottom). Liquids could not be detected when RTR videotape was reexamined.
Metals	31-00939	480	Yes	No	RTR detected unknown quantity of particulate material. The quantity of fines present was within WIPP-WAC limits.
	389-90895	480	No	No	RTR did detect the free liquids but did not detect the two aerosol cans or sand particulates. Quantity of sand fines present was within WIPP-WAC limits.
	389-90828	480	No	Yes	RTR did not detect the 10 mL of oil in crushed cans or the welding flux (fines). Quantity of fines was within WIPP-WAC limits. The oil could not be detected when the RTR videotape was reexamined.
	02-12224	480	Yes	No	RTR detected 1 gallon of particulates. Quantity of fines present was within the WIPP-WAC limits.
	389-85811	480	No	Yes	RTR did not detect 3.1 L of free liquid with paper wipes in a plastic bag on top of the waste. Liquids were not readily discernible when the RTR videotape was reexamined. The paper wipes may have presented liquid movement.
Glass	17-04562	442	No	Yes	RTR did not detect the film of oil on the plastic and Raschig rings. The RTR system is not capable of detecting liquid films. Liquid films are not considered a free liquid by INEL.
Uncemented Sludges	7412-03125	1	No	Yes	RTR did not detect 507 mL of free liquid in outer and inner bag. Drum was examined prior to RTR imaging enhancements. No liquids were detected when the RTR videotape was reexamined. Dewatering of the sludge may be occurring.

TABLE 1. (Continued)

Waste Form Category	Container ID Number	Content Code	Visually Certified	RTR Certified	Reason for Discrepancy
	742-26152	2	No	Yes	RTR did not detect 1425 mL of free liquid in outer bag. Drum was examined prior to RTR imaging system enhancements. Liquids were detected when the RTR tape was reexamined.
	742-26154	2	No	Yes	RTR did not detect 950 mL of free liquid inside and outside the outer bag. Drum was examined, prior to RTR imaging system enhancements. No liquids detected when RTR videotape was reexamined. Dewatering of sludge may be occurring.
	742-21594	2	Yes	No	RTR detected 500 mL of free liquid that was not found in the visual exam. Liquid may have been reabsorbed during shipment and handling of the drum.
	742-21640	2	No	Yes	RTR did not detect 2700 mL of free liquid on top of bag and on top of sludge. Liquids not detected when RTR videotape was reexamined. Dewatering of the sludge may be occurring.
	743-11682	3	No	Yes	RTR did not detect 130 mL of free liquid found in the PVC bag at the bottom of the grease. Liquids not detected when RTR videotape was reexamined.
	743-16487	3	No	Yes	RTR did not detect 1000 mL of free liquid which drained from the top of the grease. No liquid detected when RTR videotape was reexamined.
	743-15023	3	No	Yes	RTR did not detect 400 mL of free liquid found on top of the grease and inside the outer bag. Drum was examined prior to RTR imaging system enhancements. Possible liquid found when RTR videotape was reexamined.
	747-00944	7	No	Yes	RTR did not detect 1465 mL of free liquid found on the top, sides and bottom of the sludge. No liquids were detected when the RTR videotape was reexamined. Dewatering of the sludge may be occurring. Liquids desorbed from sludge as it was handled during visual examination.
	40-00063	292	No	No	RTR did not detect 135 ml of free liquids found in the drum, drum bags, and bottles. RTR also detected particulate materials. No particulates found during visual examination. Drum was examined prior to RTR imagining system enhancements. No liquids detected when RTR videotype was reexamined.

TABLE 1. (Continued)

Waste Form Category	Container ID Number	Content Code	Visually Certified	RTR Certified	Reason for Discrepancy
	76-01642	292	Yes	No	RTR rejected drum due to particulate and the unknown nature of the waste. Quantity of fines present was within WIPP-WAC limits.
Cemented Sludges and Solutions	744-2376	4	No	Yes	RTR did not detect 20 mL of free liquid located outside the drum liner in the bottom of the drum. The liquid was detected when the RTR videotape was reexamined.
	744-2389	4	Yes	No	RTR detected 3.7 L of liquid between the 90 mil liner and the sludge. No free liquid was detected during the visual exam.
Resins	02-39215	432	No	Yes	RTR did not detect 75 mL of free liquid found outside a poly bottle, but within the poly bag. Drum was examined prior to enhancements to RTR imaging system. The liquid was detected when the RTR videotape was reexamined.
	02-10288	432	No	Yes	RTR did not detect 520 mL of free liquid found in the inner drum bag. Liquid was detected when the RTR videotape was reexamined.
	02-10195	432	No	Yes	RTR did not detect 50 mL of free liquid found in a bag containing a gallon jug. Liquid could not be detected when RTR videotape was reexamined.
Mixed Waste	01-08068	241	No	No	RTR could not examine the contents because of the lead lining.
Filters	89-03509	360	Yes	No	RTR estimated 1 gallon of particulates would be present. Quantity of fines present was within the WIPP-WAC limits.

mixture of wastes if the waste otherwise meets the WIPP-WAC. Table 1 does not include containers originally rejected by RTR due to wrong content code or due to containing a mixture of wastes.

The radiographic examinations of waste containers selected for the TRU Waste Sampling Program were conducted during the RTR system technology development phase. During this time period, imaging enhancements were made to the RTR system that resulted in an improvement to the quality of the radiograph which enabled it to be interpreted with increased accuracy by the RTR operators. It should also be noted that the determination of waste form compliance with the WIPP-WAC was conducted by RTR operators who were not fully trained or qualified. A training program was defined, developed and established during the course of the sampling program to support future waste certification operations. Operator qualification requirements were put into effect during this same time period.

The TRU Waste Sampling Program served as an extremely beneficial opportunity that assisted in the further development of the RTR system, the establishment of specific requirements that were incorporated in the training and qualification program, and in the defining of improved operational procedures for conducting the waste examinations. A summary comparison of the RTR and visual certification designation is also in Section 2.5, "Waste Form Compliance."

2.2.1 Radiography Results

A total of 43 waste containers out of 209 examined containers were identified as noncertifiable by RTR. Of the 43 containers, 30 were later confirmed by visual examination to be noncertifiable and the remaining 13 were actually found to be certifiable. The 13 containers were rejected by RTR on the basis of: (a) three contained a small amount of liquid (which was not found during visual examination), (b) four contained lead-shielding

or other dense items that prevented the RTR operator from evaluating the waste due to limited x-ray penetration, and (c) six were rejected due to the presence of particulates.

Visual examination of the 209 waste containers resulted in 52 containers being declared noncertifiable. The RTR system detected 30 of these containers. The remaining 22 containers all contained small amounts of free liquid. The quantity of this liquid ranged from a film of oil to 3.1 L. Additional information follows and is summarized in Table 1 and Table 2.

2.2.1.1 Combustibles. The RTR was unable to detect free liquids in 7 of the 14 waste containers found to contain free liquids. The quantity of free liquid contained in each waste container ranged from 4 mL to 1.4 L. The 1.4 L of liquid, Box 389-8573 Combustibles, Code 300, which was contained in a plastic pail, was a very viscous black material. The top layer of the material in the pail had dried out. The liquid, which was underneath the dried layer, was not visible by RTR since motion of the liquid was not possible.

The remaining six containers had free liquids in the following amounts: 4 mL, 10 mL, 15 mL, 20 mL, 188 mL, and 295 mL. The RTR videotapes for these containers were reexamined to determine if free liquids could be found. Liquids were observed in four of the containers (15 mL, 20 mL, 188 mL, and 295 mL).

2.2.1.2 Metals. The RTR was unable to detect free liquids in two of five waste containers found to contain free liquids. One box (No. 389-90828, Code 480) contained 10 mL of free liquid.

The 3.1 L of liquid was found in a double plastic bag containing wet paperwipes in Box No. 389-85811. The paperwipes may have prevented movement of liquid during the RTR examination. Liquid motion is needed to detect the presence of the liquid. Some of this liquid may have been pressed from the wet paperwipes during visual examination.

TABLE 2. RTR SUMMARY

Waste Form Category	Noncertifiable Containers[a]				Undetected by RTR[b]	Additional RTR Rejections
	Liquids	Liquids and Gas	Particulates	Total		
Combustible	14	0	0	14	7	6
Metals	3	2	0	5	2	3
Glass	1	0	0	1	1	0
Nonmetal Molds	0	0	0	0	0	0
Uncemented Sludge	24	0	2	26	8	2
Cemented Sludge	1	0	0	1	1	1
Concrete, Brick	0	0	0	0	0	0
Salts	0	0	0	0	0	0
Leaded Rubber	0	0	0	0	0	0
Benelex	1	0	0	1	0	0
Resins	3	0	0	3	3	0
Mixed Waste	1	0	0	1	0	0
Filters	0	0	0	0	0	1
	48	2	2	52	22	13

a. Containers identified as noncertifiable during visual examination.

b. Number of noncertifiable containers undetected by RTR.

2.2.1.3 Glass. One drum (No. 17-04562, Code 442) contained Raschig rings and plastic that was coated with a film of oil. The oil, which was not measurable and did not flow, was considered noncertifiable by the RFP, during the visual examination, since the oil was not absorbed into a host material. The RTR cannot detect liquids as nonflowing films. The INEL does not consider the oil film a free liquid, based on the stored waste compliance requirements.

2.2.1.4 Uncemented Sludges. The RTR system was unable to detect free liquids in eight of the 26 waste containers that were uncertifiable. The volumes of liquid found in the containers were: 130 mL, 400 mL, 507 mL, 950 mL, 1.0 L, 1.4 L, 1.5 L, and 2.7 L. Two of these containers were found to contain free liquids (400 mL and 1.4 L) when the RTR videotapes were reexamined. Liquids were not observed in the remaining six containers. This indicates that dewatering of the sludge may be occurring during transportation of the waste.

2.2.1.5 Cemented Sludges and Solutions. One drum (No. 744-2376, Code 4) contained 20 mL of free liquid that was not detected by RTR. The liquid was located in the bottom of the drum, outside the 90-mil rigid drum liner. The liquid did not appear to be from the waste, but was probably residual liquid left in the drum when the drum liner was installed. This liquid was observed when the RTR videotape was reexamined.

2.2.1.6 Resins. The RTR was unable to detect free liquids in three drums. Drum No. 02-39215 (Code 432, 6-month-old) contained 75 mL liquid inside a plastic bag containing a polyethylene bottle. Drum No. 02-10195 (Code 432, 12-year-old) contained 50 mL of liquid inside a plastic bag containing a polyethylene bottle. Drum No. 02-10288 (Code 432, 12-year-old) contained 520 mL of liquid in the bottom of the inner plastic drum bag lining the 90-mil rigid liner. The liquid in both of these drums was observed when the RTR videotapes were reexamined.

2.3 Gas Sampling Results

Waste drums were sampled to determine the drum pressure, drum void volume, and a gas sample was taken for compositional analysis. All drums sampled, except for seven 6-month-old drums, were sealed with nonpermeable rubber gaskets. The seven drums are noted in the appropriate tables. Waste boxes were not sampled. Tests conducted at the INEL indicate that accumulation of flammable gas mixtures in FRP boxes will not occur due to leakage.

The sampling and analysis procedure was conducted in accordance with the guidelines and specifications identified in Section 1.4. The gas sampling and gas generation results are provided in Tables 3 through 16. Each table presents the results for a waste form category.

In addition to gas sampling results for waste containers that were opened and examined, 13 additional results are included for drums that were gas sampled at INEL but not included in the sampling program. These drums include those used to demonstrate the INEL prototype drum venting system and sampling of presently noncertifiable waste forms such as filters and particulate wastes. Results are further divided into the individual content codes and time periods within each table for comparison of the results.

The following paragraphs describe the methods used for determining drum void volume, collection and analysis of gas samples, gas generation calculations and gas generation results.

2.3.1 Void Volume Determination

The drum void volume was determined by measuring the drum pressure and then expanding the gas inside the drum into a calibrated expansion volume and measuring the new pressure. During measurement of the drum pressure, an attempt was made to determine if a pressure differential existed across the 90-mil rigid polyethylene liner. No pressure differences were observed in those rigid liners that were penetrated by the sampling mechanism.

TABLE 3. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: COMBUSTIBLES

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured R[e] (Total)	Expected R (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)					
02-39371	6-month	328	2.10	0.05	96.5	1.1	--	--	--	--	0.17	--	642	+ 28.5	182	245	1.78	0.14	0.24
02-39453	6-month	328	4.59	--	94.0	1.1	0.05	--	--	0.24	--	--	589	- 24.5	171	251	3.48	0.26	0.49
02-39481	6-month	328	4.07	--	94.2	1.1	0.05	--	--	0.25	0.33	--	574	- 39.5	184	244	3.48	0.24	0.48
42-00291	6-month	330	0.09	--	79.3	0.91	17.3	--	2.26	0.14	--	--	631	+ 17.5	187	251	0.074[h]	1.28	0.01
22-01194	6-month	330	0.40	18.8	79.2	0.91	0.24	--	--	0.27	0.16	--	614	+ 2.0	181	276	0.30	0.04	0.04
38-00101	6-month	330	0.28	--	78.0	0.93	19.5	--	--	0.87	0.11	0.25[f]	632	+ 20.0	169	269	0.074	1.16	0.01
76-02898	6-month	330	18.2	--	64.6	0.75	15.2	--	0.36	0.65	0.11	0.11[f]	701	+ 87.5	171	326	2.15	2.23	0.37
02-39195	6-month	330	0.34	12.5	83.3	0.93	2.09	--	--	0.29	0.53	--	576	- 36.0	168	307	0.15	0.13	0.02
02-39465	6-month	330	0.87	17.2	79.4	0.90	1.1	--	--	0.25	0.32	--	593	- 19.0	179	227	0.74	0.12	0.09
02-39084	6-month	330	0.15	13.6	82.8	0.94	2.23	--	--	0.22	--	--	588	- 24.0	164	328	0.22	0.13	0.04
02-40137	6-month	330	0.97	17.9	78.8	0.92	1.2	--	--	0.18	--	--	614	+ 1.0	178	163	1.70	0.13	0.15
389-90471	6-month	330	Boxes were not sampled																
390-90609	6-month	330	Boxes were not sampled																
02-35272	3-year	330	0.10	19.3	79.1	0.92	0.35	--	--	0.24	--	--	629	+ 13.0	177	903	0.074	0.03	0.04
01-08200	12-year	330	--	20.1	78.5	0.93	0.44	--	--	--	0.06	--	623	- 13.0	155	4,361	1.16	0.02	2.70
01-08796	12-year	330	0.05	18.0	80.6	0.96	0.61	--	--	--	--	--	553	- 84.0	86	4,334	0.33	0.02	0.76
90-00042	12-year	330	13.6	0.10	76.4	0.94	8.45	--	--	0.22	--	0.32[k]	621	- 15.0	137	4,215	1.18	1.06	2.65
37-00689	12-year	330	1.9	0.13	94.7	1.1	1.9	--	0.37	--	--	--	474	-164.0	[m]	4,340	0.07	--[m]	0.17
89-03607	12-year	330	1.4	0.13	91.3	1.1	5.94	--	--	--	0.07	--	501	-135.0	178	4,306	0.23	0.37	0.53
02-10215	12-year	330	3.42	0.13	95.3	1.1	0.06	--	--	--	--	--	510	-126.0	--[m]	4,318	0.72	--[m]	1.66
90-00039	12-year	330	7.33	0.29	90.4	1.0	0.74	--	--	0.17	--	--	515	-122.0	165	4,227	1.76	0.39	3.97
23-01599	6-month	336	1.1	--	77.1	0.81	17.6	--	--	--	0.50	2.879	650	+ 37.0	163	260	0.30[h]	1.09	0.04
47-00256	6-month	336	1.4	12.7	79.9	0.78	4.12	--	--	0.77	0.21	--	620	+ 7.0	177	154	3.85	0.33	0.32
92-00419	6-month	336	--	16.9	78.3	0.92	2.62	--	0.89	--	0.34	--	611	- 2.0	183	190	0.074[h]	0.22	0.01
02-34820	3-year	336	--	0.54	80.2	0.95	18.2	--	--	0.12	--	--	621	+ 5.0	197	993	0.074	1.23	0.04
22-00748	3-year	336	0.51	7.45	84.0	0.96	7.04	--	--	--	--	--	576	- 40.0	214	925	0.22	0.51	0.11
02-10348	12-year	336	3.30	11.1	78.8	0.94	5.85	--	--	--	--	--	636	- 1.0	--[n]	4,262	0.0	--[n]	--
65-00137	12-year	336	0.87	0.26	76.9	0.91	21.0	--	--	--	--	--	621	- 15.0	144	4,369	0.43	1.11	1.00
744-3792	6-month	337	0.10	21.5	77.1	1.1	--	--	--	0.12	0.10	--	574	- 39.0	187	340	0.50	0.01	0.09
744-3823	6-month	337	0.10	20.8	77.6	1.1	0.16	--	--	--	0.24	0.05[f]	614	+ 1.0	192	256	0.48	0.02	0.07
744-3789	6-month	337	0.21	19.9	78.0	0.82	--	--	--	0.29	0.26	0.139	612	- 1.0	201	367	0.56	0.01	0.11
55-00435	6-month	337	1.4	8.73	78.5	2.97	7.97	--	--	0.16	0.30	--	611	- 2.0	189	182	2.29	0.60	0.22

TABLE 3. (Continued)

WASTE FORM CATEGORY: COMBUSTIBLES

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %) H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	Drum Pressure (mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
01-08906	12-year	337	0.06	7.26	82.3	0.98	9.33	--	--	--	0.05	--	615	- 25.0	--n	4,328	0.0	--n	--
02-10180	12-year	337	0.85	0.12	81.8	0.95	16.1	--	0.17	--	--	--	570	- 68.0	132	4,318	<0.01	0.73	0.02
37-00672	12-year	337	0.01	8.67	90.1	1.1	0.10	--	--	--	0.05	0.01[l]	633	0.0	--n	4,309	0.22	--n	0.51
37-00698	12-year	337	2.86	0.14	92.6	1.1	3.18	--	0.15	--	--	--	474	-166.0	165	4,318	0.62	0.28	1.43
37-00711	12-year	337	0.18	18.1	80.7	0.96	0.14	--	--	--	--	--	519	-118.0	121	4,252	0.41	0.01	0.93
36-00723	12-year	337	2.55	12.1	82.3	1.0	1.9	--	--	--	0.12	--	594	- 39.0	180	4,257	0.88	0.27	2.00
389-85743	12-year	337	Boxes were not sampled																
746-2906	12-year	900	0.15	16.7	82.1	0.97	0.10	--	--	--	--	--	465	-172.0	--m	4,346	0.73	--m	1.69
746-2918	12-year	900	1.6	0.29	96.8	1.1	0.13	--	--	--	--	--	604	- 36.0	186	4,314	0.69	0.11	1.59
746-7013	12-year	900	12.3	0.03	79.7	0.97	0.05	--	--	6.80	0.12	--	678	+ 41.0	--n	4,155	0.0	--n	
746-7008	12-year	900	2.65	0.07	95.4	1.1	--	--	--	0.42	0.31	0.07[l]	564	- 40.0	160	4,336	<0.01	0.13	0.02
01-08583	12-year	970	0.52	2.29	89.7	1.04	5.58	--	0.66	0.12	0.06	0.03[l]	692	+ 88.0	97	4,460	0.20	0.25	0.48
01-08604	12-year	970	--	11.4	83.9	0.99	2.95	--	0.13	0.20	0.27	0.12[l]	608	- 3.0	120	4,461	0.05	0.12	0.12
01-08700	12-year	970	0.47	4.07	89.7	1.03	3.74	--	0.60	0.14	0.17	0.05[l]	680	+ 74.0	100	4,458	0.47	0.18	1.12
389-85289	12-year	970	Boxes were not sampled																

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = moles of radiolytic produced gas.

f. Dichloromethane (CH_2Cl_2).

g. Freon (1,1,2-trichloro-1,2,2-trifluoroethane).

h. Original assay data used.

i. No value given. The waste drum actually contained glass and not combustible wastes.

j. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

k. Contains a CF_3^+ fragment

l. Trichloroethylene

m. Drum not sealed sufficiently to obtain a void volume. Unable to calculate moles of radiolytic gas present.

n. Gas sampling data only. Drums were not included as part of the sampling program. These containers were sampled as part of the drum venting system study, or because the drums were pressurized when retrieved from Cell 5.

TABLE 4. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: METALS

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured H (Total)[e]	Expected H (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)					
29-01396[n]	6-month	320	--	20.4	78.4	0.98	0.19	--	--	0.05	--	--	605	- 5.0	177	211	0.50	0.01	--g
55-00290	3-year	320	0.94	12.9	79.2	4.23	2.56	--	--	0.15	--	--	616	+ 1.0	192	654	11.40	0.23	--g
02-10613	12-year	320	0.04	18.8	79.5	0.94	0.75	--	--	--	--	--	633	- 7.0	128	4,329	0.63	0.04	--g
02-10128	12-year	320	--	3.80	95.0	1.1	0.05	--	--	0.02	--	--	560	- 46.0	159	4,442	0.02	<0.01	--g
02-40002	6-month	480	0.15	16.3	78.6	1.1	3.35	--	--	0.20	0.38	--	618	+ 5.0	180	175	0.00	0.21	--g
31-00939	6-month	480	0.05	20.9	76.0	0.92	0.06	--	--	--	2.06	--	612	- 2.0	185	188	0.22	0.01	--g
02-39738	6-month	480	--	21.4	77.1	1.1	0.13	--	--	0.07	--	--	614	+ 1.0	195	188	0.67	0.01	--g
45-00528	6-month	480	0.12	20.5	77.5	1.1	0.48	--	--	--	0.25	--	617	+ 4.0	191	157	2.40	0.04	--g
02-40153	6-month	480	0.07	21.5	77.0	0.94	0.06	--	--	0.06	0.26	0.10[h] 0.02[i]	665	+ 58.0	185	386	1.56	<0.01	--g
12-12505[n]	6-month	480	0.06	19.4	79.1	0.94	0.42	--	--	0.06	0.08	--	628	+ 17.0	175	216	4.38	0.03	--g
29-00513	6-month	480	0.10	21.4	76.8	0.89	0.12	--	--	0.03	0.17	0.06[h] 0.40[j]	612	+ 6.0	76	385	0.01	<0.01	--g
29-00528	6-month	480	0.02	21.6	76.9	0.96	0.10	--	--	0.16	0.11	0.20[j]	606	0.0	218	385	0.02	<0.01	--g
78-00199	6-month	480	0.05	20.9	77.8	0.92	0.006	--	--	0.13	0.12	0.01[i]	608	- 2.0	196	181	0.00	<0.01	--g
389-90895	6-month	480	Boxes were not sampled																
389-90828	6-month	480	Boxes were not sampled																
389-20305	6-month	480	Boxes were not sampled																
02-34855	3-year	480	0.20	13.6	84.4	1.0	--	--	--	0.32	0.43	--	630	+ 15.0	183	990	0.37[f]	0.01	--g
02-35083	3-year	480	0.38	8.37	89.6	1.0	0.13	--	--	0.50	--	--	548	- 67.0	185	935	0.00	0.03	--g
31-01321	3-year	480	0.96	16.8	78.2	0.94	0.97	--	--	0.15	--	--	620	+ 5.0	185	903	0.37	0.12	--g
42-00209	3-year	480	0.32	18.0	79.7	0.96	0.93	--	--	0.10	--	--	591	- 23.0	175	960	2.04	0.07	--g
01-08226	12-year	480	0.03	18.1	79.8	0.94	0.83	--	--	0.08	--	0.30[i]	590	- 47.0	126	4,366	0.97	0.04	--g
01-08232	12-year	480	--	20.5	78.3	0.92	0.27	--	--	--	--	--	641	+ 3.0	142	4,365	0.07	0.01	--g
02-12224	12-year	480	0.05	17.9	80.9	0.96	0.22	--	--	--	0.03	0.02[m]	560	- 76.0	193	4,220	0.35	0.02	--g
18-00025	12-year	480	1.55	0.13	96.9	1.1	0.07	--	--	0.17	--	--	501	-127.0	119	4,310	0.82	0.06	--g
32-00544	12-year	480	0.23	13.1	84.9	1.0	0.16	--	--	0.21	--	0.42[h]	628	- 4.0	138	4,294	0.35	0.02	--g
42-00043	12-year	480	1.8	4.48	90.3	1.1	2.38	--	--	--	--	--	621	- 19.0	134	4,246	0.93	0.20	--g
389-85769[n]	12-year	480	Boxes were not sampled																
389-85811[n]	12-year	480	Boxes were not sampled																
25-00036	12-year	480	0.90	10.2	85.4	1.0	2.1	--	--	0.16	0.09	0.09[m]	598	- 10.0	138	4,483	0.96	0.14	--g

TABLE 4. (Continued)

WASTE FORM CATEGORY: METALS:

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %) H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	Drum Pressure (mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
15-00049	6-month	481	0.21	20.5	76.8	0.89	0.26	--	--	0.19	0.21	0.15[h] 0.06[i] 0.81[k]	613	+ 9.0	185	364	1.21	0.03	--[g]
19-01827	6-month	481	0.33	18.1	79.4	0.98	1.08[j]	--	--	0.08	0.04	--	612	+ 10.0	184	417	0.95	0.09	--[g]
19-01901	6-month	481	1.79	8.2	87.6	1.05	1.24	--	--	0.11	--	--	662	+ 60.0	179	422	3.60	0.20	--[g]
19-01919	6-month	481	0.19	4.8	93.2	1.14	0.17	--	--	0.14	0.16	0.18[h]	608	+ 6.0	192	354	1.20	0.02	--[g]
76-00416	12-year	481	6.49	0.12	90.7	1.1	0.62	--	0.88	0.12	0.06	--	605	- 31.0	183	4,203	0.75	0.50	--[g]

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = Moles of radiolytic produced gas.

f. Original assay data used.

g. No laboratory data available for calculating expected N (total) for the waste form represented by this content code.

h. Dichloromethane (CH_2Cl_2).

i. Carbon tetrachloride (CCl_4).

j. 1,2-dichloroethane ($C_2H_2Cl_2$).

k. Freon TF.

l. Possible dichloroethylene

m. Trichoroethylene

n. Drums sealed with a semi-permeable gasket.

TABLE 5. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: GLASS

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (L)	Storage Time (Days)	Total α Activity (Ci)	Measured H (Total)[e]	Expected H (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)					
37-02339	6-month	440	0.06	19.7	75.5	0.81	0.99	--	0.89	0.88	0.91	0.10[f]	658	+ 44.0	139	225	0.22	0.10	--[k]
28-00781	6-month	440	0.16	21.1	74.5	0.73	0.61	--	0.18	1.7	0.179 0.87	0.15[f]	628	+ 16.0	182	240	0.30	0.06	--[k]
28-00755	6-month	440	0.13	19.6	76.8	0.91	1.0	--	0.08	0.35	0.93	0.12[f]	620	+ 7.0	177	258	0.74	0.07	--[k]
12-11241	6-month	440	0.07	21.0	76.4	0.90	0.14	--	--	--	1.27	0.17[f]	617	+ 3.0	184	218	0.30	0.01	--[k]
37-02336	6-month	440	0.07	20.5	75.8	0.89	1.1	--	0.11	0.14	0.48	0.07[f]	619	+ 5.0	153	245	0.30	0.07	--[k]
02-34934	3-year	440	--	20.9	77.4	1.0	0.07	--	--	0.21	0.39	--	621	+ 6.0	140	972	0.37	<0.01	--[k]
29-00030	3-year	440	0.47	10.0	80.0	0.97	8.10	--	0.31	0.07	--	--	603	- 15.0	176	966	0.74	0.52	--[k]
37-02018	3-year	440	0.12	15.5	77.5	0.87	3.70	--	1.9	0.37	--	--	668	+ 50.0	150	932	0.15	0.32	--[k]
76-01366	3-year	440	--	21.3	77.5	0.93	0.09	--	--	0.20	--	--	634	+ 16.0	154	914	0.15	<0.01	--[k]
02-10576	12-year	440	--	20.6	78.3	0.93	0.14	--	--	--	--	--	628	- 12.0	144	4,291	0.69	<0.01	--[k]
36-00628	12-year	440	0.01	20.6	78.4	0.92	0.08	--	--	--	--	--	592	- 48.0	138	4,389	0.20	<0.01	--[k]
36-00805	12-year	440	0.95	11.3	83.8	0.99	2.96	--	--	--	--	--	584	- 44.0	181	4,206	0.61	0.24	--[k]
89-04043	12-year	441	1.7	11.7	85.4	1.0	0.19	--	--	--	--	0.01[m] 0.05[n]	517	-117.0	134	4,235	0.60	0.07	1.28[l]
89-04071	12-year	441	6.67	0.13	78.4	0.94	13.8	--	--	0.14	0.02	--	605	- 36.0	163	4,238	0.35	1.16	0.75[l]
89-04114	12-year	441	2.63	0.21	93.9	1.1	1.9	--	--	0.26	0.05	0.01[m]	494	-145.0	147	4,335	0.14	0.19	0.31[l]
89-04072	12-year	441	3.58	0.09	82.7	1.0	12.0	--	--	0.20	0.24	0.12[m]	640	+ 32.0	193	4,361	0.35	1.05	0.77[l]
02-39564	6-month	442	--	17.3	80.4	1.1	0.54	--	0.13	--	0.49	--	625	+ 11.0	188	252	0.074	0.04	--[k]
02-39533	6-month	442	--	16.6	81.3	1.1	0.52	--	0.14	0.12	0.32	--	595	- 19.0	194	258	0.22	0.04	--[k]
02-39803	6-month	442	--	21.0	76.9	1.1	0.14	--	--	--	0.83	0.05[f]	616	+ 2.0	187	218	0.15	<0.01	--[k]
02-39805	6-month	442	--	21.6	77.1	1.1	0.13	--	--	0.11	--	--	614	0.0	--[i]	211	0.44	--[l]	--[k]
19-02730P	6-month	442	--	21.1	77.9	0.92	0.06	--	--	0.02	--	--	615	+ 4.0	138	195	0.06	<0.01	--[k]
05-01596	3-year	442	0.38	16.0	77.6	1.0	2.0	--	--	0.15	2.84	--	617	+ 1.0	13.5[j]	1073	0.22	--[j]	--[k]
05-01772	3-year	442	0.21	14.5	82.9	0.97	0.68	--	0.58	0.20	--	--	575	- 41.0	186	913	0.37	0.09	--[k]
17-04562	3-year	442	9.88	1.5	86.1	1.0	0.36	--	--	1.1	--	--	645	+ 29.0	182	994	1.48	0.66	0.74[l]
22-00722	3-year	442	0.43	18.3	79.5	0.98	0.45	--	--	0.32	--	--	622	+ 4.0	180	932	0.074	0.05	--[k]
42-00226	3-year	442	--	20.6	77.2	0.93	0.09	--	--	0.36	0.81	--	599	- 17.0	196	876	0.0	<0.01	--[k]

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

TABLE 5. (Continued)

WASTE FORM CATEGORY: GLASS

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %) H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	Drum Pressure (mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]

d. Other hydrocarbons--as specified.

e. N = Moles of radiolytic produced gas.

f. Dichloromethane (CH_2Cl_2).

g. Cyclohexane (C_6H_{12}).

h. Freon (1,1,2-trichloro-1,2,2-trifluoroethane).

i. Drum was not sealed sufficiently to obtain the void volume Unable to calculate the measured N (total).

j. Inaccurate void volume due to fully-sealed Type I liner. Unable to calculate the measured N (total).

k. No laboratory data available for the waste form represented by this content code.

l. Special case. Proper content code is 441. The Raschig rings were coated with oil. Expected N (total) calculated based on laboratory data for pump oil.

m. Trichloroethylene

n. Carbon Tetrachloride

p. Drum sealed with a semi-permeable gasket.

TABLE 6. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: NONMETAL MOLDS AND CRUCIBLES

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)					
12-11023	6-month	300	0.06	18.5	80.3	0.86	0.06	--	--	0.17	--	--	617	+ 3.5	173	274	1.48	<0.01	--[g]
19-01811	6-month	300	--	21.2	76.6	0.93	0.16	--	--	--	1.1	--	619	+ 5.5	187	211	1.33	0.01	--[g]
12-11229	6-month	300	--	21.5	76.5	0.93	0.11	--	--	--	0.90	--	617	+ 2.0	209	210	0.0	<0.01	--[g]
41-01531	6-month	300	--	21.3	77.2	0.91	0.09	--	--	0.06	0.38	--	618	+ 4.5	181	218	0.74	<0.01	--[g]
12-09189	3-year	300	--	19.6	79.3	0.90	0.20	--	--	--	--	--	596	-20.0	164	967	0.37	0.01	--[g]
12-09295	3-year	300	0.07	15.7	83.0	0.82	0.38	--	--	--	--	--	595	-21.0	156	904	2.74	0.02	--[g]
12-09161	3-year	300	0.05	18.7	80.0	0.93	0.19	--	--	0.11	--	--	606[f]	-10.0	166	996	1.11	--[f]	--[g]
12-09300	3-year	300	--	19.6	79.2	0.92	0.14	--	--	0.11	--	--	654	+38.0	160	904	0.67	<0.01	--[g]
11-01625	6-month	301	0.11	18.8	78.5	0.92	0.97	--	--	0.03	0.37	--	618	+ 4.5	168	340	2.15	0.06	--[g]
32-01049	6-month	312	0.02	21.8	77.0	0.94	0.05	--	--	0.10	0.09	--	608	+ 6.0	181	160	0.29	<0.01	--[g]
32-01055	6-month	312	0.07	20.9	77.5	0.93	0.05	--	--	0.10	0.27	0.11[h]	631	+29.0	170	160	23.18	<0.01	--[g]

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = moles of radiolytic produced gas.

f. Pressure reading low due to operator error during sampling procedure. N (total) values not calculated.

g. No laboratory data available for the waste form represented by this content code.

h. Dichloromethane (CH_2Cl_2)

TABLE 7. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: UNCEMENTED SLUDGES

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (L)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)					
7412-03121	6-month	1	0.03	21.1	77.5	0.94	0.02	--	--	0.07	0.29	0.041	621	+ 16.0	104	144	0.17	<0.01	<0.01
7412-03125	6-month	1	0.24	18.2	80.2	0.96	0.01	--	--	0.06	0.30	0.041	661	+ 71.0	79	144	0.30	<0.01	<0.01
7412-03127	6-month	1	0.18	18.1	79.9	0.95	0.02	--	--	0.13	0.58	0.121	651	+ 48.0	114	144	0.40	<0.01	<0.01
7412-03128	6-month	1	0.11	20.1	77.5	0.94	0.02	--	--	0.11	0.94	0.221 0.01g	622	+ 19.0	93	144	0.43	<0.01	<0.01
7412-00483	3-year	1	1.2	21.1	76.4	0.90	0.09[h]	--	--	0.35	--	--	628	+ 14.0	59.5	1,089	1.37	0.03	0.20
7412-00636	3-year	1	5.30	15.6	77.4	0.96	0.11	--	--	0.24	0.38	--	652	+ 36.0	108	975	5.04	0.21	0.65
7412-00766	3-year	1	2.02	21.0	75.5	0.95	0.11	--	--	0.16	0.24	--	618	+ 2.0	61.9	904	4.55	0.04	0.54
7412-00797	3-year	1	0.78	3.87	94.0	1.2	--	--	--	0.11	--	--	538	- 78.0	88.2	902	0.32	0.02	0.04
741-12404	12-year	1	5.19	65.9	27.7	0.32	0.09	--	0.66	--	--	--	1,165	+534.0	60	4,326	5.93	0.21	3.38
741-12411	12-year	1	--[m]	--[m]	--[m]	--[m]	--[m]	--	--	--	--	--	--	--	130	4,395	5.06	--	2.94
741-12794	12-year	1	4.12	46.8	48.0	0.58	0.14	--	0.27	--	0.05	0.04[k]	643	+ 9.0	94	4,205	6.73	0.15	3.74
741-12847	12-year	1	--[m]	--[m]	--[m]	--[m]	--[m]	--	--	--	--	--	--	--	74	4,289	5.02	--	2.84
741-12858	12-year	1	11.7	35.7	51.3	0.61	0.14	--	0.46	--	0.04	0.01[k]	591	+ 30.0	104	4,213	12.08	0.42	6.72
741-12387	12-year	1	1.85	30.9	66.2	0.79	0.09	--	0.15	--	0.03	0.01[k]	637	+ 5.0	--[l]	4,304	1.74	--[l]	0.99
741-12795	12-year	1	11.0	73.4	14.5	0.17	0.13	--	0.63	--	0.94	0.02[k] 0.01g	1,081	+445.0	--[l]	4,203	6.20	--[l]	3.44
742-26152	6-month	2	0.08	20.6	77.8	0.95	0.02	--	--	0.07	0.32	0.121	622	+ 17.0	69	397	0.41	<0.01	0.02
742-26154	6-month	2	0.06	21.8	77.0	0.95	0.04	--	--	0.06	0.15	0.021	599	0.0	70	125	0.14	<0.01	<0.01
742-26150	6-month	2	0.03	19.4	79.4	0.96	0.04	--	--	0.08	0.12	0.021	626	+ 23.0	58	125	0.27	<0.01	<0.01
742-21396	12-year	2	8.63	0.13	89.9	1.0	0.07	--	--	0.15	0.08	0.03[k]	490	-127.0	80	4,306	0.40	0.20	0.23
742-21440	12-year	2	2.50	0.33	95.8	1.1	0.03	--	--	0.17	0.05	0.01[k]	498	-141.0	--[j]	4,298	0.12	--	0.07
742-21594	12-year	2	0.01	20.4	78.5	0.93	0.12	--	--	--	--	0.04[k]	569	- 51.0	--[j]	4,222	0.12	--	0.07
742-21640	12-year	2	2.53	0.12	96.2	1.1	0.06	--	--	--	--	--	417	-203.0	61	4,200	0.08	0.04	0.04
743-16469	6-month	3	--	10.7	78.8	0.91	0.30	--	--	0.21	1.02	0.411 1.89g 5.74f	616	+ 9.0	72	399	0.06	<0.01	0.01
743-16487	6-month	3	0.10	12.2	77.5	0.74	0.15	--	--	0.89	4.20	0.451 2.41g 1.40f	640	+ 30.0	56	363	0.07	<0.01	0.01
743-16656	6-month	3	0.02	20.2	77.9	0.95	0.06	--	--	0.10	0.11	0.101 0.50g 0.04f	626	+ 19.0	75	185	0.08	<0.01	<0.01
743-16733	6-month	3	0.08	6.88	82.8	0.88	0.12	--	--	0.32	1.53	0.711 4.09g 2.63f	738	+128.0	65	203	0.09	<0.01	<0.01

TABLE 7. (continued)

WASTE FORM CATEGORY: UNCEMENTED SLUDGES

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured H (Total)[e]	Expected H (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)					
743-15075	3-year	3	1.4	0.07	75.8	0.81	--	--	4.04	--	7.48	10.4[f]	695	+ 81.0	47.9	1,043	0.07	0.10	0.04
743-15037	3-year	3	5.35	8.29	82.7	1.0	0.08	--	--	0.87	1.7	--	571	- 43.0	58.9	1,096	0.07	0.10	0.04
743-15312	3-year	3	0.40	1.1	88.4	0.98	--	--	1.1	0.07	3.68	0.87[f]	631	+ 17.0	57.2	875	0.58	0.03	0.26
743-15023	3-year	3	4.71	0.80	83.7	0.83	--	--	0.26	0.78	6.23	3.38[g] 2.73[f]	687	+ 73.0	56.5	1,110	0.08	0.11	0.04
743-11586	12-year	3	0.11	19.6	78.5	0.92	0.12	--	--	--	--	0.04[k] 0.65[g] 0.04[f]	631	- 9.0	--[i]	4,340	0.19	--	0.42
743-11682	12-year	3	4.18	0.14	92.4	1.0	0.06	--	--	0.22	--	0.14[k] 1.83[g] 0.03[f]	647	+ 27.0	135	4,300	0.35	0.21	0.76
743-11838	12-year	3	13.7	1.6	83.2	0.96	0.05	--	--	--	--	0.07[k] 0.39[f]	628	- 12.0	--[j]	4,239	0.12	--	0.26
743-11870	12-year	3	0.89	14.4	82.8	0.97	0.09	--	--	--	--	0.04[k] 0.82[g] 0.04[f]	577	- 58.0	133	4,217	0.18	0.04	0.38
747-00944	6-month	7	--	20.3	78.4	0.95	0.04	--	--	0.11	0.12	0.07[l]	614	+ 8.0	68	264	0.07	<0.01	<0.01
747-01488	6-month	7	0.15	12.0	86.7	1.06	0.01	--	--	0.10	--	--	667	+ 59.0	62	175	0.13	<0.01	<0.01
747-01492	6-month	7	0.03	21.1	77.7	0.96	0.05	--	--	0.06	0.06	0.029	609	- 1.0	--[j]	176	0.11	--	<0.01
747-01531	6-month	7	0.10	19.1	79.6	0.96	0.04	--	--	0.12	0.03	0.049	622	+ 14.0	85	177	0.05	<0.01	<0.01
02-40342	6-month	292	4.75	0.25	93.4	1.1	--	--	--	0.14	0.31	--	612	- 3.8	141	160	5.48	0.23	--[h]
02-39229	6-month	292	9.08	0.09	89.1	1.1	--	--	--	0.15	0.49	--	582	- 33.8	157	327	5.11	0.46	--[h]
02-39213	6-month	292	2.35	18.7	77.6	0.93	--	--	--	0.16	0.25	--	632	+ 17.4	172	321	2.29	0.14	--[h]
02-39435	6-month	292	1.8	9.92	86.7	1.0	--	--	--	0.29	0.25	--	621	+ 5.2	152	260	3.11	0.09	--[h]
40-00063	3-year	292	23.2	--	75.6	0.89	--	--	--	--	0.31	--	725	+110.0	138	1081	4.59	1.28	--[h]
76-01642	3-year	292	7.50	5.38	85.2	1.0	--	--	--	0.64	--	--	572	- 43.0	151	880	0.74	0.36	--[h]
76-01643	3-year	292	0.55	17.8	80.4	0.97	0.07	--	--	0.12	--	--	604	- 10.0	185	887	0.15	0.04	--[h]
76-01644	3-year	292	4.66	6.92	86.9	1.0	--	--	--	0.51	--	--	564	- 51.0	165	880	0.52	0.24	--[h]

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. H = Moles of radiolytic produced gas.

TABLE 7. (continued)

WASTE FORM CATEGORY: UNCEMENTED SLUDGES

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %) H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	Drum Pressure (mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (L)	Storage Time (Days)	Total α Activity (Ci)	Measured R (Total)[e]	Expected R (Total)[e]

f. Freon (1,1,2-trichloro-1,2,2-trifluoroethane).

g. Carbon tetrachloride (CCl_4).

h. No laboratory data available for calculating expected R (total) for the waste form represented by this content code.

i. Dichloromethane (CH_2Cl_2)

j. Drum not sealed sufficiently to obtain a void volume. Unable to calculate moles of radiolytic gas present.

k. Trichloroethylene.

l. Gas sampling data only. Drums were not included as part of the sampling program. The containers were sampled as part of the drum venting study or because the drums were pressurized when retrieved from Cell 5.

m. Gas sample lost at INEL.

TABLE 8. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: CEMENTED SLUDGES AND SOLUTIONS

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure						
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
744-3829	6-month	4	0.77	1.7	95.0	1.1	0.08	--	--	0.05	1.2	0.08[f]	627	+ 13.5	76.5	263	0.16[i]	0.02	--[j]
744-3837	6-month	4	6.20	0.16	90.7	1.1	--	--	--	--	1.6	0.07[f]	620	+ 5.4	37.7	256	0.17[i]	0.08	--[j]
744-3841	6-month	4	2.69	2.82	91.8	1.1	--	--	--	0.20	1.3	0.07[f]	620	+ 5.4	75.7	256	0.15[i]	0.07	--[j]
744-3846	6-month	4	0.50	14.4	83.5	0.98	0.08	--	--	--	0.56	0.05[f]	615	+ 0.4	--[h]	204	0.41[i]	--[h]	--[j]
744-3848	6-month	4	0.10	16.3	82.0	0.99	0.06	--	--	0.19	0.38	0.07[f]	614	- 0.6	--[h]	204	0.37[i]	--[h]	--[j]
744-2368	12-year	4	2.08	15.4	81.3	0.97	0.15	--	--	--	0.05	0.04[k]	634	+ 2.0	138	4,306	0.02[i]	0.11	--[j]
744-2376	12-year	4	25.9	0.09	72.1	0.86	0.09	--	0.55	0.44	--	--	629	- 1.0	--[h]	4,305	0.02[i]	--[h]	--[j]
744-2389	12-year	4	32.4	0.08	64.2	0.80	--	--	--	2.33	0.04	0.12[k]	758	+154.0	162	4,439	0.20[i]	2.17	--[j]
744-2424	12-year	4	0.50	0.15	97.3	1.2	0.02	--	--	0.77	0.10	0.02[k]	632	- 1.0	--[l]	4,201	0.05[i]	--[l]	--[j]
744-2430	12-year	4	11.4	0.11	86.6	1.0	0.10	--	--	0.73	--	--	516	-120.0	83	4,218	0.07[i]	0.28	--[j]
744-2442	12-year	4	0.25	0.12	97.1	1.2	0.02	--	--	1.3	0.06	0.02[k]	561	- 76.0	98	4,215	0.04[i]	<0.01	--[j]

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through protane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = Moles of radiolytic produced gas.

f. Freon (1,1,2-trichloro-1,2,2-trifluoroethane).

g. Carbon tetrachloride (CCl_4).

h. Drum was not sealed sufficiently to obtain a void volume. Unable to calculate moles of radiolytic gas present.

i. Original assay data used. Unable to reassay code 4 drums.

j. No laboratory data available for calculating expected N (total) for the waste form represented by this content code.

k. Trichloroethylene.

l. Gas sampling data only. Drums were not included as part of the sampling program. These containers were sampled as part of the drum venting system study, or because they were pressurized when retrieved from Cell 5.

TABLE 9. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: CONCRETE, BRICK

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure						
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
02-45508[l]	6-month	371	--	20.9	78.0	0.96	0.09	--	--	0.01	--	--	610	- 1.0	--[i]	98	2.19	--	--[g]
02-44115[l]	6-month	377	0.02	21.1	77.8	0.96	0.04	--	--	0.04	--	--	616	+ 5.0	197	222	0.74	<0.01	--[g]
02-21470	6-month	371	0.12	20.4	78.0	0.97	0.03	--	--	0.06	0.28	0.12[f]	622	+ 10.0	191	565	8.10	0.01	--[g]
01-00201	12-year	371	17.1	11.4	69.9	0.80	0.10	--	0.30	0.37	--	--	634	- 4.0	--[k]	4,343	--	--[k]	--[g]
01-08836	12-year	371	0.07	19.8	78.8	0.93	0.08	--	--	0.15	0.18	--	649	+ 41.0	148	4,454	2.60	<0.01	--[g]
02-10586	12-year	371	0.13	18.8	80.9	0.94	0.09	--	--	--	0.10	--	607	- 29.0	81	4,290	3.88	<0.01	--[g]
02-11061	12-year	371	3.88	3.78	90.9	1.1	0.12	--	--	0.19	0.06	0.01[j]	471	-149.0	184	4,255	0.22	0.20	--[g]
02-11379	12-year	371	0.08	20.3	77.7	0.92	0.07	--	--	0.29	0.46	0.17[j]	605	- 6.0	157	4,378	0.38	<0.01	--[g]
01-08083	12-year	374	0.41	0.15	98.3	1.2	0.02	--	--	--	--	--	455	-182.0	--[i]	4,367	0.66	--[i]	--[g]

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = moles of radiolytic produced gas.

f. Dichloromethane (CH_2Cl_2).

g. No laboratory data available for calculating expected N (total) for the waste form represented by this content code.

h. Isopropanol.

i. Drum not sealed sufficiently to obtain a void volume. Unable to calculate moles of radiolytic gas present.

j. Tricholoroethylene.

k. Gas sampling data only. Drums were not included as part of the sampling program. These containers were sampled as part of the drum venting study, or because the drums were pressurized when retrieved from Cell 5.

l. Drums sealed with a semi-permeable gasket.

TABLE 10. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: SALTS

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure						
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other[d] H.C.	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
01-05779	6-month	409	0.09	21.08	76.61	0.92	0.09	--	--	0.05	0.92	0.239	611	--	198	230	41.27	0.01	--[f]
03-02724[i]	6-month	409	0.02	21.2	77.7	0.96	0.08	--	--	0.01	--	--	610	- 1.0	--[h]	104	18.39	--[h]	--[f]
01-05486	6-month	414	0.30	18.5	79.0	0.91	0.24	--	--	0.26	0.75	--	608	- 5.5	176	260	8.21	0.03	--[f]

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = moles of radiolytic produced gas.

f. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

g. 1,2-dichloroethane ($C_2H_2Cl_2$).

h. Drum not sealed sufficiently to obtain a void volume. Unable to calculate moles of radiolytic gas present.

i. Drum sealed with a semi-permeable gasket.

TABLE 11. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: LEADED RUBBER

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (L)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)					
19-01831	6-month	339	2.38	10.5	83.6	1.0	1.4	--	--	0.35	0.60	0.14[f]	610	+ 8.0	169	420	12.16	0.21	0.53
19-01840	6-month	339	0.38	18.5	79.4	0.95	0.06	--	--	0.22	0.14	0.009[g] 0.06[f] 0.299	606	+ 3.0	162	389	0.41	0.02	0.02
19-01845	6-month	339	2.84	7.3	85.3	1.0	2.4	--	0.97	0.13	--	--	626	+ 16.0	137	390	3.81	0.29	0.15
19-01884	6-month	339	1.09	13.9	83.3	1.0	0.35	--	--	0.28	--	--	615	+ 3.0	141	369	5.10	0.07	0.20
19-01472	3-year	339	2.90	4.06	90.3	1.2	1.1	--	--	--	--	--	544	- 70.0	180	965	1.26	0.22	0.13
22-00224	12-year	339	0.74	16.0	80.7	0.96	1.6	--	--	--	--	--	--	--	182	4,268	1.26	--	0.56
23-00435	12-year	339	4.12	0.54	93.1	1.1	1.0	--	--	0.09	0.04	0.03[h] 0.029	490	-150.0	142	4,340	0.22	0.20	0.10

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = moles of radiolytic produced gas.

f. Dichloromethane (CH_2C_2).

g. Carbon tetrachloride (cCl_4).

h. Trichlorethylene.

TABLE 12. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: BENELEX, PLEXIGLAS

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure						
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
02-10126	12-year	302	4.06	0.19	91.5	1.1	3.20	--	--	--	--	--	606	- 32.0	141	4,316	0.42	0.36	--[f]
02-10283	12-year	302	0.03	20.8	78.1	0.93	0.21	--	--	--	--	--	616	- 13.0	137	4,280	0.60	0.01	1.32
02-10436	12-year	302	0.03	20.0	78.5	0.93	0.61	--	--	--	--	--	600	- 21.0	139	4,295	0.93	0.03	2.04
02-10502	12-year	302	0.32	16.8	81.6	0.97	0.32	--	--	--	--	--	574	- 63.0	--[j]	4,242	0.35	--[j]	0.72
01-08991	12-year	302	1.83	7.84	85.1	1.0	1.93	--	--	0.49	1.06	0.149 0.62[h] 0.02[i]	559	- 52.0	116	4,448	0.64	0.13	1.47
02-10316	12-year	302	0.14	19.4	79.0	0.88	0.12	--	--	0.18	0.22	0.069[g] 0.03[h]	621	+ 10.0	--[j]	4,435	0.35	--[j]	0.76
01-08266	12-year	464	2.56	11.7	84.6	1.0	0.08	--	--	--	0.06	--	597	- 30.0	139	4,347	0.0	0.12	0.0

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = moles of radiolytic produced gas.

f. No laboratory data available for calculating the expected N (total) for the Benelex contained in this drum.

g. Trichloroethylene.

h. Isopropanol.

i. Carbon terachloride.

j. Drum not sealed sufficiently to obtain a void volume. Unable to calculate moles of radiolytic gas present.

TABLE 13. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: RESINS

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)					
02-39189	6-month	432	0.70	15.4	81.8	0.92	--	--	--	0.24	0.80	0.08[f]	638	+ 24.5	137	320	0.59	0.03	0.04
02-39215	6-month	432	11.7	--	86.4	1.0	--	--	0.22	0.38	0.25	--	590	- 23.5	125	320	11.10	0.48	0.67
02-39296	6-month	432	2.07	0.43	96.0	1.1	--	--	--	0.22	0.13	--	549	- 64.5	140	299	1.55	0.09	0.09
02-44427[g]	6-month	432	0.31	20.7	77.7	0.96	0.05	--	--	0.17	--	0.10[d]	616	+ 5.0	188	212	2.49	0.02	0.10
02-34829	3-year	432	3.72	0.98	93.8	1.1	0.11[i]	--	--	0.25	--	--	530	- 84.0	151	999	1.11	0.17	0.21
02-34844	3-year	432	0.24	11.6	86.8	1.0	--	--	--	--	0.44	--	572	- 42.0	183	991	0.379	0.01	0.07
02-34830	3-year	432	6.45	3.38	87.9	1.0	--	--	0.75	0.52	--	--	576	- 38.0	148	999	1.92	0.32	0.36
01-08811	12-year	432	6.22	1.49	89.6	1.1	0.30	--	--	0.32	0.40	0.08[j]	680	- 28.0	126	4,455	1.20	0.26	1.01
												0.49[h]							
01-08956	12-year	432	6.76	0.11	91.1	1.1	0.09	--	0.44	0.42	--	--	504	-133.0	142	4,326	0.60	0.30	0.49
02-10070	12-year	432	2.55	0.17	95.4	1.1	0.16	--	--	0.57	0.07	--	495	-133.0	175	4,316	0.18	0.13	0.15
02-10195	12-year	432	27.1	0.02	68.8	0.77	--	--	1.62	0.79	0.25	0.05[j]	754	+146.0	77	4,440	3.51	0.91	2.93
												0.50[h]							
02-10286	12-year	432	5.93	13.8	78.5	0.93	0.14	--	0.27	0.19	0.15	0.02[i]							
02-10288	12-year	432	9.97	0.08	83.8	0.94	0.13	--	4.70	0.44	0.03	0.02[j]	633	- 3.0	125	4,265	2.37	0.28	1.90
												0.01[j]	528	- 3.0	136	4,301	1.75	0.72	1.42

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = moles of radiolytic produced gas.

f. Dichloromethane (CH_2Cl_2).

g. Original assay value used.

h. Isopropanol.

i. Carbon Tetrachloride.

j. Trichloroethylene.

k. Drum sealed with a semi-permeable gasket.

TABLE 14. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: MIXED WASTE-PAPER, METAL, GLASS, ETC.

			Compositional Analysis (Volume %)										Drum Pressure						
Container ID No.	Time Period	Content Code	H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
01-08068	12-year	241	14.4	0.14	31.3	0.04	27.3	4	26.4	0.34	--	--	719	+ 80.0	180	4,363	12.16	5.01	--[f]
1371-586[g]	12-year	950	Boxes were not sampled.																

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = moles of radiolytic produced gas.

f. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

TABLE 15. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: FILTERS

			Compositional Analysis (Volume %)										Drum Pressure						
Container ID No.	Time Period	Content Code	H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
0-29253	12-year	335	--	20.0	78.6	0.94	0.28	--	0.21	--	--	--	645	+ 16.0	--[g]	--	--	--[g]	--[f]
02-12169	12-year	338	0.66	0.10	56.2	0.51	26.7	3	15.8	--	--	--	1010	+373.0	--[g]	4,226	0.81	--[g]	--[f]
89-03509	12-year	338	0.02	20.2	78.8	0.94	0.05	--	--	--	--	--	625	- 8.0	139	4,295	0.71	<0.01	--[f]

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = moles of radiolytic produced gas.

f. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

g. Gas sampling data only. Drums were not included as part of the sampling program. These containers were sampled as part of the drum venting system study, or because the drums were pressurized when retrieved from Cell 5.

TABLE 16. GAS SAMPLING RESULTS[a]

WASTE FORM CATEGORY: PARTICULATE WASTE

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure						
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[b]	Trichl[c]	Other H.C.[d]	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[e]	Expected N (Total)[e]
02-2464	12-year	376	2.67	14.4	80.4	0.94	1.6	--	--	--	--	--	617	- 11.0	--g	4,723	0.0	--g	--f
41-1577	12-year	376	0.02	20.9	78.1	0.93	0.07	--	--	--	--	--	589	- 39.0	--g	603	12.44	--g	--f
41-1605	12-year	376	0.20	19.4	79.2	0.94	0.29	--	--	--	--	--	579	- 50.0	--g	554	4.59	--g	--f

a. Gas sampling not conducted on boxes.

b. Hydrocarbons (saturated)--methane through propane.

c. Abbreviation for 1,1,1-trichloroethane.

d. Other hydrocarbons--as specified.

e. N = moles of radiolytic produced gas.

f. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

g. Gas sampling data only. Drums were not included as part of the sampling program. These containers were sampled as part of the drum venting study, or because the drums were pressurized when retrieved from Cell 5.

The free volume inside the drum was calculated using the equation:

$$V_v = \frac{P_2 V_c}{P_1 - P_2}$$

where

V_v = void volume of the drum (ℓ)

V_c = calibrated expansion volume (ℓ)

P_1 = pressure inside drum before expansion (mm Hg)

P_2 = pressure inside drum after expansion (mm Hg).

The error associated with the void volume was determined by using the certified accuracy of the pressure gauge, the calibrated expansion volume (13.67 liters), the certified volume of an empty, sealed 55-gal drum (220.3 liters) and using the average atmospheric pressure at RFP of 615 mm Hg for P_1. The lower and upper certified error limits were determined by RFP to be 10.9 and 13.6%, respectively.

An experimental error analysis was performed by determining the void volume six times on the certified empty drum. The mean and the standard deviation of these tests were 233 and 1.3 L, respectively. These results fall within the certified error limits and indicate the actual error limits are much less than the certified error limits. Based on the good reproducibility (precision) of these tests, a correction factor of 0.944 was applied to the calculated drum void volume to obtain a corrected and more accurate void volume value. Assuming that the correction factor is accurate over a wide range of void volumes and that temperature differences are negligible, the experimental error is $\pm$1.7% (90% confidence). It should be noted that variables such as packaging and the degree of drum sealing were not considered.

2.3.2 Gas Sampling

The gas samples were collected in Nupro (trade name) gas sampling bottles and analyzed by mass spectrometry to determine the type and quantity of gas present. A certified gas standard, consisting of a known four-component gas mixture, was analyzed for approximately every eight drum gas samples analyzed. The certified standard contained a mixture of hydrogen, nitrogen, oxygen, and carbon dioxide. The certified standard (Bottle 2) used by RFP consisted of the following gas concentrations: 2.57% H_2, 18.7 % O_2, 66.7 % N_2, and 12.0 % Co_2. The certified standard (Bottle 3) used by INEL consisted of the following gas concentrations: 2.57 % H_2, 18.6 % O_2, 66.8 % N_2 and 12.0 % CO_2. Results of the standard analysis are shown in Tables 17 and 18. These analyses indicate the relative error is:

INEL:	H_2:	-1.94%
	N_2:	-0.45%
	O_2:	+0.54%
	CO_2:	+2.44%
RFP:	H_2:	0.00%
	N_2:	-0.75%
	O_2:	0.00%
	CO_2:	+4.17%

2.3.3 Gas Generation

Extensive laboratory experiments[3-7] on gas generation from degradation of transuranic wastes have been conducted in the past. A comprehensive summary of applicable gas generation data on various degradation mechanisms has been prepared by Molecke.[8]

Mechanisms by which gases may be generated in TRU waste include radiolysis, thermal decomposition and dewatering, bacterial action, and chemical corrosion. The major gases produced in TRU wastes by these mechanisms are: hydrogen (H_2), carbon dioxide (CO_2), carbon monoxide

TABLE 17. ROCKY FLATS PLANT GAS STANDARD ANALYSIS

Analysis Number	Gas Analysis (Volume %)			
	H_2	N_2	O_2	CO_2
1	2.63	67.0	18.2	12.2
2	2.55	65.6	19.2	12.7
3	2.59	65.9	19.2	12.3
4	2.65	66.1	18.6	12.7
5	2.58	65.8	19.0	12.6
6	2.51	66.1	18.7	12.6
7	2.58	66.6	18.7	12.1
8	2.64	66.2	18.7	12.4
9	2.63	65.9	19.1	12.4
10	2.58	66.3	18.8	12.3
11	2.67	66.2	18.8	12.3
12	2.48	66.0	18.9	12.6
13	2.50	66.6	19.0	11.9
14	2.64	66.0	18.9	12.5
15	2.56	65.7	19.1	12.6
16	2.49	65.1	18.5	14.0
17	2.49	66.6	18.7	12.2
18	2.65	66.6	18.2	12.6
19	2.55	66.1	18.7	12.7
20	2.53	66.4	18.4	12.7
21	2.56	66.4	18.6	12.5
22	2.57	66.1	18.8	12.5
23	2.58	66.5	18.3	12.5
24	2.57	66.8	18.5	12.1
$\bar{x}^a$ =	2.57	66.2	18.7	12.5
σ^b =	0.056	0.43	0.29	0.39
$\sigma/\bar{x}^c$ =	2.18%	0.65%	1.56%	3.10%

a. Mean or average.

b. Standard deviation

c. Coefficient of variation

TABLE 18. INEL GAS STANDARD ANALYSIS

Analysis Number	Gas Analysis (Volume %)			
	H_2	N_2	O_2	CO_2
1	2.54	66.5	18.8	12.3
2	2.49	66.5	18.8	12.3
3	2.53	66.3	18.8	12.4
4	2.52	66.4	18.8	12.3
5	2.50	66.5	18.7	12.4
6	2.51	66.4	18.8	12.3
7	2.50	66.6	18.6	12.3
8	2.51	66.6	18.7	12.3
9	2.48	66.6	18.7	12.3
10	2.54	66.6	18.7	12.3
11	2.53	66.7	18.6	12.1
12	2.53	66.6	18.6	12.3
13	2.50	66.6	18.7	12.2
14	2.55	66.6	18.7	12.2
$\bar{x}^a$ =	2.52	66.5	18.7	12.3
σ^b =	0.02	0.12	0.08	0.08
$\sigma/\bar{x}^c$ =	0.84%	0.18%	0.44%	0.68%

a. Mean or average.

b. Standard deviation

c. Coefficient of variation

(CO), water (H_2O), methane (CH_4), oxygen (O_2) nitrous oxides (NO_x), and helium (He).[8] Radiolysis and bacterial action are considered to be the major gas-generating mechanisms in TRU wastes stored at INEL.

Laboratory experiments indicate that radiolysis of organic material primarily produces H_2 with the remaining gas being CO_2 and CO. The primary gaseous products from radiolysis of water are H_2 and O_2. Carbon oxides are formed by depletion of O_2.[8] In addition, nitrites may be produced by radiolysis of nitrates.[9] Degradation of organic materials by bacterial action generally produces only CO_2 in aerobic and anaerobic atmospheres. Methane is also a potential gas produced in an anaerobic atmosphere.[8] The amount of gas generated by radiolysis is dependent on the amount of radionuclide activity present, the organic waste matrix type, and distribution of the radionuclide on the organic matrix.

2.3.4 Gas Generation Calculations

Production of flammable or explosive concentrations of gas (hydrogen) mixture in waste drums by radiolysis is a primary concern at the INEL. The results from sampling the 212 waste drums were used to determine the measured total moles [N(total)] of radiolytic-produced gas for comparison with the expected total moles of radiolytic gas. The expected total moles of radiolytic gas was calculated using G(total gas) values obtained in past laboratory experiments. G(total gas) is the number of gas molecules produced for each 100 eV of absorbed radiation. G(total gas) values for the waste drums were not calculated for the reasons explained in the following paragraphs.

The primary reason for comparing measured gas generation values with expected values was to support the safety analysis for the Stored Waste Examination Pilot Plant (SWEPP). SWEPP is the INEL facility that will nondestructively examine and certify INEL stored TRU wastes for future shipment to WIPP. It was previously hoped that, by performing calculations based on the laboratory-derived G-values, the reported drum activity, an assumed void volume, and the storage time, the number of drums requiring

venting (to ensure worker health and safety) prior to handling in SWEPP might be reduced. However, during the initial sampling of waste drums, it became apparent that there was considerable variability in the type and quantity of gas present, and between the measured and expected values. In addition, wastes previously assumed to be nongas-generating (e.g., Raschig rings) have been shown to produce significant quantities of hydrogen due to the presence of organic materials, etc.

The laboratory-derived G-values were obtained in carefully controlled, gas-tight systems. Because the waste drums are not generally considered to be gas-tight, the drum gas generation calculations may not reflect the loss of radiolytic-produced gas by leakage or diffusion from the drum. Conversely, in some cases, the calculations may artificially indicate a higher value due to presence of nonradiolytic produced gas (such as produced by bacterial action). Another factor influencing the drum measurements is the error associated with assaying the waste for radionuclide content.

EG&G Idaho does not believe that calculating a measured G(total gas) value for waste drums, when compared with the laboratory value, provided conclusive evidence that the laboratory values were conservative. The laboratory values should be conservative for waste drum comparison if the only mechanism generating gas were radiolysis. In waste drums however, there are too many factors (radionuclide assay capabilities, gas leakage or diffusion from the drum, other gas-generating mechanisms such as bacterial action) that influence these calculations. Publishing G-values for waste drums would be misleading, and, if used in any design calculations, could be inadequate. In taking these factors into consideration, but still meeting the need for comparison between measured and expected values, it was decided to present the gas generation data in terms of moles of gas.

The measured N(total) was calculated from the sampling results using the formula:

$$N(\text{total}) = \frac{(DP)(Vvc)(\text{vol \% RG})}{760 \text{ mm Hg/atm } (R)(T)(100)}$$

where

DP = drum pressure, mm Hg

V_{vc} = corrected drum void volume, L

RG = vol% of radiolytic-produced gas (H_2 + CO_2 + NO_x)

R = gas constant (0.0821 L-atm/mole-K)

T = sampling temperature (K). Drums were conditioned a minimum of 24 h for temperature stabilization.

The expected N(total) was calculated based on the time the drum was in storage, the alpha (α) activity of the drum, and the G(total gas) value for the waste form. G(total gas) is the number of gas molecules produced for each 100 eV of absorbed radiation energy. The G(total gas) values used in the calculations are shown in Table 19. The drum activity level was based on the reassay value obtained when returned to RFP. Reassay values for sludge type waste (content Codes 1, 2, 7, and 3) were determined by radiochemical analysis. The original assay value was used only if the reassay value was 0.0 or if the drum could not be reassayed. The expected N(total) was calculated only if a G(total gas) value was available for the specific waste form contained in a waste drum. The calculation was performed by using:

$$A = \frac{N(total)(6.023 \times 10^{23} molecules/mole)}{(G)(10^{6} eV/MeV)(5.29\ MeV/d)(3.7 \times 10^{10} d/s\text{-}Ci)(8.64 \times 10^{4} s/day)(T)}$$

where

A = activity, curies [Pu (weapons-grade) = 7.4×10^{-2} Ci/g; ^{241}Am = 3.45 Ci/g]

N(total) = moles of radiolytic gas

G = total gas molecules/100 eV

TABLE 19. G(TOTAL GAS) VALUES

Waste Form Category	Content Code	G(total gas) Value	Reference
Combustibles	328	2.0[a]	8
	330	1.9	8
	336	1.9	8
	337	1.9	8
	900	1.9	8
	970	1.9	8
Metals	320	N/A[b]	--
	480	N/A	--
	481	N/A	--
Glass	440	N/A	--
	441	1.8[c]	8
	442	N/A	--
Nonmetal Molds and Crucibles	300	N/A	--
	301	N/A	--
	312	N/A	--
Uncemented Sludges	1	0.47	9
	2	0.47	9
	3	1.8[d]	8
	7	0.47	9
	292	N/A	--
Cemented Sludges and Solutions	4	N/A	--
Concrete, Brick	37[illegible]	N/A	--
	960	N/A	--
Salts	409	N/A	--
	414	N/A	--
Leaded Rubber	339	0.37	6
Benelex, Plexiglas	302	1.9[e]	6
	464	1.9[e]	6
Resins	432	0.67	8

TABLE 19. (Continued)

Waste Form Category	Content Code	G(total gas) Value	Reference
Mixed Waste-Paper, Metal Glass, etc.	241	N/A	--
	950	N/A	--
Filters	335	N/A	--
	338	N/A	--
	360	N/A	--
	490	N/A	--
Particulate Wastes	375	N/A	--
	376	N/A	--

a. Composite value that was selected for cellulose and pump oil. Code 328 filters were coated with grease.

b. N/A = G(total gas) value not available.

c. Special case. Value used is for pump oil. One drum of Code 442 waste contained unleached Raschig rings that were coated with a film of oil. The remaining drums contained Code 441 Raschig rings coated with dried material.

d. For comparison, the G-value used is for pump oil. The organic set-ups consist of a mixture of organics solidified in calcium silicate. The organics generally contain a large percentage of machining oils, pump oils, etc.

e. Plexiglas only.

T = storage time, days.

Reducing and solving for N(total):

$$N(\text{total}) = \frac{(A)(T)(G)}{3561.57}$$

2.3.4.1 Cumulative Error Analysis. The cumulative error for the method used to calculate the measured total moles of radiolytic-produced gas [measured N(total)] is based on the cumulative error associated with the void volume determination (13.6%), pressure gage (0.2%), thermometer (2.0%), and the maximum error for the gas sampling analytical results (4.17%). This error was calculated to be ± 20.0%. This error is considerably less than the error for the expected N(total).

The expected N(total) error would be based on the error associated with: (1) the assay method used to determine radionuclide amounts, (2) laboratory obtained G-values, and (3) the time a waste container has been in storage. The error associated with these factors was not available to conduct a cumulative error analysis.

2.3.5 Gas Generation Results

Tables 3-16 contain the gas sampling and gas generation results. The data indicate there can be considerable variability in the type and quantity of gas present, and between the measured and expected total moles of radiolytic gases. In several instances, the expected value was exceeded by several orders of magnitude. In other instances, the measured value was much less than the expected value. Possible reasons for differences between the measured and expected value include:

1. Because the waste drums are not generally gas-tight, the drum gas generation calculations may not reflect the loss of radiolytic-produced gas by leakage or diffusion from the drum.

Conversely, in some cases, the calculations may artificially indicate a higher value due to presence of nonradiolytically produced gas (such as that produced by bacterial action).

2. The capabilities to accurately measure the quantity of radionuclides present in a waste container vary depending on the waste form. Waste containers were either assayed by segmented-gamma scan (20-minute count) or, in the case of sludges, by radiochemical analysis to increase the accuracy of the reported results. Some drums were assayed by sodium iodide techniques.

3. The waste drums contain a variety of waste materials. This makes selection of an appropriate laboratory-derived G(total gas) value, for use in calculating expected N(total) values, difficult since the distribution and location of the radionuclides within the waste is not known. In addition, the radionuclides may not be uniformly dispersed on the organic matrix.

4. The storage times indicated in Tables 3 through 16 are based on the drum inspection date, as recorded in the INEL Transuranic Contaminated Waste Container Information System (TCWCIS), and the date the drum was sampled. The inspection date is "created" on the day the drum is inspected for shipping compliance and sealed at RFP. In reality, the drum may have set in an operational or production area for weeks or months prior to shipment to INEL. Therefore, the storage time can be used only as an approximation of the actual time the drum has been generating gas.

5. Retrieval, handling, and shipment of the waste may upset drum conditions and cause increased gas generation by redistribution of the radionuclides to undepeleted matrices. This variable may be significant only in older wastes, or with drums containing high activity levels.

The gas generation results for each waste form category are described below. As indicated, measured values exceed expected values in some waste form categories. Some of these values are expected to be within the error limits for the expected value calculations. However, as described in Section 2.3.4.1, these error limits are not known. The discussion below demonstrates the potential problems associated with using expected values for maximum gas generation rates.

Combustibles. All measured values for Code 328 waste were less than the expected values, based on the selected G(total gas) value of 2.0. For content Code 330, measured values exceeded expected values in four of the five sampled drums. Expected values were not exceeded for 3-year-old or 12-year-old waste.

Content Code 336 measured values exceeded expected values in the 6-month-old (five out of six drums) and 3-year-old (two out of two drums) category. Measured values were not exceeded for the 12-year-old waste.

Content Code 337 measured values exceeded expected values in the 6-month-old category (one out of four drums) and 12-year-old category (three out of nine drums). No 3-year-old Code 337 was available for sampling.

No 6-month-old or 3-year-old Code 900 waste was available for sampling. Code 900 is an old content code and was replaced by Code 330 or 336 (if waste was damp) in 1974. In the 12-year-old waste, one drum, out of five sampled, exceeded the expected value for gas generation.

During initial drum sampling, it was thought that, in addition to the above stated reasons, the G(total gas) value of 1.9 used for calculating the expected N(total) was low. Reference reports[8] indicate a G(total gas) value of 8-11 for polyvinyl chloride (PVC). Waste items are usually removed from glovebox lines in PVC bags. Since the PVC can constitute a significant percentage of the waste, it was thought the higher gas-generation rates may be due to radiolysis of PVC. However, recent

information supplied by LANL[10] has reduced the G(total gas) value to 1.0. The high value reported for PVC was influenced by elevated temperature conditions not likely to exist in contact-handled TRU waste containers.

Metals. The suspected source of gas generated in metal waste is from plastics used in packaging the wastes.

Glass. No laboratory data were applicable for comparing with the measured values for Codes 440 and 442, except Drum 17-04562, content Code 442 (Note: the proper content code is 441-Unleached Raschig rings). This drum contained Raschig rings coated with a film of oil, and was compared with the laboratory data for pump oil. For this drum, the measured value was less than the expected value. In addition all Code 441 drums were also compared. Unleached Raschig rings generally have a film or coating of dried material or liquid that may serve as a gas generating matrix. For the Code 441 drums, half of the measured values exceed the expected value. The suspected source of gas generated in other content Codes 440 and 442 waste drums is from the plastic packaging material.

Nonmetal Molds and Crucibles. No laboratory data were applicable for comparing with the measured N(total) values for graphite molds and cores. The small amount of generated gas is suspected to be from plastics used in packaging the waste.

Uncemented Sludges. Measured N(total) values for prefix 7412 Code 1 sludge (6-month old and 3-year old) were less than expected values except for two of the eight sampled drums. Results for the 6-month-old drums were very comparable with expected values.

It should be noted that prefix 7412 represents combined first- and second-stage sludge produced from treating aqueous wastes at RFP Building 774. The sludges were combined to reduce radiation levels associated with first-stage sludge. This practice began in 1979. Prior to

this time, the sludges were produced as Code 1 (prefix 741) or Code 2 (prefix 742) sludge. Periodically, just Code 2 (prefix 742) drums are produced. The term prefix refers to part of the drum identification number as indicated in Table 7.

Measured N(total) values for content Code 1 (prefix 741) 12-year-old sludge were over an order of magnitude less than the expected values. These drums generally contained much higher alpha-activity levels than other sampled drums. In addition to the previously given reasons for differences between measured and expected values, another possible explanation is that drum self-venting could be periodically occurring in these drums. Drum No. 741-12404 was pressurized at +534 torr (10.3 psi) gauge. Tests conducted at the INEL generally indicate that the drums will vent when pressurized above 20 psig. This may be an explanation for the large difference between the measured and expected values in these drums.

Measured N(total values) for 6-month-old and 12-year-old content Code 2 drums were very comparable with expected values. None of the drums, however, exceeded the expected values.

Content Code 3 drums are organic setups produced from treatment of liquid organic wastes generated by various plutonium and nonplutonium operations at RFP. The organic wastes are mixed with calcium silicate to form a grease or paste-like material. The organic wastes consist of a variety of materials such as degreasing agents, lathe coolant, and small amounts of laboratory waste. No specific laboratory G(total gas) value was available for this type of waste. For comparison purposes, the G-value of 1.8 for pump oil was used. For a 6-month-old waste, the measured values were less than expected values. However, for 3-year-old waste, the measured values exceeded expected values in three of the four sampled drums. The 12-year-old drums contained less than expected values of radiolytically produced gas.

Content Code 7 sludge is similar to Content Code 1 sludge. This sludge is produced by the new aqueous waste treatment process at RFP Building 374. Measured values exceeded expected values in two of the three drums for which results were obtained. The third drum was comparable to the expected value.

No laboratory data were available for comparing with the measured values for Content Code 292. It is interesting to note that the measured values were comparable for Content Code 292 6-month-old and 3-year-old wastes [measured G(total gas) values range from 0.31 to 1.97, average is 0.91, median is 0.93]. No 12-year-old Code 202 waste was available for sampling.

Cemented Sludges and Solutions. No laboratory G(total gas) values were available for comparing with the measured value.

Concrete, Brick. No laboratory data were applicable for comparing with the measured N(total) values for concrete and brick.

Salts. No laboratory data were applicable for comparing with the measured N(total) value.

Leaded Rubber. The measured N(total) values exceeded expected values in all age categories except for one drum of 6-month-old waste.

Benelex, Plexiglas. Measured N(total) values for drums containing Plexiglas were less than expected values. Expected values were calculated only for drums containing Plexiglas since laboratory data is not available for Benelex.

Resins. The measured N(total) values were equal to or less than the expected values for all sampled age categories of Content Code 432 drums.

Mixed Waste. No laboratory data were applicable for comparing with the measured N(total) value. The Code 241 drum contained a mixture of combustibles, metals, and polyethylene bottles of liquid.

Filters. No laboratory data were applicable for comparing with the measured N(total) value.

2.3.6 Hydrogen

The generation of hydrogen in waste packages is primarily a worker health and safety concern and a transportation issue. This section summarizes the hydrogen results for all sampled drums. These results include drums sampled at the INEL as part of demonstrating the prototype drum venting system and sampling presently noncertifiable waste forms. The results are summarized in Table 20.

All waste forms sampled contained detectable concentrations of hydrogen. The results are summarized for number of drums containing >1% hydrogen, >4% hydrogen but less than 5% oxygen, and >4% hydrogen and >5% oxygen (which is flammable[11]). Of the 210 drums sampled, 77 (37%) of the drums contained >1% hydrogen. Of the 210 drums, 29 (14%) had hydrogen concentrations >4% but oxygen concentrations <5%; and 10 drums (5%) had hydrogen concentrations >4% and oxygen concentrations >5%. The remaining 38 drums (18%) had hydrogen concentrations between 1 - 4%.

2.4 Waste Examinations

After gas sampling, the waste containers were placed in the RFP Size Reduction Vault for opening and visual examination. The examination included a physical description of the waste, packaging description, weighing the individual waste components, and determining compliance with the WIPP-WAC (see Section 2.1.4.3). Appendix B contains the detailed visual examination information. This information is combined with the RTR

TABLE 20. HYDROGEN RESULTS

Waste Form Category	Total Drums Sampled	Hydrogen Results: >1% H_2 Number	>1% H_2 Percent	>4% H_2, <5% O_2[a] Number	>4% H_2, <5% O_2[a] Percent	>4% H_2, >5% O_2[b] Number	>4% H_2, >5% O_2[b] Percent
Combustibles	44	18	41	6	14	0	0
Metals	29	4	14	1	3	0	0
Glass	25	5	20	2	8	0	0
Nonmetal Molds and Crucibles	11	0	0	0	0	0	0
Uncemented Sludges	44	22	50	7	16	8	18
Cemented Sludges and Solutions	11	6	55	4	36	0	0
Concrete, Brick	9	2	22	0	0	1	11
Salts	3	0	0	0	0	0	0
Leaded Rubber	7	5	71	1	14	0	0
Benelex, Plexiglas	7	3	43	1	14	0	0
Resins	13	10	77	6	46	1	8
Mixed Waste	1	1	100	1	100	0	0
Filters	3	0	0	0	0	0	0
Particulate Waste	3	1	33	0	0	0	0
Totals	210[c]	77	37	29	14	10	5

a. Considered to be nonflammable drums.

b. Considered to be potentially flammable drums.

c. Analytical results not received on 2 waste drums due to loss of sample.

examination results and the general information (weight, assay values, etc.) for each waste container. The information is combined so that comparisons could be made between the results on a container-by-container basis.

2.4.1 Waste Examination Results

The component weights for the container contents are summarized in Tables 21 through 33. Tables 21 through 33 and Appendix B list the waste containers in the same sequence.

In general, all waste containers were found to contain the specified waste form type. In all waste form categories, small amounts of different types of material were found. For example, a Code 440 (glass) waste drum would include small quantities of combustible materials used as packaging and possibly some absorbent, such as vermiculite.

Of the 209 waste containers opened and visually examined, only 3 (1%) clearly did not meet the assigned waste form category.

2.5 Waste Form Compliance

A total of 199 drums and 10 boxes were visually examined at RFP. During the visual examination of each waste container, the contents were evaluated against the waste form requirements of the WIPP-WAC,[2] samples were taken for analysis, and a judgment made if the contents of the waste container met WIPP-WAC requirements. The method for evaluating compliance with the WIPP-WAC was described in Section 2.1.4.3.

Tables 34 through 46 summarize the evaluations made for each waste container (by waste form category) and the determination made whether the waste met the WIPP-WAC requirements based on the visual and RTR examination results. Specific compliance information for each waste container is found in Appendix B and is also summarized by criterion in the text that follows.

TABLE 21. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: COMBUSTIBLES

Container ID No.	Time Period	Content Code	Proper[a] Code	Glass		Metal					Combustibles				
				Raschig Rings	Other	Al	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic	Rubber
02-39371	6-month	328	--	--	--	--	--	--	--	--	--	57.5	0.25	17.75	--
02-39453	6-month	328	--	--	--	--	--	--	--	--	--	98.25	--	18.5	--
02-39481	6-month	328	--	--	--	--	--	--	--	--	--	59.25	0.5	13.75	--
28-00781	6-month	330	440	--	84.5	--	--	--	--	--	--	--	--	10.5	--
42-00291	6-month	330	33b	--	0.5	--	--	--	--	--	2.5	22.5	--	28.25	--
22-01194	6-month	330	--	--	--	--	--	--	--	1.5	30.0	14.0	0.5	15.0	--
38-00101	6-month	330	--	--	--	--	--	--	--	--	53.5	24.75	--	12.0	--
76-02898	6-month	330	--	--	--	--	--	--	106.75	--	0.5	--	3.0	59.5	0.25
02-39195	6-month	330	--	--	--	--	--	--	--	--	--	--	--	9.25	--
389-00417	6-month	330	--	--	--	--	--	--	--	16.0	143.0	407.0	74.0	406.0	8.0
389-00609	6-month	330	--	--	--	--	--	--	--	10.0	--	336.0	38.0	364.0	--
02-39272	3-year	330	--	--	--	--	--	--	--	--	--	--	--	6.75	--
01-08200	12-yr	330	--	--	--	--	--	--	--	--	3.2	4.2	12.4	24.4	--
01-08796	12-yr	330	--	--	--	--	--	--	--	--	6.0	7.4	8.0	19.5	--
90-00042	12-yr	330	--	--	--	--	--	--	--	77.0	--	7.8	1.0	150.0	7.0
37-00689	12-yr	336	330	--	--	--	--	--	--	--	1.2	19.4	0.25	10.4	--
89-03607	12-yr	336	330	--	--	--	2.0	--	--	5.6	3.6	28.4	3.4	31.6	--
90-00039	12-yr	336	330	--	--	--	--	--	--	1.0	--	40.0	8.4	115.7	27.0
02-39465	6-month	336	330	--	--	--	--	--	--	--	--	0.5	--	45.25	--
23-01999	6-month	336	--	--	--	--	--	--	--	1.5	5.75	34.0	8.5	17.0	--
02-39084	6-month	336	330	--	--	--	--	--	--	--	--	--	--	12.0	--
02-40137	6-month	336	330	--	--	--	--	--	--	--	--	--	--	46.5	--
47-00256	6-month	33e	--	--	--	--	--	--	--	--	--	--	2.25	63.0	--
92-00419	6-month	336	--	--	--	--	--	--	--	--	0.5	0.25	1.25	4.75	--
02-34820	3-year	33b	--	--	--	--	--	--	--	--	--	3.0	3.0	10.0	1.0
22-00748	3-year	336	--	1.0	--	--	--	--	--	--	--	14.0	--	6.0	--
744-3792	6-month	337	--	--	--	--	--	--	--	--	--	--	--	31.5	--
744-3823	6-month	337	--	--	--	--	--	--	--	--	--	--	--	28.0	--
744-3789	6-month	337	--	--	--	--	--	--	--	--	--	--	--	27.25	--
55-00435	6-month	337	--	--	--	--	--	--	--	--	1.5	5.25	1.5	40.25	--
02-10180	12-yr	337	--	--	--	--	--	--	--	0.5	1.0	7.0	7.0	46.5	--
02-10215	12-yr	337	330	--	--	--	--	--	--	9.4	7.4	28.5	5.5	16.0	1.4
37-00698	12-yr	337	--	--	--	--	--	--	--	--	143.4	2.0	0.5	5.4	1.5
37-00711	12-yr	337	--	--	--	--	--	--	--	0.5	82.0	1.0	--	1.0	0.5
36-00723	12-yr	337	--	--	--	--	--	--	--	--	52.5	--	--	28.5	3.0
66-00137	12-yr	337	--	--	--	--	--	--	--	--	3.0	56.0	8.0	15.3	3.0
389-65741	12-yr	337	--	--	--	--	--	406.6	--	43.5	--	6.2	--	333.4	--
746-2906	12-yr	900	--	--	--	--	1.5	0.5	--	--	4.0	113.0	1.8	22.4	--
746-2918	12-yr	900	--	--	--	--	2.2	--	--	42.9	16.6	15.4	11.8	17.4	0.2
746-7008	12-yr	900	--	--	--	--	--	4.8	--	--	11.0	24.2	10.1	14.4	--
01-08583	12-yr	970	--	--	--	--	--	--	--	--	--	--	--	6.8	--
01-08604	12-yr	490	330(970)	--	--	--	--	--	--	--	--	--	--	4.5	--
01-08700	12-yr	970	--	--	--	--	--	--	--	--	--	--	--	13.9	--
389-65239	12-yr	970	--	--	--	--	781.0	105.2	--	--	--	70.8	--	170.3	--

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

...ail Type (lb)

Miscellaneous							Absorbents					
Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Firebrick	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	Net Weight (lb)
--	--	--	--	--	--	--	--	--	10.0	--	--	85.5
--	--	--	--	--	--	--	--	--	4.0	0.5	--	121.25
--	--	--	--	--	--	--	--	--	9.75	--	--	83.25
--	--	--	--	--	--	--	--	--	5.0	--	--	100.0
--	--	--	5.25	--	--	--	--	--	0.5	--	--	59.5
--	--	--	--	--	--	--	--	--	2.0	--	--	63.0
--	--	--	--	--	--	--	--	--	0.75	--	--	91.0
--	--	--	--	--	--	--	--	6.0	4.0	--	--	180.0
--	--	--	--	--	--	--	--	--	4.5	--	--	87.5
--	--	78.0	--	--	--	--	--	--	--	--	--	1054.0
									14.0			840.0
--	--	--	--	--	--	--	--	--	4.25	--	--	92.5
--	--	--	--	--	--	--	--	--	--	--	9.2	53.4
--	--	--	--	--	--	--	--	--	--	--	16.0	56.3
--	--	--	--	--	--	--	--	0.5	--	--	1.5	244.3
--	--	--	--	--	--	--	--	--	--	--	1.5	55.2
--	--	--	--	--	--	--	--	--	--	--	16.0	90.5
											4.4	196.3
--	--	--	--	--	--	--	--	--	3.0	--	--	49.0
--	--	--	--	--	--	--	--	--	[illegible]	--	--	73.25
--	--	--	--	--	--	--	--	--	[illegible]	--	--	84.75
--	--	2.75	--	--	--	--	--	--	[illegible]	--	--	52.5
--	--	--	--	--	--	--	--	--	2.5	--	--	74.5
									6.5			13.25
--	--	--	--	--	--	--	--	4.5	--	--	5.0	26.5
--	--	1.75	--	--	--	--	--	--	--	--	5.0	15.75
--	--	--	--	--	--	5.25	--	--	16.25	--	--	54.0
--	--	--	--	--	--	--	--	--	16.75	--	--	44.75
--	--	--	--	--	--	--	--	--	3.5	--	3.0	38.75
									4.0		--	53.25
--	--	--	--	--	--	--	--	--	--	--	6.5	68.6
--	--	--	--	--	--	--	--	--	--	--	1.0	71.4
--	--	--	--	--	--	--	--	--	--	--	3.4	156.2
--	--	--	--	--	--	--	--	--	--	--	7.0	92.0
--	--	--	--	--	--	--	--	--	--	--	12.0	106.1
--	--	--	--	--	--	--	--	--	--	--	6.5	94.8
--	--	--	--	--	--	--	--	134.1	--	--	--	1063.1
--	--	--	--	--	--	--	--	--	--	25.0	10.8	180.0
--	--	--	--	--	--	--	--	0.2	--	23.0	11.3	143.0
--	--	--	--	--	--	--	8.3	0.9	--	--	22.4	98.4
--	--	--	--	--	--	--	--	--	--	--	7.5	92.2
--	--	--	--	--	--	--	--	--	--	--	2.2	64.4
--	--	--	--	--	--	--	--	--	--	--	11.4	117.7
											--	1525.4

...erial Type (lb)													
	Sludge		Miscellaneous							Absorbents			
...er	Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Firebrick	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	Net Weight (lb)
-	--	--	--	--	--	--	--	--	--	3.0	--	--	197.0
-	--	--	--	--	--	--	--	--	--	9.0	--	--	66.0
-	--	--	--	--	--	--	--	--	--	15.0	--	--	70.0
-	--	--	--	--	--	--	--	--	--	--	--	--	211.5
-	--	--	--	--	--	--	--	--	--	--	--	3.5	51.12
-	--	--	--	--	--	--	--	--	--	--	--	10.4	123.0
-	--	--	--	--	--	--	--	--	--	5.0	--	--	250.5
-	--	--	--	--	--	--	--	--	11.5	4.5	--	--	66.25
-	--	--	--	--	--	--	--	--	--	3.0	--	--	27.5
-	--	--	--	--	--	--	--	--	--	2.0	--	--	146.5
-	--	--	--	--	--	--	--	--	--	23.0	--	--	2427.0
-	--	--	--	--	--	--	--	--	333.0	--	--	--	2000.0
-	--	--	--	--	--	--	--	--	--	--	--	--	177.4
.0	--	--	--	--	--	--	--	--	--	--	--	--	84.1
-	--	--	--	--	--	--	--	--	7.25	--	--	7.5	178.25
-	--	--	7.5	--	--	--	--	16.0	3.0	--	--	4.25	131.12
-	--	--	4.5	--	--	--	--	--	1.5	--	--	4.25	67.75
-	--	--	--	--	--	--	--	--	6.37	--	--	5.0	169.37
0.1	--	--	--	--	--	--	--	--	4.4	--	--	2.1	142.6
-	--	--	--	--	--	--	--	--	--	--	--	11.2	344.5
-	--	--	--	--	--	--	--	--	--	--	--	48.3	245.2
-	--	--	--	--	--	--	--	--	--	--	--	5.2	145.3
-	--	--	--	--	--	--	--	--	3.4	--	--	10.3	92.9
-	--	--	--	--	--	--	--	--	--	--	--	5.0	115.1
-	--	--	--	--	--	--	--	--	2.8	--	--	4.3	170.5
-	--	--	--	--	--	--	--	--	193.5	--	--	--	2558.0
1.0	--	--	--	--	--	--	--	--	--	--	--	--	2787.3
-	--	--	--	--	--	--	--	--	--	--	--	4.0	63.1
-	--	--	--	--	--	--	--	--	--	--	6.0	--	71.0
-	--	--	--	--	--	--	--	--	--	6.5	6.0	--	147.5
-	--	--	--	--	--	--	--	--	--	13.0	--	--	255.5
-	--	--	--	--	--	--	--	--	--	16.0	--	--	124.0
-	--	--	--	--	--	--	--	--	--	--	--	25.0	182.8

TABLE 22. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: METALS

Container ID No.	Time Period	Content Code	Proper[a] Code	Glass		Metal					Combustibles				
				Raschig Rings	Other	Ta	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic	Rubber
02-40153	6-month	320	--	--	--	--	--	--	--	189.0	--	--	--	--	--
29-00513	6-month	320	--	--	--	--	33.0	--	--	--	--	--	--	4.0	--
29-00528	6-month	320	--	--	--	--	--	--	--	49.0	--	--	--	4.5	--
78-00199	6-month	320	--	--	--	--	148.0	--	27.0	28.0	--	--	--	8.5	--
55-00290	1-year	320	--	--	--	40.37	--	--	--	--	--	--	--	6.75	--
02-40613	12-yr	320	--	--	--	91.4	--	--	--	--	--	12.0	--	9.0	--
02-40002	6-month	480	--	--	--	--	--	--	191.5	54.5	--	2.5	--	6.0	--
31-00939	6-month	480	--	--	--	--	--	15.0	--	26.5	1.0	2.0	--	4.25	1.5
02-39738	6-month	480	--	--	--	--	--	--	--	15.0	--	--	--	9.5	--
45-00522	6-month	480	--	--	--	--	92.75	29.0	--	4.5	--	--	--	18.25	--
389-00895	6-month	480	--	24.0	--	68.0	1844.0	--	--	420.0	--	15.0	--	71.0	--
389-00823	6-month	480	--	--	--	5.0	--	177.0	--	1412.0	--	73.0	--	--	--
29-01396	6-month	320	480	--	--	--	101.0	--	--	--	2.0	3.0	--	9.2	--
12-12505	6-month	480	--	--	--	4.8	38.7	9.2	--	14.2	--	--	--	16.2	--
02-34855	1-year	480	--	--	--	--	--	--	--	161.5	--	--	--	2.0	--
02-35083	1-year	480	--	--	1.0	--	--	12.25	--	58.37	0.25	1.0	--	22.5	--
31-01321	1-year	480	--	--	--	--	--	--	--	42.0	--	3.0	--	10.5	--
42-00209	1-year	480	--	--	--	--	--	45.0	--	94.25	--	--	--	19.25	--
02-40123	12-yr	320	480	--	--	--	46.2	38.7	17.6	13.2	--	4.0	--	4.0	2.2
01-08225	12-yr	480	--	--	--	--	317.7	--	--	--	--	5.5	--	9.0	--
01-08232	12-yr	480	--	--	--	--	189.2	--	--	--	--	2.2	--	5.0	--
02-12224	12-yr	320	480	--	--	--	33.8	91.5	--	--	--	5.4	--	9.0	--
18-00025	12-yr	480	--	--	--	--	36.2	24.2	5.2	--	--	4.4	--	8.3	1.2
32-00544	12-yr	320	480	--	--	--	72.5	--	--	2.5	--	28.0	--	7.0	--
42-00043	12-yr	480	--	--	--	--	32.0	110.0	--	--	--	2.5	--	19.3	--
389-00769	12-yr	480	--	--	10.0	--	2267.3	--	--	20.7	--	47.5	--	18.9	--
389-00811	12-yr	480	--	--	--	--	1997.2	411.4	259.2	1.5	--	45.3	--	61.2	--
25-00036	12-yr	480	--	--	1.0	--	14.5	26.0	--	--	--	--	1.0	16.6	--
15-00049	6-month	481	--	--	--	--	20.0	--	--	34.0	--	--	--	11.0	--
19-01027	6-month	481	--	--	--	--	69.0	48.0	--	--	--	--	--	18.0	--
19-01901	6-month	481	--	--	--	--	--	--	6.0	234.5	--	--	--	2.0	--
19-01919	6-month	481	--	--	--	--	--	50.0	--	55.0	--	--	--	3.0	--
76-00416	12-yr	481	--	--	--	--	9.0	145.2	--	--	--	0.1	--	3.5	--

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

TABLE 23. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: GLASS

Container ID No.	Time Period	Content Code	Proper[a] Code	Glass		Metal					Combustibles					Water
				Raschig Rings	Other	Ti	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic	Rubber	Other
37-02339	6-month	440	--	--	54.75	--	--	--	--	--	--	--	--	18.0	--	--
28-00755	6-month	440	--	--	75.0	--	--	--	--	5.0	--	--	--	8.5	--	--
12-11241	6-month	440	--	--	24.0	--	--	--	--	--	--	--	--	3.75	4.0	--
37-02336	6-month	440	--	--	22.5	--	--	--	--	--	--	--	--	23.5	--	--
02-34934	3-year	440	--	--	305.75	--	--	--	--	--	--	--	--	1.75	--	--
28-00030	3-year	440	--	--	112.0	--	--	--	--	1.0	--	--	--	16.0	--	--
37-02013	3-year	440	--	--	79.75	--	--	--	--	--	--	--	--	2.0	--	--
7a-01366	3-year	440	--	--	385.0	--	--	--	--	--	--	--	--	5.0	--	--
02-10576	12-yr	442	440	--	289.4	--	--	--	--	--	--	6.6	--	2.0	--	--
3a-00628	12-yr	440	--	--	334.8	--	--	--	--	--	--	--	--	1.0	--	--
3a-00605	12-yr	440	--	26.6	35.6	--	--	--	--	1.0	--	--	--	24.6	--	--
89-04043	12-yr	441	--	66.0	--	--	--	--	--	--	--	6.2	--	2.0	--	--
89-04071	12-yr	441	--	91.0	--	--	--	--	--	--	--	12.0	0.1	4.0	--	--
89-04114	12-yr	441	--	151.8	--	--	--	--	--	--	--	16.2	--	2.6	--	--
89-04072	12-yr	441	--	47.6	--	--	--	--	--	--	--	7.0	--	1.6	--	--
02-39564	6-month	442	--	23.6	--	--	--	--	--	--	--	12.0	--	4.0	--	--
02-39533	6-month	442	--	50.25	--	--	--	--	--	--	--	12.0	--	2.0	--	--
02-39803	6-month	442	--	38.6	--	--	--	--	--	--	--	12.0	--	2.0	--	--
02-39805	6-month	442	--	78.6	--	--	--	--	--	--	--	12.0	--	2.6	--	--
19-02730	6-month	442	--	145.0	--	--	--	--	--	--	--	--	--	11.3	--	--
05-01596	3-year	442	--	34.6	--	--	--	--	--	--	--	12.0	--	3.0	--	--
05-01772	3-year	442	--	82.25	--	--	--	--	--	--	--	12.0	--	4.6	--	--
17-04562	3-year	442	441	89.0	--	--	--	--	--	--	--	12.0	--	4.0	--	--
22-00722	3-year	442	--	89.0	--	--	--	--	--	--	--	12.0	--	9.25	--	--
42-00226	3-year	442	--	57.0	--	--	--	--	--	--	--	12.0	--	4.6	--	--

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

ype (lb)												
Sludge		Miscellaneous							Absorbents			
rganic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Fiberglass	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	Net Weight (lb)
-	--	--	--	--	--	--	--	--	--	--	--	72.75
-	--	--	--	--	--	--	--	--	6.0	--	--	94.5
-	--	--	--	--	--	--	--	--	10.0	--	--	46.75
-	--	--	--	--	--	--	--	--	1.0	--	--	52.0
-	--	--	--	--	--	--	--	--	--	--	4.0	311.5
-	--	--	--	--	--	--	--	--	--	--	4.25	133.25
-	--	--	--	--	--	--	--	--	--	--	5.0	116.75
-	--	--	--	--	--	--	--	--	--	--	4.0	394.0
-	--	--	--	--	--	--	--	--	--	--	5.4	303.4
-	--	--	--	--	--	--	--	--	--	--	21.0	356.3
-	--	--	--	--	--	--	--	--	--	--	25.5	173.0
-	--	--	--	--	--	--	--	--	--	--	127.0	201.5
-	--	--	--	--	--	--	--	--	--	0.7	6.0	114.4
-	--	--	--	--	--	--	--	--	--	--	1.5	172.1
-	--	--	--	--	--	--	--	--	--	--	155.3	211.3
-	--	--	--	--	--	--	--	--	11.0	--	4.0	54.5
-	--	--	--	--	--	--	--	--	15.5	--	2.0	81.75
-	--	--	--	--	--	--	--	--	12.5	--	2.5	117.5
-	--	--	--	--	--	--	--	--	12.5	--	2.5	108.0
-	--	--	--	--	--	--	--	--	--	--	20.0	171.3
-	--	--	--	--	--	--	--	--	--	--	4.0	103.5
-	--	--	--	--	--	--	--	--	--	--	5.0	103.75
-	--	--	--	--	--	--	--	--	--	--	5.0	110.0
-	--	--	--	--	--	--	--	--	--	--	4.0	114.25
-	--	--	--	--	--	--	--	--	--	--	4.0	77.5

TABLE 24. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: NONMETAL MOLDS AND CRUCIBLES

Container ID No.	Time Period	Content Code	Proper[a] Code	Glass		Metal					Combustibles					Mat
				Raschig Rings	Other	Ta	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic	Rubber	Oth
12-11023	6-month	300	--	--	--	--	--	--	--	--	--	4.5	--	4.0	--	--
19-01811	6-month	300	--	--	--	--	--	--	--	--	--	--	--	2.25	--	--
12-11229	6-month	300	--	--	--	--	--	--	--	--	--	4.0	--	1.5	--	--
41-01531	6-month	300	--	--	--	--	--	--	--	--	--	--	--	5.0	--	--
12-09189	3-year	300	--	--	--	--	--	--	--	--	--	4.0	--	4.0	--	--
12-09295	3-year	300	--	--	--	--	--	--	--	--	--	4.0	--	4.0	--	--
12-09161	3-year	300	--	--	--	--	--	--	--	--	--	4.0	--	3.75	--	--
12-09300	3-year	300	--	--	--	--	--	--	--	--	--	4.0	--	3.0	--	--
41-01625	6-month	301	--	--	--	--	--	--	--	0.125	--	3.75	--	5.75	--	--
32-01049	6-month	312	--	--	--	--	--	--	--	--	--	--	--	14.75	--	--
32-01055	6-month	312	--	--	--	--	--	--	--	--	--	--	--	23.5	--	--

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

b. Graphite molds and crucibles.

al Type (lb)

Sludge		Miscellaneous							Absorbents			
Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Firebrick	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	Net Weight (lb)
--	--	--	--	135.75[a]	--	--	--	--	3.0	--	--	147.25
--	--	--	--	56.5[a]	--	--	--	--	20.0	--	--	78.75
--	--	--	--	48.75[a]	--	--	--	--	22.0	--	--	76.25
--	--	--	--	89.75[a]	--	--	--	--	13.0	--	--	106.75
--	--	--	--	149.75[a]	--	--	--	--	--	--	4.0	161.75
--	--	--	--	210.5[a]	--	--	--	--	--	--	3.5	222.0
--	--	--	--	167.5[a]	--	--	--	--	--	--	4.0	179.75
--	--	--	--	185.5[a]	--	--	--	--	--	--	3.5	196.0
--	--	--	--	133.75[a]	--	--	--	--	2.5	--	8.5	154.375
--	--	--	--	74.0	--	--	--	--	--	--	--	88.75
--	--	--	--	80.75	--	--	--	16.0	--	--	--	120.25

TABLE 25. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: UNCEMENTED SLUDGES

Container ID No.	Time Period	Content Code	Proper[a] Code	Glass		Metal					Combustibles						Water
				Raschig Rings	Other	Ta	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic	Rubber	Other	
7412-03121	6-month	1	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
7412-03125	6-month	1	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
7412-03127	6-month	1	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
7412-03128	6-month	1	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
7412-00483	3-year	1	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
7412-00636	3-year	1	--	--	--	--	--	--	--	--	--	--	--	5.5	--	--	
7412-00766	3-year	1	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
7412-00797	3-year	1	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
741-12404	12-yr	1	--	--	--	--	--	--	--	--	--	--	--	4.0	--	--	
741-12411	12-yr	1	--	--	--	--	--	--	--	--	--	--	--	4.0	--	--	
741-12794	12-yr	1	--	--	--	--	--	--	--	--	--	--	--	4.0	--	--	
741-12847	12-yr	1	--	--	--	--	--	--	--	--	--	--	--	4.0	--	--	
741-12858	12-yr	1	--	--	--	--	--	--	27.7	--	--	--	--	4.0	--	--	
742-26150	6-month	2	--	--	--	--	--	--	--	--	--	--	--	2.0	--	--	
742-26152	6-month	2	--	--	--	--	--	--	--	--	--	--	--	2.0	--	--	
742-26154	6-month	2	--	--	--	--	--	--	--	--	--	--	--	2.0	--	--	
742-21396	12-yr	2	--	--	--	--	--	--	--	--	--	--	--	1.0	--	--	
742-21440	12-yr	2	--	--	--	--	--	--	--	--	--	0.5	--	1.0	--	--	
742-21594	12-yr	2	--	--	--	--	--	--	--	--	--	--	--	1.0	--	--	
742-21640	12-yr	2	--	--	--	--	--	--	--	--	--	--	--	1.0	--	--	
743-16469	6-month	3	--	--	--	--	--	--	--	--	--	--	--	1.0	--	--	
743-16487	6-month	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
743-16656	6-month	3	--	--	--	--	--	--	--	--	--	--	--	3.5	--	--	
743-16733	6-month	3	--	--	--	--	--	--	--	--	--	--	--	3.5	--	--	
743-15075	3-year	3	--	--	--	--	--	--	--	--	--	--	--	11.75	--	--	
743-15037	3-year	3	--	--	--	--	--	--	--	--	--	--	--	8.0	--	--	
743-15312	3-year	3	--	--	--	--	--	--	--	--	--	--	--	9.0	--	--	
743-15023	3-year	3	--	--	--	--	--	--	--	--	--	--	--	9.25	--	--	
743-11596	12-yr	3	--	--	--	--	--	--	--	--	--	--	--	3.0	--	--	
743-11682	12-yr	3	--	--	--	--	--	--	--	--	--	--	--	3.0	--	--	
743-11833	12-yr	3	--	--	--	--	--	--	--	--	--	--	--	3.0	--	--	
743-11870	12-yr	3	--	--	--	--	--	--	--	--	--	--	--	3.0	--	--	
747-00944	6-month	7	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
747-01488	6-month	7	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
747-01492	6-month	7	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
747-01531	6-month	7	--	--	--	--	--	--	--	--	--	--	--	4.5	--	--	
02-40342	6-month	292	--	--	--	--	--	--	--	--	--	--	--	31.25	--	--	
02-39229	6-month	292	--	--	--	--	--	--	--	--	--	--	--	30.25	--	--	
02-39213	6-month	292	--	--	--	--	--	--	--	--	--	--	--	26.75	--	--	
02-39435	6-month	292	--	--	--	--	--	--	--	--	--	--	--	20.75	--	--	
40-00063	3-year	292	--	--	--	--	--	--	--	--	--	8.0	--	29.75	--	--	
76-01642	3-year	292	--	--	--	--	--	--	--	0.5	--	--	--	5.0	--	--	
76-01643	3-year	292	--	--	--	--	--	--	--	--	--	1.5	--	4.0	--	--	
76-01644	3-year	292	--	--	--	--	--	--	--	--	--	--	--	5.0	--	--	

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

Type (lb)

Sludge		Miscellaneous							Absorbents			Net Weight (lb)
Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Firebrick	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	
--	245.5	--	--	--	--	--	--	--	--	38.2	--	288.2
--	355.5	--	--	--	--	--	--	--	--	1.1	--	361.1
--	274.5	--	--	--	--	--	--	--	--	--	--	279.0
--	326.5	--	--	--	--	--	--	--	--	12.1	1.5	344.6
--	433.5	--	--	--	--	--	--	--	--	28.5	3.0	469.5
--	394.5	--	--	--	--	--	--	--	--	--	--	400.0
--	398.5	--	--	--	--	--	--	--	--	27.0	4.0	434.0
--	319.5	--	--	--	--	--	--	--	--	20.75	2.0	346.75
--	427.5	--	--	--	--	--	--	--	--	22.0	--	453.5
--	268.0	--	--	--	--	--	--	--	--	39.0	--	311.0
--	365.0	--	--	--	--	--	--	--	--	20.0	--	389.0
--	411.0	--	--	--	--	--	--	--	--	8.0	--	423.0
--	370.5	--	--	--	--	--	--	--	--	15.3	15.4	433.5
--	339.0	--	--	--	--	--	--	41.8	--	--	--	432.8
--	399.0	--	--	--	--	--	--	3.2	--	--	--	404.2
--	390.0	--	--	--	--	--	--	2.1	--	--	--	394.1
--	382.7	--	--	--	--	--	--	--	--	8.8	--	392.5
--	227.0	--	--	--	--	--	--	58.0	--	47.0	--	333.5
--	365.0	--	--	--	--	--	--	--	--	37.0	--	403.0
--	415.5	--	--	--	--	--	--	--	--	17.0	--	433.5
340.0	--	--	--	--	--	--	--	6.6	7.0	--	--	354.6
385.0	--	--	--	--	--	--	--	2.2	9.0	--	--	396.2
316.5	--	--	--	--	--	--	--	--	--	--	--	320.0
422.5	--	--	--	--	--	--	--	--	--	--	--	426.0
397.0	--	--	--	--	--	--	--	--	--	--	6.0	414.75
375.0	--	--	--	--	--	--	--	--	--	--	10.5	393.5
437.0	--	--	--	--	--	--	--	--	--	--	4.5	450.5
396.0	--	--	--	--	--	--	--	--	--	--	5.75	412.0
477.5	--	--	--	--	--	--	--	33.0	--	--	--	513.5
490.5	--	--	--	--	--	--	--	--	--	--	--	493.5
365.5	--	--	--	--	--	--	--	--	--	--	2.0	370.5
439.9	--	--	--	--	--	--	--	--	--	--	18.6	461.5
--	348.0	--	--	--	--	--	--	--	3.2	1.0	38.0	395.2
--	286.0	--	--	--	--	--	--	--	49.1	--	--	339.6
--	242.0	--	--	--	--	--	--	--	34.2	--	--	280.7
--	205.5	--	--	--	--	--	--	--	52.3	--	--	262.9
--	141.0	--	--	--	--	--	--	--	5.5	--	--	177.75
--	117.25	--	--	--	--	--	--	--	5.25	--	--	152.75
--	81.75	--	--	--	--	--	--	--	5.0	--	--	113.5
--	125.75	--	--	--	--	--	--	--	5.25	--	--	151.75
--	148.25	--	--	--	--	--	--	--	--	--	10.0	195.5
--	218.0	--	--	--	--	--	--	--	--	--	4.5	228.0
--	73.25	--	--	--	--	--	--	--	--	--	4.5	83.25
--	154.5	--	--	--	--	--	--	--	--	--	--	159.5

TABLE 26. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: CEMENTED SLUDGES AND SOLUTIONS

				Glass		Metal					Combustibles			
Container ID No.	Time Period	Content Code	Proper[1] Code	Raschig Rings	Other	Ta	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic
744-1829	6-month	4	--	--	--	--	--	--	--	--	--	--	--	4.0
744-1837	6-month	4	--	--	--	--	--	--	--	--	--	--	--	4.0
744-1841	6-month	4	--	--	--	--	--	--	--	--	--	--	--	4.0
744-1846	6-month	4	--	--	--	--	--	--	--	--	--	--	--	4.0
744-1848	6-month	4	--	--	--	--	--	--	--	--	--	--	--	4.0
744-2158	12-yr	4	--	--	--	--	--	--	--	--	--	--	--	4.0
744-2176	12-yr	4	--	--	--	--	--	--	--	--	--	--	--	4.0
744-2189	12-yr	4	--	--	--	--	--	--	--	--	--	--	--	4.0
744-2430	12-yr	4	--	--	--	--	--	--	--	--	--	--	--	4.0
744-2442	12-yr	4	--	--	--	--	--	--	--	--	--	--	--	4.0

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

TABLE 27. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: CONCRETE, BRICK

				Glass		Metal					Combustibles			
Container ID No.	Time Period	Content Code	Proper[1] Code	Raschig Rings	Other	Ta	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic
02-21470	6-month	371	--	--	--	--	--	--	--	--	--	24.0	--	6.0
02-45508	6-month	371	--	--	--	--	--	--	--	--	--	12.0	--	2.2
01-08825	12-yr	371	--	--	--	--	--	--	--	--	--	12.0	--	8.0
02-10566	12-yr	371	--	--	--	--	--	--	--	1.2	--	12.0	--	6.2
02-11061	12-yr	371	--	--	--	--	--	--	--	--	--	--	--	17.0
02-11379	12-yr	371	--	--	--	--	--	--	--	--	--	--	--	11.0
02-44115	6-month	377	--	--	--	--	--	--	--	--	--	12.0	--	4.4
01-08083	12-yr	960	--	--	--	--	--	--	--	--	--	--	--	1.0

TABLE 28. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: SALTS

				Glass		Metal					Combustibles			
Container ID No.	Time Period	Content Code	Proper[1] Code	Raschig Rings	Other	Ta	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic
01-05779	6-month	409	--	--	--	--	--	10.3	--	--	--	--	--	3.0
03-02724	6-month	409	--	--	--	--	--	25.4	96.3	--	--	12.0	--	6.2
01-05486	6-month	414	--	--	--	--	--	10.12	--	--	--	--	--	16.0

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

b. Ceramic molds and crucibles.

Material Type (lb)

		Sludge		Miscellaneous							Absorbents			
ber	Other	Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Fiberfrax	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	Net Weight (lb)
--	--	--	--	--	--	--	--	--	502.3	--	7.3	--	--	514.3
--	--	--	--	--	--	--	--	--	521.3	--	--	--	--	525.3
--	--	--	--	--	--	--	--	--	492.3	--	--	--	--	496.3
--	--	--	--	--	--	--	--	--	491.3	--	--	--	--	495.3
--	--	--	--	--	--	--	--	--	548.3	--	--	--	--	552.3
--	--	--	--	--	--	--	--	--	237.3	--	--	130.3	18.3	389.3
--	--	--	--	--	--	--	--	--	286.3	--	--	14.7	17.3	422.3
--	--	--	--	--	--	--	--	--	551.3	--	--	27.4	--	593.3
--	--	--	--	--	--	--	--	--	430.3	--	--	--	13.3	444.3
--	--	--	--	--	--	--	--	--	353.3	--	--	5.3	13.3	372.3

Material Type (lb)

		Sludge		Miscellaneous							Absorbents			
ber	Other	Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Fiberfrax	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	Net Weight (lb)
-	--	--	--	--	--	--	30.3	--	--	4.3	14.25	--	--	139.25
-	--	--	--	--	--	--	30.3	--	--	--	--	--	--	46.3
-	--	--	--	--	--	--	113.3	--	--	--	--	--	49.3	179.3
-	--	--	--	--	--	--	59.3	--	--	--	--	--	66.4	135.3
-	--	--	--	--	--	--	336.7	--	--	0.1	--	--	5.3	353.7
-	--	--	--	--	--	--	279.3	--	--	--	--	--	9.3	299.2
-	--	--	--	--	--	--	25.4	--	--	--	--	--	--	42.3
-	--	--	--	--	--	--	--	--	386.4	--	--	--	11.3	398.3

Material Type (lb)

		Sludge		Miscellaneous							Absorbents			
ber	Other	Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Fiberfrax	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	Net Weight (lb)
--	--	--	--	--	--	--	--	12.75	--	--	9.0	--	--	32.25
--	--	--	--	--	--	--	--	23.3	--	--	--	--	--	165.2
--	--	--	--	--	--	19.5[a]	--	52.38	--	--	6.3	--	--	104.3

TABLE 29. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: LEADED RUBBER

Container ID No.	Time Period	Content Code	Proper[1] Code	Glass		Metal					Combustibles				
				Raschig Rings	Other	Pa	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic	Rubber
19-01831	6-month	339	--	--	--	--	--	--	--	--	--	--	13.0	4.0	18.0
19-01840	6-month	339	--	--	--	--	--	--	--	--	--	--	--	1.0	4.0
19-01845	6-month	339	--	--	--	--	--	--	--	--	--	--	--	1.0	--
19-01884	6-month	339	--	--	--	--	--	--	--	--	--	--	--	3.0	8.0
19-01472	3-year	339	--	--	--	--	--	--	--	--	--	--	--	4.0	2.05
22-00224	12-yr	339	--	--	--	--	--	--	--	--	--	--	0.8	3.0	--
23-00435	12-yr	339	--	--	--	--	--	--	--	--	--	--	--	20.0	--

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

TABLE 30. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: BENELEX, PLEXIGLASS

Container ID No.	Time Period	Content Code	Proper[1] Code	Glass		Metal					Combustibles				
				Raschig Rings	Other	Pa	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic	Rubber
02-00125	12-yr	302	--	--	--	--	--	--	--	--	--	4.0	--	7.0	--
02-00293	12-yr	302	--	--	--	--	--	--	--	--	--	--	--	14.0	--
02-00436	12-yr	302	--	--	--	--	--	--	--	--	--	--	--	9.0	--
02-00502	12-yr	302	--	--	--	--	--	--	--	--	--	12.0	--	7.0	--
01-00991	12-yr	302	--	--	73.0	--	--	--	--	--	--	--	--	13.0	--
02-00316	12-yr	302	--	--	--	--	--	--	--	--	--	--	--	10.0	--
01-00256	12-yr	464	--	--	--	--	--	--	--	--	--	--	--	16.0	--

terial Type (%)													
	Sludge		Miscellaneous							Absorbents			
ther	Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Firebrick	Salts	Concrete	Other	Vermiculite	Portland Cement	Diatomite	Net Weight (%)
--	--	--	150.0	--	--	--	--	--	--	[illegible]	--	--	[illegible]
--	--	--	255.0	--	--	--	--	--	--	[illegible]	--	[illegible]	[illegible]
--	--	--	164.0	--	--	--	--	--	--	[illegible]	--	--	[illegible]
--	--	--	285.0	--	--	--	--	--	--	[illegible]	--	--	[illegible]
--	--	--	119.25	--	--	--	--	--	--	--	--	[illegible]	[illegible]
--	--	--	286.0	--	--	--	--	--	--	--	--	[illegible]	[illegible]
--	--	--	215.0	--	--	--	--	--	--	--	--	[illegible]	[illegible]

erial Type (%)													
	Sludge		Miscellaneous							Absorbents			
er	Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Firebrick	Salts	Concrete	Other	Vermiculite	Portland Cement	Diatomite	Net Weight (%)
	--	--	--	--	--	--	--	--	177.5	--	--	[illegible]	[illegible]
	--	--	--	--	--	--	--	--	[illegible]	--	--	[illegible]	[illegible]
	--	--	--	--	--	--	--	--	60.0	--	--	[illegible]	[illegible]
	--	--	--	--	--	--	--	--	[illegible]	--	--	[illegible]	[illegible]
	--	--	--	--	--	--	--	--	[illegible]	--	--	[illegible]	[illegible]
	--	--	--	--	--	--	--	--	[illegible]	--	--	[illegible]	[illegible]
	--	--	--	--	--	--	--	--	[illegible]	--	--	[illegible]	[illegible]

TABLE 31. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: RESINS

Container ID No.	Time Period	Content Code	Proper[1] Code	Glass		Metal					Combustibles			
				Raschig Rings	Other	Ta	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic
02-39169	6-month	432	--	--	--	--	--	--	--	--	--	--	--	31.6
02-39215	6-month	432	--	--	--	--	--	--	--	--	--	--	--	35.0
02-39296	6-month	432	--	--	--	--	--	--	--	--	--	--	--	30.0
02-44427	6-month	432	--	--	--	--	--	--	--	--	--	--	--	6.3
02-34829	1-year	432	--	--	--	--	--	--	--	--	--	--	--	31.6
02-34844	1-year	432	--	--	--	--	--	--	--	--	--	--	--	13.0
02-34830	1-year	432	--	--	--	--	--	--	--	--	--	--	--	29.75
01-08811	12-yr	371	432	--	--	--	--	--	--	--	--	--	--	21.7
01-08936	12-yr	432	--	--	--	--	--	--	--	--	--	--	--	22.7
02-10070	12-yr	432	--	--	--	--	--	--	--	--	--	--	--	19.3
02-10195	12-yr	432	--	--	--	--	--	--	--	--	--	--	--	24.2
02-10225	12-yr	432	--	--	--	--	--	--	--	--	--	--	--	22.2
02-10289	12-yr	432	--	--	--	--	--	--	--	--	--	--	--	31.7

TABLE 32. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: MIXED WASTE-PAPER, METAL, GLASS, ETC.

Container ID No.	Time Period	Content Code	Proper[1] Code	Glass		Metal					Combustibles			
				Raschig Rings	Other	Ta	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic
01-08806	12-yr	241	--	--	--	--	--	--	56.5	16.3	--	--	--	37.5
1371-586	12-yr	950	--	--	367.3	--	382.5	--	113.1	2.3	--	29.0	--	7.4

TABLE 33. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: FILTERS

Container ID No.	Time Period	Content Code	Proper[1] Code	Glass		Metal					Combustibles			
				Raschig Rings	Other	Ta	Steel	Stainless Steel	Pb	Other	Surgeons Gloves	Paper	Cloth	Plastic
89-03509	12-yr	338	--	--	--	--	--	--	--	--	--	--	--	4.0

Material Type (lb)

		Sludge		Miscellaneous							Absorbents			Net Weight (lb)
ubber	Other	Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Firebrick	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	
--	--	--	--	--	36.5	--	--	--	--	--	[illegible]	--	--	[illegible]
--	--	--	--	--	[illegible]	--	--	--	--	--	[illegible]	--	--	[illegible]
--	--	--	--	--	[illegible]	--	--	--	--	--	[illegible]	--	--	[illegible]
--	--	--	--	--	7.0	--	--	--	--	--	--	--	--	13.3
--	--	--	--	--	178.5	--	--	--	--	--	--	--	4.5	214.5
--	--	--	--	--	59.5	--	--	--	--	--	--	--	[illegible]	87.25
--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	[illegible]	241.0
--	--	--	--	--	168.5	--	--	--	--	--	--	--	[illegible]	224.5
--	--	--	--	--	183.0	--	--	--	--	--	--	[illegible]	[illegible]	[illegible]
--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	[illegible]	[illegible]
--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	[illegible]	[illegible]
--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	[illegible]	[illegible]
--	--	--	--	--	[illegible]	--	--	--	--	[illegible]	--	--	[illegible]	[illegible]

Material Type (lb)

		Sludge		Miscellaneous							Absorbents			Net Weight (lb)
ubber	Other	Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Firebrick	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	
--	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	[illegible]	[illegible]
--	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	[illegible]

Material Type (lb)

		Sludge		Miscellaneous							Absorbents			Net Weight (lb)
ubber	Other	Organic	Inorganic	Leaded Rubber	Cemented Resins	Molds/ Crucibles	Firebrick	Salts	Concrete	Other	Vermiculite	Portland Cement	Oil-Dri	
--	--	--	--	--	--	--	--	--	--	48.0	--	--	2.4	54.4

TABLE 34. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: COMBUSTIBLES

Container ID No.	Time Period	Content Code	Proper[b] Content Code	Visual Examination Results: Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)[c]	WIPP Certifiable ?	RIR[e] Certifiable ?
02-39371	6 month	328	--	--	--	--	--	--	--	75.5	Yes	Yes
02 39453	6 month	328	--	--	Y	--	--	--	--	116.75	No	Yes
02 39481	6 month	328	--	--	Y	Y*	--	--	--	73.5	No	No
28-00781	6 month	330	440	--	--	--	--	--	--	10.5	Yes	Yes
42 00291	6 month	330	336	Y*	--	--	--	--	--	53.25	Yes	No
22 01194	6 month	330	--	--	--	--	--	--	--	59.5	Yes	Yes
30 06101	6 month	330	--	Y*	--	--	--	--	--	90.25	Yes	Yes
76 02098	6 month	330	--	--	--	Y*	--	--	--	69.25	Yes	No
02 39195	6 month	330	--	--	--	--	--	--	--	83.0	Yes	Yes
389 90417	6 month	330	--	--	Y	--	--	--	--	1038.0	No	No
389 90689	6 month	330	--	Y*	Y	--	--	--	--	738.0	No	No
02 35272	1 year	330	--	--	--	--	--	--	--	88.25	Yes	Yes
02-10215	12 year	330	--	--	--	--	--	--	--	59.0	Yes	Yes
01 00200	12 year	330	--	--	--	--	--	--	--	44.2	Yes	Yes
01 00796	12 year	330	--	--	--	--	--	--	--	40.9	Yes	Yes
90 00042	12-year	330	--	--	--	--	--	--	--	166.4	Yes	Yes
37 00189	12-year	336	330	Y*	--	--	--	--	--	63.7	Yes	No
89 03607	12 year	336	330	Y*	--	--	--	--	--	67.0	Yes	Yes
90 00039	12 year	336	330	--	Y	--	--	--	--	191.4	No	Yes
02-39465	6-month	336	330	--	--	--	--	--	--	46.0	Yes	No
23 01599	6 month	336	--	--	Y	--	--	--	--	73.25	No	Yes
02 39084	6 month	336	330	--	--	--	--	--	--	81.25	Yes	Yes
02 40137	6 month	336	330	--	--	--	--	--	--	42.5	Yes	No
47 00256	6 month	336	--	--	Y	--	--	--	--	69.25	No	No
92 00419	6 month	336	--	--	--	--	--	--	--	6.75	Yes	No
02 38020	1 year	336	--	--	--	--	--	--	--	17.0	Yes	Yes
22 00740	1 year	336	--	--	--	--	--	--	--	26.0	Yes	Yes
744 3792	6 month	337	--	--	Y	Y*	--	--	--	31.5	No	No
744 3823	6 month	337	--	--	Y	--	--	--	--	26.0	No	No
744 3789	6 month	337	--	--	Y	Y*	--	--	--	27.25	No	No
55 00435	6 month	337	--	--	--	--	--	--	--	49.25	Yes	Yes

TABLE J4. (Continued)

WASTE FORM CATEGORY: COMBUSTIBLES

Container ID No.	Time Period	Content Code	Proper[b] Content Code	Visual Examination Results: Immobilization (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
02-10180	12-year	337	--	--	--	--	--	--	--	61.6	Yes	Yes
37-00698	12-year	337	--	--	--	--	--	--	--	152.8	Yes	Yes
37-00711	12-year	337	--	--	--	--	--	--	--	84.5	Yes	Yes
36-00723	12-year	337	--	--	--	--	--	--	--	94.1	Yes	Yes
65-00137	12-year	337	--	--	Y	--	--	--	--	88.3	No	Yes
389-85743	12-year	337	--	Y*	Y	--	--	--	--	612.9	No	Yes
746-2906	12-year	900	--	--	Y	--	--	--	--	141.2	No	Yes
746-2918	12-year	900	--	--	Y	--	--	--	--	63.1	No	Yes
746-7008	12-year	900	--	--	--	--	--	--	--	61.5	Yes	Yes
01-08583	12-year	970	--	--	--	--	--	--	--	84.7	Yes	Yes
01-08604	12-year	490	970	--	--	--	--	--	--	62.2	Yes	Yes
01-08700	12-year	970	--	--	--	--	--	--	--	106.3	Yes	Yes
389-85289	12-year	970	--	--	--	--	--	--	--	640.2	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 35. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: METALS

Container ID No.	Time Period	Content Code	Visual Examination Results									
			Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
02-40153	6-month	320	480	--	--	--	--	--	--	--	Yes	Yes
29-00513	6-month	320	480	--	--	--	--	--	--	4.0	Yes	Yes
29-00528	6-month	320	480	--	--	--	--	--	--	4.5	Yes	Yes
78-00199	6-month	320	480	Y*	Y	--	--	Y	--	8.5	No	No
29-01396	6-month	320	480	--	--	--	--	--	--	16.4	Yes	Yes
55-00290	3-year	320	--	Y*	--	--	--	--	--	6.75	Yes	Yes
02-10613	12-year	320	--	--	--	--	--	--	--	21.2	Yes	Yes
02-10128	12-year	320	480	Y*	--	--	--	--	--	20.3	Yes	Yes
02-12224	12-year	320	480	Y*	--	--	--	--	--	14.4	Yes	No
32-00544	12-year	320	480	--	--	--	--	--	--	35.0	Yes	Yes
02-40002	6-month	480	--	--	--	--	--	--	--	8.5	Yes	Yes
31-00939	6-month	480	--	Y*	--	--	--	--	--	8.75	Yes	No
02-39738	6-month	480	--	--	--	--	--	--	--	9.5	Yes	Yes
45-00528	6-month	480	--	Y*	--	--	--	--	--	18.25	Yes	Yes
389-90895	6-month	480	--	Y*	Y	--	--	Y	--	86.0	No	No
389-90828	6-month	480	--	Y*	Y	--	--	--	--	73.0	No	Yes
12-12505	6-month	480	--	--	--	--	--	--	--	16.2	Yes	Yes
389-20305	6-month	480	--	--	Y	--	--	--	--	107.6	No	No
02-34855	3-year	480	--	--	--	--	--	--	--	2.0	Yes	Yes
02-35083	3-year	480	--	Y*	--	--	--	--	--	23.75	Yes	Yes
31-01321	3-year	480	--	--	--	--	--	--	--	15.0	Yes	No
42-00209	3-year	480	--	Y*	--	--	--	--	--	19.25	Yes	Yes
01-08226	12-year	480	--	--	--	--	--	--	--	15.6	Yes	Yes
01-08232	12-year	480	--	--	--	--	--	--	--	7.2	Yes	Yes
18-00025	12-year	480	--	--	--	--	--	--	--	13.9	Yes	Yes
42-00043	12-year	480	--	--	--	--	--	--	--	21.8	Yes	Yes
25-00036	12-year	480	--	Y*	--	--	--	--	--	17.9	Yes	Yes
389-85769	12-year	480	--	--	--	--	--	--	--	66.4	Yes	Yes
389-85811	12-year	480	--	Y*	Y	--	--	--	--	62.4	No	Yes

TABLE 35. (Continued)

WASTE FORM CATEGORY: METALS

			Visual Examination Results									
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
15-00049	6-month	481	--	--	--	--	--	--	--	11.0	Yes	Yes
19-01827	6-month	481	--	--	--	--	--	--	--	18.0	Yes	Yes
19-01901	6-month	481	--	--	--	--	--	--	--	2.0	Yes	Yes
19-01919	6-month	481	--	Y*	--	--	--	--	--	3.0	Yes	Yes
76-00416	12-year	481	--	--	--	--	--	--	--	3.6	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 36. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: GLASS

			Visual Examination Results									
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
37-02339	6-month	440	--	--	--	--	--	--	--	18.0	Yes	Yes
28-00755	6-month	440	--	--	--	--	--	--	--	8.5	Yes	Yes
12-11241	6-month	440	--	--	--	--	--	--	--	12.75	Yes	Yes
37-02336	6-month	440	--	--	--	--	--	--	--	28.5	Yes	Yes
02-34934	3-year	440	--	Y*	--	--	--	--	--	1.75	Yes	Yes
29-00030	3-year	440	--	Y*	--	--	--	--	--	16.0	Yes	Yes
37-02018	3-year	440	--	Y*	--	--	--	--	--	32.0	Yes	Yes
76-01366	3-year	440	--	Y*	--	--	--	--	--	5.0	Yes	Yes
02-10576	12-year	442	440	Y*	--	--	--	--	--	8.6	Yes	Yes
36-00628	12-year	440	--	Y*	--	--	--	--	--	1.0	Yes	Yes
36-00805	12-year	440	--	Y*	--	--	--	--	--	24.5	Yes	Yes
89-04043	12-year	441	--	--	--	--	--	--	--	8.2	Yes	Yes
89-04071	12-year	441	--	--	--	--	--	--	--	16.4	Yes	Yes
89-04114	12-year	441	--	--	--	--	--	--	--	18.8	Yes	Yes
89-04072	12-year	441	--	Y*	--	--	--	--	--	8.5	Yes	Yes
02-39564	6-month	442	--	--	--	--	--	--	--	16.0	Yes	Yes
02-39533	6-month	442	--	--	--	--	--	--	--	14.0	Yes	Yes
02-39803	6-month	442	--	--	--	--	--	--	--	14.0	Yes	Yes
02-39805	6-month	442	--	--	--	--	--	--	--	14.5	Yes	Yes
19-02730	6-month	442	--	--	--	--	--	--	--	11.3	Yes	Yes
05-01596	3-year	442	--	Y*	--	--	--	--	--	15.0	Yes	Yes
05-01772	3-year	442	--	--	--	--	--	--	--	16.5	Yes	Yes
17-04562	3-year	442	441	--	Y	--	--	--	--	16.0	No	Yes
22-00722	3-year	442	--	--	--	--	--	--	--	21.25	Yes	Yes
42-00226	3-year	442	--	Y*	--	--	--	--	--	16.5	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 37. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: NONMETAL MOLDS AND CRUCIBLES

Container ID No.	Time Period	Content Code	Proper[b] Content Code	Visual Examination Results						Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
				Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?			
12-11023	6-month	300	--	Y*	--	--	Y*	--	--	144.25	Yes	Yes
19-01811	6-month	300	--	Y*	--	--	--	--	--	58.75	Yes	Yes
12-11229	6-month	300	--	Y*	--	--	--	--	--	54.25	Yes	Yes
41-01531	6-month	300	--	Y*	--	--	--	--	--	93.75	Yes	Yes
12-09189	3-year	300	--	Y*	--	--	--	--	--	157.75	Yes	Yes
12-09295	3-year	300	--	Y*	--	--	Y*	--	--	218.5	Yes	Yes
12-09161	3-year	300	--	Y*	--	--	--	--	--	175.75	Yes	Yes
12-09300	3-year	300	--	Y*	--	--	--	--	--	192.5	Yes	Yes
11-01625	6-month	301	--	Y*	--	--	--	--	--	143.25	Yes	Yes
32-01049	6-month	312	--	Y*	--	--	--	--	--	14.75	Yes	Yes
32-01055	6-month	312	--	Y*	--	--	--	--	--	23.5	Yes[e]	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

e. Drum contains fissile material in excess of WIPP-WAC limits.

TABLE 38. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: UNCEMENTED SLUDGES

			Visual Examination Results									
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
7412-03121	6-month	1	--	--	Y	Y*	--	--	--	4.5	No	No
7412-03125	6-month	1	--	--	Y	Y*	--	--	--	4.5	No	Yes
7412-03127	6-month	1	--	--	--	Y*	--	--	--	4.5	Yes	Yes
7412-03128	6-month	1	--	--	Y	Y*	--	--	--	4.5	No	No
7412-00483	3-year	1	--	--	--	Y*	--	--	--	4.5	Yes	Yes
7412-00636	3-year	1	--	--	--	Y*	--	--	--	5.5	Yes	Yes
7412-00766	3-year	1	--	--	--	Y*	--	--	--	4.5	Yes	Yes
7412-00797	3-year	1	--	--	--	Y*	--	--	--	4.5	Yes	Yes
741-12404	12-year	1	--	--	Y	Y*	--	--	--	4.0	No	No
741-12411	12-year	1	--	--	--	Y*	--	--	--	4.0	Yes	Yes
741-12794	12-year	1	--	--	--	Y*	--	--	--	4.0	Yes	Yes
741-12847	12-year	1	--	--	--	Y*	--	--	--	4.0	Yes	Yes
741-12858	12-year	1	--	--	--	Y*	--	--	--	4.0	Yes	Yes
742-26150	6-month	2	--	--	Y	Y*	--	--	--	2.0	No	No
742-26152	6-month	2	--	--	Y	Y*	--	--	--	2.0	No	Yes
742-26154	6-month	2	--	--	Y	Y*	--	--	--	2.0	No	Yes
742-21396	12-year	2	--	--	--	Y*	--	--	--	1.0	Yes	Yes
742-21440	12-year	2	--	--	Y	Y*	--	--	--	1.5	No	No
742-21594	12-year	2	--	--	--	Y*	--	--	--	1.0	Yes	No
742-21640	12-year	2	--	--	Y	Y*	--	--	--	1.0	No	Yes
743-16469	6-month	3	--	--	Y	Y*	--	--	--	221.0	No	No
743-16487	6-month	3	--	--	Y	Y*	--	--	--	265.0	No	Yes
743-16656	6-month	3	--	--	--	Y*	--	--	--	200.0	Yes	Yes
743-16733	6-month	3	--	--	--	Y*	--	--	--	306.0	Yes	Yes
743-15075	3-year	3	--	--	Y	Y*	--	--	--	288.75	No	No
743-15037	3-year	3	--	--	--	Y*	--	--	--	263.0	Yes	Yes
743-15312	3-year	3	--	--	Y	Y*	--	--	--	326.0	No	No
743-15023	3-year	3	--	--	Y	Y*	--	--	--	285.25	No	Yes
743-11586	12-year	3	--	--	Y	Y*	--	--	--	3.0	No	No
743-11682	12-year	3	--	--	Y	Y*	--	--	--	3.0	No	Yes
743-11838	12-year	3	--	--	--	Y*	--	--	--	3.0	Yes	Yes
743-11870	12-year	3	--	--	--	Y*	--	--	--	3.0	Yes	Yes

TABLE 38. (Continued)

WASTE FORM CATEGORY: UNCEMENTED SLUDGES

Container ID No.	Time Period	Content Code	Proper[b] Content Code	Visual Examination Results								
				Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
747-00944	6-month	7	--	--	Y	Y*	--	--	--	4.5	No	Yes
747-01488	6-month	7	--	--	Y	Y*	--	--	--	4.5	No	No
747-01492	6-month	7	--	--	Y	Y*	--	--	--	4.5	No	No
747-01531	6-month	7	--	--	Y	Y*	--	--	--	4.5	No	No
02-40342	6-month	292	--	--	Y	Y*	--	--	--	31.25	No	No
02-39229	6-month	292	--	--	Y	Y*	--	--	--	30.25	No	No
02-39213	6-month	292	--	--	--	Y*	--	--	--	26.75	Yes	Yes
02-39435	6-month	292	--	--	Y	Y*	--	--	--	20.75	No	No
40-00063	3-year	292	--	--	Y	Y*	--	--	--	37.25	No	No
76-01642	3-year	292	--	Y*	--	Y*	--	--	--	5.0	Yes	No
76-01643	3-year	292	--	Y	--	--	--	--	--	5.5	No	No
76-01644	3-year	292	--	Y	--	--	--	--	--	5.0	No	No

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 39. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: CEMENTED SLUDGES AND SOLUTIONS

			Visual Examination Results										
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
744-3829	6-month	4	--	--	--	--	--	--	--	4.5	Yes	Yes
744-3837	6-month	4	--	--	--	--	--	--	--	4.5	Yes	Yes
744-3841	6-month	4	--	--	--	--	--	--	--	4.5	Yes	Yes
744-3846	6-month	4	--	--	--	--	--	--	--	4.5	Yes	Yes
744-3848	6-month	4	--	--	--	--	--	--	--	4.5	Yes	Yes
744-2368	12-year	4	--	--	--	--	--	--	--	4.0	Yes	Yes
744-2376	12-year	4	--	--	Y	--	--	--	--	4.0	No	Yes
744-2389	12-year	4	--	--	--	--	--	--	--	4.0	Yes	No
744-2430	12-year	4	--	--	--	Y*	--	--	--	4.0	Yes	Yes
744-2442	12-year	4	--	--	--	--	--	--	--	4.0	Yes	Yes
									--	4.0	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 40. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: CONCRETE, BRICK

			Visual Examination Results									
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
02-45508	6-month	371	--	Y*	--	--	--	--	--	14.2	Yes	Yes
02-21470	6-month	371	--	Y*	--	--	--	--	--	30.0	Yes	Yes
01-08836	12-year	371	--	Y*	--	--	--	--	--	20.4	Yes	Yes
02-10586	12-year	371	--	Y*	--	--	--	--	--	17.2	Yes	Yes
02-11061	12-year	371	--	Y*	--	--	--	--	--	17.0	Yes	Yes
02-11379	12-year	371	--	Y*	--	--	--	--	--	11.0	Yes	Yes
02-44115	6-month	377	--	Y*	--	--	--	--	--	16.4	Yes	Yes
01-08083	12-year	960	--	Y*	--	--	--	--	--	1.0	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 41. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: SALTS

Container ID No.	Time Period	Content Code	Visual Examination Results: Proper Content Code[b]	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
01-05779	6-month	409	--	Y*	--	--	--	--	--	3.0	Yes[e]	Yes
03-02724	6-month	409	--	Y*	--	-	--	--	--	18.2	Yes	Yes
01-05486	6-month	414	--	Y*	--	Y*	--	--	--	16.0	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

e. Drum contains fissile material in excess of WIPP-WAC limits.

TABLE 42. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: LEADED RUBBER

Container ID No.	Time Period	Content Code	Visual Examination Results									
			Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
19-01831	6-month	339	--	--	--	--	--	--	--	35.0	Yes	Yes
19-01840	6-month	339	--	--	--	--	--	--	--	5.5	Yes	Yes
19-01845	6-month	339	--	--	--	--	--	--	--	1.5	Yes	Yes
19-01884	6-month	339	--	--	--	--	--	--	--	11.0	Yes	Yes
19-01472	3-year	339	--	--	--	--	--	--	--	6.75	Yes	Yes
22-00224	12-year	339	--	--	--	--	--	--	--	9.3	Yes	Yes
23-00435	12-year	339	--	--	--	--	--	--	--	20.5	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 43. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: BENELEX, PLEXIGLAS

			Visual Examination Results									
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
02-10126	12 year	302	--	--	--	--	--	--	--	11.0	Yes	Yes
02-10283	12 year	302	--	--	--	--	--	--	--	14.5	Yes	Yes
02-10436	12 year	302	--	--	--	--	--	--	--	9.8	Yes	Yes
02-10502	12 year	440	302	--	--	--	--	--	--	13.0	Yes	Yes
01-08991	12 year	302	--	--	--	--	--	--	--	18.0	Yes	Yes
02-10316	12 year	302	--	--	--	--	--	--	--	10.9	Yes	Yes
01-08266	12 year	464	--	--	Y	--	--	--	--	16.5	No	No

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 44. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: RESINS

Container ID No.	Time Period	Content Code	Visual Examination Results									
			Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
02-39189	6-month	432	--	Y*	--	--	--	--	--	31.5	Yes	Yes
02-39215	6-month	432	--	--	Y	--	--	--	--	35.0	No	Yes
02-39296	6-month	432	--	--	--	--	--	--	--	30.0	Yes	Yes
02-44427	6-month	432	--	Y*	--	--	--	--	--	6.9	Yes	Yes
02-34829	3-year	432	--	Y*	--	--	--	--	--	31.5	Yes	Yes
02-34844	3-year	432	--	Y*	--	--	--	--	--	13.0	Yes	Yes
02-34830	3-year	432	--	Y*	--	--	--	--	--	29.75	Yes	Yes
01-08811	12-year	371	432	Y*	--	--	--	--	--	21.7	Yes	Yes
01-08956	12-year	432	--	Y*	--	--	--	--	--	22.7	Yes	Yes
02-10070	12-year	432	--	Y*	--	--	--	--	--	19.9	Yes	Yes
02-10195	12-year	432	--	Y*	Y	--	--	--	--	24.2	No	Yes
02-10286	12-year	432	--	Y*	--	--	--	--	--	22.2	Yes	Yes
02-10288	12-year	432	--	Y*	Y	--	--	--	--	21.7	No	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 45. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: MIXED WASTE--PAPER, METAL, GLASS, ETC.

			Visual Examination Results									
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
01-08068	12 year	241	--	--	Y	--	--	--	--	37.5	No	No
1371-586	12 year	950	--	Y*	--	--	--	--	--	169.8	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 46. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: FILTERS

			Visual Examination Results									
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
89-03509	12 year	338	--	Y*	--	--	--	--	--	4.0	Yes	No

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix B.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

2.5.1 Immobilization

A total of 67 waste containers were sampled for particulates. Of these, two had particulates in excess of the WIPP-WAC requirement. Both waste drums contained 3-year-old Code 292 sludge in bulk form.

The sludge was a mixture of dry Portland cement and what appeared to be fly-ash from the aqueous off-gas treatment system for the plutonium recovery incinerator. Table 47 is a summary of all particle size analyses. The weight percent particulates indicated is based on the waste matrix weight.

2.5.2 Free Liquids

A total of 50 of the examined waste containers were found to contain free liquids. Of the 50 waste containers, 24 (48%) were found in the uncemented waste form category, 14 (28%) in the combustible waste form category, and 5 (10%) in the metal waste form category. The largest volumes of free liquid, up to 24.0 L, were found in the uncemented sludge category. Table 48 summarizes the analytical results on free liquids found during the visual examination of the waste.

2.5.3 Sludge

A total of 48 sludge pH analyses were performed. Results of the analyses are found in Table 49. As can be seen in Table 49, the majority of results indicate the sludge is either neutral or slightly basic. Although not required, the major and minor composition of some of the sludges was determined by IR spectroscopy (see Table 50). The 90-mil rigid polyethylene drum liner or the drum and box plastic bags were considered sufficient to provide corrosion protection. If sludges were present in the waste, the presence of the liner or bags was used to determine that the sludge criterion was met.

TABLE 47. SUMMARY OF PARTICLE SIZE ANALYSES

Waste Form Category	Container ID Number	Content Code	Time Period	Total Wt% <212µm	Total Wt% <10µm
Combustibles	42-00192	330	6-month	0.009	<0.001
	38-00101	330	6-month	0.071	<0.001
	389-90609	330	6-month	0..001	<0.001
	89-03607	330	12-year	0.36	<0.001
	744-3789	337	6-month	0.33	0.005
	389-85743	337	12-year	0.043	<0.001
Metals	55-00290	320	3-year	0.025	0.002
	78-00199	480	6-month	0.87	<0.001
	31-00939	480	6-month	0.001	<0.001
	45-00528	480	6-month	0.62	<0.001
	389-90895	480	6-month	0.013	<0.001
	389-90828	480	6-month	1.50	0.006
	19-01919	481	6-month	0.09	<0.001
	02-35083	480	3-year	0.37	0.006
	42-00209	480	3-year	0.022	0.001
	02-12224	480	12-year	2.61	0.002
	02-10128	480	12-year	0.008	<0.001
	25-00036	480	12-year	0.96	0.004
	389-85811	480	12-year	<0.001	<0.001
Glass	02-34934	440	3-year	0.002	<0.001
	29-00030	440	3-year	0.375	0.017
	37-02018	440	3-year	0.286	0.002
	76-01366	440	3-year	0.006	<0.001
	36-00628	440	12-year	0.32	<0.001
	02-10576	440	12-year	0.8	0.030
	36-00805	441	12-year	0.17	<0.001
	89-04072	441	12-year	<0.001	<0.001
	05-01596	442	3-year	0.022	0.002
	42-00226	442	3-year	0.010	<0.001
Nonmetal Molds and Crucibles	12-11023	300	6-month	0.039	<0.001
	19-01811	300	6-month	0.013	<0.001
	12-11229	300	6-month	0.018	<0.001
	41-01531	300	6-month	0.012	<0.001

TABLE 47. (Continued)

Waste Form Category	Container ID Number	Content Code	Time Period	Total Wt% <212µm	Total Wt% <10µm
Nonmetal Molds and Crucibles	12-09189	300	3-year	0.020	<0.001
	12-09295	300	3-year	0.022	<0.001
	12-09161	300	3-year	0.016	<0.001
	12-09300	300	3-year	0.033	<0.001
	11-01625	301	6-month	0.014	<0.001
	32-01049	312	6-month	0.16	0.003
	32-01055	312	6-month	11.56	0.069
Uncemented Sludges	76-01642	292	3-year	1.40	0.20
	76-01643	292	3-year	15.7	1.20
	76-01644	292	3-year	26.6	2.30
Concrete, Brick	02-21470	371	6-month	0.11	0.002
	02-11061	371	12-year	0.11	0.001
	02-10586	371	12-year	0.38	0.001
	01-08836	371	12-year	0.030	<0.001
	02-11379	371	12-year	1.09	0.032
	01-08083	960	12-year	0.067	<0.001
	02-44115	337	6-month	0.529	0.001
	02-44115	337	6-month	0.295	<0.001
Salts	01-05779	409	6-month	0.89	0.003
	01-05486	414	6-month	2.24	0.010
	03-02724	409	6-month	0.66	<0.001
Resins	02-39189	432	6-month	<0.001	<0.001
	02-34829	432	3-year	0.042	0.002
	02-34844	432	3-year	0.095	0.001
	02-34830	432	3-year	1.09	0.011
	02-10288	432	12-year	0.037	<0.001
	02-10070	432	12-year	0.015	<0.001
	02-10286	432	12-year	0.001	<0.001
	01-08956	432	12-year	0.024	<0.001
	02-10195	432	12-year	<0.001	<0.001
	01-08811	432	12-year	<0.001	<0.001
	02-44427	432	6-month	0.232	<0.001
Mixed Waste	1371-586	950	12-year	0.002	<0.001
Filters	89-03509	338	12-year	0.11	0.001

TABLE 48. SUMMARY OF FREE LIQUID ANALYSES

Waste Form Category	Container ID Number	Content Code	Time Period	Total Volume (mL)	pH	Liquid Composition
Combustibles	02-39453	328	6-month	4	12	Major: carbonates and/or nitrates; minor:water
	02-39481	328	6-month	68	12	Major: water; minor: carbonates, silicates
	389-90417	330	6-month	150	8	Water, organic material (possibly polyacrylamide)
	389-90609	330	6-month	68	7	Major: water; minor: silicates
	23-01599	336	6-month	188	7	Freon TF, unidentified oil
	47-00256	336	6-month	--	--	No laboratory results received
	744-3792	337	6-month	20[a]	12	Major: water; minor: carbonates and/or nitrates
					12	Major: water; minor: carbonates
					12	Carbonates and/or nitrates, water
	744-3823	337	6-month	12[a]	7	Major: water; minor: silicates
	744-3789	337	6-month	1[a]	12	Water, carbonates and/or nitrates
	65-00137	336	12-year	20	5	Water, flourides, sulfates, nitrates, trace organics (outside of rigid liner)
	90-00039	336	12-year	295	--	No sample taken-hand lotion
	746-2906	900	12-year	15	12	Water, silicates, carbonates, trace organics, nitrates (outside of rigid liner)
	746-2918	900	12-year	10	--	No sample taken-liquid appeared to be water or condensation outside of rigid liner
	389-85743	337	12-year	1,400	--	No sample taken-liquid was very viscous partially hardened strippable coating
Metals	389-90895	480	6-month	60	7	Chlorinated paraffin oil, unidentified ester
	389-90828	480	6-month	10	7	Alkyl phenol polyoxyethylene, unidentified oil
	78-00199	480	6-month	250	--	WD-40^{R}-glyceryl fatty esters, C_9 & C_{10} isoparaffin, solvent, Freon 12, Dykem^{R} steel blue-butyl acetate, ethanol, nitrocellulose, stannous oxide.
	389-85811	480	12-year	3,100	7	Water, silicates, carbonates, trace organics, nitrates
	389-20305	480	6-month	5	--	Liquid was several drops of water from coils of heat exchanger
Uncemented Sludges	02-40342	292	6-month	165	12	Major: water; minor: carbonates
					12	Major: water; minor: carbonates, silicates and/or sulfates, unidentified organic
					12	Major: water; minor: carbonates and/or nitrates
					12	Major: water, minor: carbonates and/or nitrates
	02-39229	292	6-month	966	12	Major: water; minor: carbonates (both samples)
	02-39435	292	6-month	410	12	Major: water; minor: carbonates and/or nitrates, silicates and/or sulfates
	40-00063	292	3-year	135	12	Major: water; minor: carbonates and unknown organics
					12	Major: water, unidentified oil and ester, minor: carbonates

TABLE 48. (Continued)

Waste Form Category	Container ID Number	Content Code	Time Period	Total Volume (mL)	pH	Liquid Composition
	743-15075	3	3-year	6000	12	Grease, trichloroethane, and unidentified carbonyl containing compound
	743-15312	3	3-year	2450	7	Oil and unidentified ester
	743-15023	3	3-year	400	--	Light hydrocarbons, grease, and alkyl phenol polyoxyethylene
	7412-03121	1	6-month	17350	12	Water, Nitrates
	7412-03125	1	6-month	507	12	Water, Nitrates
	7412-03128	1	6-month	5500	12	Water, sulfates and/or silicates nitrates
	742-26150	2	6-month	18950	12	Water, nitrates, oxides. Sulfates and/or silicates
	742-26152	2	6-month	1425	12	Water, carbonates and/or nitrates silicates and/or sulfates
	742-26154	2	6-month	950	12	Water, carbonates and/or nitrates sulfates and/or silicates
	747-00944	7	6-month	1465	12	Water, unknown organics, sulfates and/or silicates, carbonates and/or nitrates
	747-01488	7	6-month	22250	12	Water, carbonates and/or nitrates sulfates and/or silicates
					7	Unknown organic, carbonates and/or nitrates; sulfates and/or silicates
	747-01492	7	6-month	15500	12	Water, carbonates and/or nitrates
	747-01531	7	6-month	24000	12	Water, unknown organic carbonates and/or nitrates
	743-16469	3	6-month	3000	7	Unidentified oil, unidentified ester
	743-16487	3	6-month	1000	12	Unidentified oil, unidentified ester
	741-12404	1	12-year	430	12	Water, sodium nitrate, unidentified basic compound
	742-21640	2	12-year	2700	8	Water, sodium nitrate
	742-21440	2	12-year	22000	12	Water, sodium nitrate, unidentified basic compound
	743-11682	3	12-year	130	5	Paraffinic base oil, carbon tetrachloride, trichloroethylene, small water layer
	743-11586	3	12-year	12250	5	Paraffinic base oil, carbon tetrachloride, trichloroethylene, perchuorethylene, unidentified ester oil, small water layer
				4000	3	Paraffinic base oil, carbon tetrachloride, trichloroethylene, perchlorethylene, small water layer (in bottle)
Cemented Sludges and Solutions	744-2376	4	12-year	20	--	No sample taken-liquid appeared to be water or condensation outside of rigid liner
Glass	17-04562	442	3-year	--[b]	--	Grease and phthalate ester
Benelex, Plexiglas	01-08260	464	12-year	1400	6	Water, carbonates, sulfates, trace organic (outside of rigid liner)
Resins	02-39215	432	6-month	75	12	Major: water; minor: carbonates and/or nitrates, unidentified organic
	02-10288	432	12-year	520	7	Water, sodium nitrate
	02-10195	432	12-year	50	--	Could not collect sample
Mixed Waste	01-08068	241	12-year	22700	--	No sample taken-too high dose rate

a. Sample volume--actual volume measurement not recorded.

b. Not measurable--oil film.

TABLE 49. SUMMARY OF SLUDGE pH ANALYSES

Waste Form Category	Container ID Number	Content Code	Time Period	pH
Combustibles	02-39481	328	6-month	12
	76-02898	330	6-month	7
	744-02898	330	6-month	12
				12
Uncemented Sludges	7412-03121	1	6-month	12
	7412-03125	1	6-month	12
	7412-03127	1	6-month	12
	7412-03128	1	6-month	12
	7412-00483	1	3-year	12
	7412-00636	1	3-year	12
	7412-00766	1	3-year	12
	7412-00797	1	3-year	--
	741-12411	1	12-year	6
	741-12404	1	12-year	8
	741-12847	1	12-year	8
	741-12794	1	12-year	8
	741-12858	1	12-year	8
	742-26150	2	6-month	12
	742-26152	2	6-month	12
	742-26154	2	6-month	12
	742-21640	2	12-year	8
	742-21594	2	12-year	8
	743-21440	2	12-year	8
	742-21396	2	12-year	8
	743-16649	3	6-month	12
	743-16487	3	6-month	12
	743-16656	3	6-month	12
	743-16733	3	6-month	12
	743-15075	3	3-year	12
	743-15037	3	3-year	--
	743-15312	3	3-year	7
	743-15023	3	3-year	--

TABLE 49. (Continued)

Waste Form Category	Container I.D. Number	Content Code	Time Period	pH
	743-11682	3	12-year	--
	743-11870	3	12-year	--
	743-11586	3	12-year	--
	743-11838	3	12-year	--
	747-00944	7	6-month	12
	747-01488	7	6-month	12
	747-01492	7	6-month	12
	747-01531	7	6-month	12
	02-40432	292	6-month	12
	02-39229	292	6-month	12
	02-39213	292	6-month	12
	02-39435	292	6-month	12
	40-00063	292	3-year	12
Cemented Sludges and Solutions	744-2430	4	12-year	7.5

TABLE 50. SUMMARY OF SLUDGE COMPOSITIONAL ANALYSES

Waste Form Category	Container ID Number	Content Code	Time Period	pH	Sludge Composition
Combustibles	02-39481	328	6-month	12	Major: silicates and/or sulfates; minor: water
	76-02898	330	6-month	7	Major: silica; minor: water, unidentified organic
	744-3792	337	6-month	12	Major: nitrates and/or carbonates; minor: water
				12	Major: carbonates; minor: water
Uncemented Sludges	7412-00483	1	3-year	12	Major: carbonates and/or nitrates; minor: water
	7412-00636	1	3-year	12	Major: carbonates and/or nitrates, silicates and/or sulfates; Minor: water
	7412-00766	1	3-year	12	Major: carbonates and/or nitrates, silicates, minor: water
	7412-00797	1	3-year	--	No laboratory results received
	743-15075	3	3-year	12	Major: carbonates and/or nitrates, and silicates and/or sulfates; minor: water
	743-15037	3	3-year	--	No laboratory results received
	743-15312	3	3-year	7	Major: silicates and/or sulfates, carbonates and/or nitrates; minor: water
	743-15023	3	3-year	--	No sludge results received
	02-40432	292	6-month	12	Major: carbonates, silicates and/or sulfates; minor: water
	02-39229	292	6-month	12	Major: silicates and unknown inorganics; minor: water
	02-39213	292	6-month	12	Major: silicates and/or sulfates; minor: water
	02-39435	292	6-month	12	Major: silicates and carbonates; minor: water
	40-00063	292	3-year	12	Major: silicates; minor: water

2.5.4 Pyrophoric Materials

No evidence of spontaneous combustion was found in any waste container. Two Nonmetal Mold and Crucible (Code 300) waste drums (Drum No. 12-11023, a 6-month-old, and Drum No. 12-09295, 3-year-old) contained small amounts of plutonium metal, which sparked when struck by a steel knife, adhered to pieces of graphite molds. Both drums contained much less plutonium than the 1-wt% limit allowed by the WIPP-WAC. Also, the salt waste drums are expected to contain 1 - 3% calcium metal. The salt waste is generated from pyrochemical operations. The calcium metal, which is distributed as small beads throughout the salt matrix, was not considered hazardous. The drums were considered certifiable since there was no evidence of spontaneous combustion.

2.5.5 Explosives and Compressed Gases

No explosives of any type were found in the visually examined waste containers. Pressurized aerosol cans were found in two waste containers. Drum No. 78-00199 (metal, Code 480, 6-month-old) contained one aerosol can of WD-40 (tradename). Box No. 389-90895 (metal, Code 480, 6-month-old) contained two pressurized aerosol cans. One aerosol can contained spray paint, the other contained shaving cream.

2.5.6 Toxic and Corrosive Materials

All waste containers were examined for toxic and corrosive materials. Liquids and solids were collected and analyzed (see Tables 48 and 50 for liquid and sludge analytical results).

No Poison A or Poison B materials were identified in the examined waste containers.

2.5.7 Combustibility

Although the WIPP-WAC no longer requires identifying waste containers with more than 25 volume percent combustibles, these data are included in Appendix B for each waste container.

2.5.8 Gas Generation

The organic content of each waste container was collected and weighed (excluding the 90-mil rigid liner in drums). This information is included in Tables 34 through 46.

2.5.9 Fissile Material

Two waste drums were found to contain greater than 200 g plutonium when reassayed at RFP. Drum No. 32-01055 (Content Code 312, Coarse Graphite) had an original assay of 35 grams plutonium. Reassay of the drum contents indicated 191 to 313 grams plutonium, depending on the assay method used (see Section 2.1.4.1). Drum No. 01-05779 (Content Code 409, Molten Salt) had an original assay of 190 g plutonium. Upon reassay, using a high resolution gamma-scan can counter, 208 g of plutonium was determined to be present.

3. LANL DATA

This section contains the data obtained from sampling and characterizing ^{239}Pu-and ^{238}Pu-contaminated wastes at LANL. A total of 18 ^{238}Pu waste drums (six 8-month-old, six 3-year-old, and six 9-year-old) and 23 ^{238}Pu waste drums (three newly generated, 20 1-year old and four ~2.5-year-old) were gas-sampled. All 18 ^{238}Pu drums and 15 of the ^{239}Pu drums were opened and examined. The ^{239}Pu-contaminated wastes were included to allow LANL to gain experience in opening and examining lower-activity wastes in the LANL Size Reduction Facility prior to opening and examining higher-activity (^{238}Pu) wastes. Drums selected for sampling included known gas-generating waste forms. The gas sampling, opening and examination of the waste (Task 9 of the implementation plan[2]) was conducted using the guidelines established in Section 2.1.4 of this report.

3.1 Waste Retrieval

A total of eighteen 30-gallon drums containing ^{238}Pu-contaminated waste were retrieved from the Los Alamos Waste Disposal Site (Area G). Six 30-gallon drums approximately 8 months old had been stored in a shed at Area G and were readily available for study. A second group of six 30-gallon drums were retrieved from concrete casks in Trench "A" at Area G. These were approximately 9 years old. The third group of six 30-gallon drums were recovered from similar casks in Trench "C" at Area G. These were approximately 39 months old. The 39-month-old drums were all in excellent condition, with no rusting apparent. All tags and stenciled labels were in excellent condition and completely legible. In contrast, the 9-year-old drums were rusted. Several drums had water standing on the lids when the casks were opened. It is believed that wet weather caused rain to puddle on the cask lids before the trench decking and tuff overburden had been put in place, and the water was able to saturate the lids and trickle through into the cask. However, in spite of their

apparent rusted condition, there was no serous corrosive damage. The integrity of the containers was maintained as shown by later examination. Drum labels and identifying marks generally were intact and legible.

A total of 23 ^{239}Pu-contaminated waste drums were retrieved to support the sampling program. The 8-month-old waste was removed from aboveground TRU Storage Pad No. 2 and moved inside the storage shed at Area G. Four additional drums, which were 26 months old, were recovered from Cell 2, Pit 9, the first retrievable storage facility used at Los Alamos for TRU waste. Except for periodic monitoring of air in this cell, it had been closed from the summer of 1977 until June 1981 when the cell was penetrated to determine waste container condition. The drums were found to be coated with finely divided tuff. There were a few small areas of light rust on the drums, but no significant corrosion. The drums overall were in excellent condition.

During reclosure of Cell 2 in 1981, four 55-gallon drums (two coated with corrosion inhibitors and two uncoated) were placed at the bottom of the access shaft. When the TRU Waste Sampling Program was initiated in 1983, it was decided to include these four drums in the group of drums to be evaluated. When these four drums were recovered, there was no discernible difference in condition between the coated and uncoated drums.

During reopening of Cell 2, airborne activity was monitored and a gas sample was taken for compositional analysis. The 24-hour constant air monitor filter sample showed 20,000 counts per minute alpha activity. The activity was determined to be radon-thoron. The filter was allowed to decay for 24 hours, after which no activity was found. A sample of the cell atmosphere indicated elevated hydrogen levels. Although the level did not constitute a hazard, the cell air was purged prior to entering the cell. Results of the gas sampling, including results from the 1981 cell penetration, are in Table 51.

TABLE 51. RESULTS OF GAS ANALYSES FOR LANL CELL 2, PIT 9, AREA G

Component	June 1981 (vol %)	August 1983 (vol %)
Hydrogen	0.7	2
Helium	<0.1	<0.1
Carbon Monoxide	<0.1	<0.1
Nitrogen	79	78
Methane	<0.1	<0.1
Oxygen	16	19
Argon	0.9	0.9
Carbon Dioxide	3	0.1

3.2 Gas Sampling and Analysis

A total of 18 30-gallon drums containing ^{239}Pu-contaminated waste and 23 55-gallon drums containing ^{238}Pu-contaminated waste were gas-sampled. The gas sampling was consistent with the quality assurance requirements identified in Section 1.3. The gas samples were analyzed by mass spectrometry. The gas pressure in each drum was also measured. As expected, the sampled LANL drums were at atmospheric pressure. Each drum is sealed with a sponge-rubber gasket which is liquid- and particle-tight, but allows gas in excess of atmospheric pressure to diffuse out of the container.

3.2.1 Gas Sampling Results

The gas sampling results are shown in Tables 52 to 60. The results are separated by waste form category and by contaminant (^{238}Pu, ^{239}Pu).

Results of the analysis conducted on the EG&G supplied gas standard are presented in Table 61. The certified standard (Bottle No. 1) contained 2.56% H_2, 12.0% CO_2, 18.7% O_2, and 66.7% N_2. The relative error for the LANL analysis is:

H_2 = +3.52%, CO_2 = -3.33%, O_2 = +0.52%, and N_2 = -1.50% .

For ^{239}Pu-contaminated wastes, the maximum hydrogen content found, for any aged waste, was 1.4 vol%. This would indicate that the LANL method for sealing drums with semipermeable sponge rubber gaskets maintains hydrogen levels at safe concentrations. These drums should not represent a transportation problem.

However, of the 18 ^{238}Pu waste drums sampled, three of the six 8-month-old drums contained hazardous gas mixtures that could be flammable or explosive if exposed to an ignition source. One drum (No. BFB-101) of combustible waste contained 7.1% H_2 and 15.4% O_2. Two drums

TABLE 52. GAS SAMPLING RESULTS

WASTE FORM CATEGORY: COMBUSTIBLES (LAML-Pu^{238})

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total Activity (Ci)	Measured N (Total)[d]	Expected N (Total)[d]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[a]	Trichl[b]	Other H.C.[c]	(mm Hg)	Gauge (mm Hg)					
BFB-101	8 mths	A-1b	7.1	15.4	68.7	0.8	4.8	2.9	--	0.3	--	--	580	--	107[e]	368	167.0	0.40	41.6
BFB-27	35 mths	A-18	--	9.3	79.2	1.0	10.1	0.4	--	--	--	--	580	--	105[e]	1,220	5.80	0.34	4.8
BFB-14	36 mths	A-14	--	14.7	79.3	1.0	4.6	0.4	--	--	--	--	580	--	107[e]	1,271	2.35	0.16	2.0
BFB-20	36 mths	A-1b	0.1	18.9	79.3	1.0	0.6	0.2	--	--	--	--	580	--	92[e]	1,265	0.0	0.02	<0.01

a. Hydrocarbons (saturated)--methane through propane.

b. Abbreviation for 1,1,1-trichloroethane.

c. Other hydrocarbons--as specified.

d. N = moles of radiolytic produced gas.

e. Void volume was calculated based on weight and density of material in the drum.

TABLE 53. GAS SAMPLING RESULTS

WASTE FORM CATEGORY: METALS (LAML-Pu^{238})

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total Activity (Ci)	Measured N (Total)[d]	Expected N (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[a]	Trichl[b]	Other H.C.[c]	(mm Hg)	Gauge (mm Hg)					
BFB-19	37 mths	A-61	0.1	18.0	79.8	1.0	1.1	--	--	--	--	--	--	--	--	1,265	7.18	--	--
BFB-235	111 mths	A-61	0.1	18.1	80.5	1.0	0.3	--	--	--	--	--	--	--	--	3,365	29.0	--	--
BFB-237	111 mths	A-61	--	14.2	83.4	1.0	1.3	--	--	--	--	--	--	--	--	3,365	48.3	--	--
BFB-238	111 mths	A-61	--	17.1	81.5	1.0	0.3	--	--	--	--	--	--	--	--	3,365	0.0	--	--
BFB-239	111 mths	A-61	--	19.5	79.2	1.0	0.3	--	--	--	--	--	--	--	--	3,365	8.97	--	--
BFB-240	111 mths	A-61	--	18.2	80.2	1.0	0.5	--	--	--	--	--	--	--	--	3,365	15.2	--	--

a. Hydrocarbons (saturated)--methane through propane.

b. Abbreviation for 1,1,1-trichloroethane.

c. Other hydrocarbons--as specified.

d. N = moles of radiolytic produced gas.

e. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

TABLE 54. GAS SAMPLING RESULTS

WASTE FORM CATEGORY: MIXED WASTE (LAML-$Pu^{2.5B}$)

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total Activity (Ci)	Measured N (Total)[d]	Expected N (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[a]	Trichl[b]	Other H.C.[c]	(mm Hg)	Gauge (mm Hg)					
BFB-92	7 mths	A-19	1.0	15.8	77.5	1.0	3.9	0.7	--	0.1	--	--	--	--	--	356	60.7	--	--
BFB-102	7 mths	A-19	1.6	18.0	76.5	0.9	1.9	1.0	--	0.1	--	--	580	0	106[f]	353	33.1	0.12	--[e]
BFB-103	7 mths	A-19	3.4	16.3	74.0	0.9	3.3	1.8	--	0.2	--	--	--	--	--	354	84.2	--	--
BFB-96	8 mths	A-19	6.6	16.2	69.7	0.9	3.8	2.4	--	0.4	--	--	--	--	--	377	139.0	--	--
BFB-97	8 mths	A-19	18.6	9.4	54.8	0.7	11.7	4.0	--	0.9	--	--	--	--	--	377	130.0	--	--
BFB-26	35 mths	A-19	--	8.7	79.2	1.0	10.5	0.6	--	--	--	--	580	0	104[f]	1,216	0.0	0.35	--[e]
BFB-12	39 mths	A-19	0.1	13.2	80.0	1.0	5.2	0.5	--	--	--	--	--	--	--	1,325	66.9	--	--
BFB-234	111 mths	A-1y	--	17.8	79.6	2.0	1.5	0.1	--	--	--	--	--	--	--	1,165	170.0	--	--

a. Hydrocarbons (saturated)--methane through propane.

b. Abbreviation for 1,1,1-trichloroethane.

c. Other hydrocarbons--as specified.

d. N = moles of radiolytic produced gas.

e. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

f. Void volume was calculated based on weight and density of material in the drum.

TABLE 55. GAS SAMPLING RESULTS

WASTE FORM CATEGORY: COMBUSTIBLES (LANL-Pu^{239})

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure						
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[a]	Trichl[b]	Other H.C.[c]	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[d]	Expected N (Total)[d]
010761	11 mth	A-14	0.0	18.3	78.9	1.0	1.6	0.2	--	--	--	--	--	--	--	354	0.0	--	--
010605	11 mth	A-15	1.4	16.7	77.4	0.9	3.6	0.0	--	--	--	--	580	0	214[e]	355	8.21	0.34	1.56
012223	11 mth	A-16	1.2	12.2	79.0	1.0	6.3	0.3	--	--	--	--	--	--	--	353	4.82	--	--
010753	11 mth	A-18	0.1	14.4	82.4	2.0	2.1	0.0	--	--	--	--	580	0	213[e]	354	3.18	0.15	0.60
007060	11 mth	A-18	0.8	14.1	79.2	1.0	4.0	0.9	--	--	--	--	580	0	200[e]	335	0.26	0.30	0.05
007226	11 mth	A-18	0.1	16.2	78.8	1.0	2.9	1.0	--	--	--	--	580	0	204[e]	335	0.03	0.19	0.01
010362	12 mth	A-18	0.2	17.6	78.9	1.0	0.5	0.0	--	--	--	--	--	--	--	361	2.87	--	--
010775	30 mth	A-60	0.0	19.6	78.7	1.0	0.7	0.0	--	--	--	--	--	--	--	957	3.14	--	--

a. Hydrocarbons (saturated)--methane through propane.

b. Abbreviation for 1,1,1-trichloroethane.

c. Other hydrocarbons--as specified.

d. N = moles of radiolytic produced gas.

e. Void volume was calculated based on weight and density of material in the drum.

TABLE 56. GAS SAMPLING RESULTS

WASTE FORM CATEGORY: METALS (LANL-Pu^{239})

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure						
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[a]	Trichl[b]	Other H.C.[c]	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[d]	Expected N (Total)[e]
010435	12-mths	A-52	0.2	19.5	78.8	1.0	0.5	--	--	--	--	--	--	--	--	360	2.89	--	--
010645	11-mths	A-61	0.1	19.4	78.6	1.0	0.7	0.1	--	--	--	--	--	--	--	354	8.65	--	--

a. Hydrocarbons (saturated)--methane through propane.

b. Abbreviation for 1,1,1-trichloroethane.

c. Other hydrocarbons--as specified.

d. N = moles of radiolytic produced gas.

e. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

TABLE 57. GAS SAMPLING RESULTS

WASTE FORM CATEGORY: CEMENTED SLUDGES (LAML-Pu^{239})

			Compositional Analysis (Volume %)										Drum Pressure						
Container ID No.	Time Period	Content Code	H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[a]	Trichl[b]	Other H.C.[c]	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total Activity (Ci)	Measured N (Total)[d]	Expected N (Total)[e]
50011	20 dys	A-76	0.1	19.1	79.8	0.9	0.1	<0.1	--	0.1	--	--	--	0.0	--	20	--	--	--
50016	20 dys	A-76	0.1	18.1	80.4	1.0	0.2	<0.1	--	0.2	--	--	--	0.0	--	20	--	--	--
50048	70 dys	A-76	0.1	20.2	78.3	0.9	0.2	<0.1	--	0.2	--	--	--	0.0	--	70	--	--	--
012124	1 yr	A-75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.02	--	--
012307	1 yr	A-75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.38	--	--
012327	1 yr	A-75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.04	--	--
012535	1 yr	A-75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.71	--	--

a. Hydrocarbons (saturated)--methane through propane.

b. Abbreviation for 1,1,1-trichloroethane.

c. Other hydrocarbons--as specified.

d. N = moles of radiolytic produced gas.

e. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

TABLE 58. GAS SAMPLING RESULTS

WASTE FORM CATEGORY: SALTS (LAML-Pu^{239})

			Compositional Analysis (Volume %)										Drum Pressure						
Container ID No.	Time Period	Content Code	H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[a]	Trichl[b]	Other H.C.[c]	(mm Hg)	Gauge (mm Hg)	Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total Activity (Ci)	Measured N (Total)[d]	Expected N (Total)[e]
012432	12 mths	A-27	0.1	12.9	73.8	0.8	12.3	--	--	--	--	--	--	--	--	353	5.63	--	--
012433	12 mths	A-27	0.3	17.0	80.9	1.0	0.8	0.3	--	--	--	--	--	--	--	353	0.59	--	--

a. Hydrocarbons (saturated)--methane through propane.

b. Abbreviation for 1,1,1-trichloroethane.

c. Other hydrocarbons--as specified.

d. N = moles of radiolytic produced gas.

e. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

TABLE 59. GAS SAMPLING RESULTS

WASTE FORM CATEGORY: MIXED WASTE (LANL-Pu^{239})

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[d]	Expected N (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[a]	Trichl[b]	Other H.C.[c]	(mm Hg)	Gauge (mm Hg)					
010773	11 mth	A-19	0.0	19.4	78.6	1.0	0.8	0.1	--	--	--	--	--	--	--	354	0.01	--	--
010756	30 mth	A-19	0.0	19.9	78.2	1.0	0.7	0.2	--	--	--	--	--	--	--	944	0.0[f]	--	--

a. Hydrocarbons (saturated)--methane through propane.

b. Abbreviation for 1,1,1-trichloroethane.

c. Other hydrocarbons--as specified.

d. N = moles of radiolytic produced gas.

e. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

f. This drum contains ^{244}Am, ^{248}Cf, ^{249}Bk; no gram amounts specified.

TABLE 60. GAS SAMPLING RESULTS

WASTE FORM CATEGORY: PARTICULATE WASTE (LANL-Pu^{239})

Container ID No.	Time Period	Content Code	Compositional Analysis (Volume %)										Drum Pressure		Corrected Drum Void Volume (ℓ)	Storage Time (Days)	Total α Activity (Ci)	Measured N (Total)[d]	Expected N (Total)[e]
			H_2	O_2	N_2	Ar	CO_2	CO	NO_x	H.C.[a]	Trichl[b]	Other H.C.[c]	(mm Hg)	Gauge (mm Hg)					
012395	12 mths	A-25	0.2	13.7	80.1	0.9	4.9	--	--	--	--	--	--	--	--	361	13.7	--	--
010411	12 mths	A-25	0.1	19.9	78.6	1.0	0.3	--	--	--	--	--	--	--	--	353	0.78	--	--
010108	25 mths	A-25	0.0	19.8	78.6	1.0	0.5	0.3	--	--	--	--	--	--	--	927	1.92	--	--
010925	30 mths	A-25	0.5	21.2	76.9	1.0	0.3	0.1	--	--	--	--	--	--	--	935	2.40	--	--
010405	12 mths	A-47	0.1	20.1	78.4	1.0	0.3	--	--	--	--	--	--	--	--	355	14.15	--	--
010494	12 mths	A-47	0.1	19.5	78.7	1.0	0.6	0.2	--	--	--	--	--	--	--	361	14.67	--	--

a. Hydrocarbons (saturated)--methane through propane.

b. Abbreviation for 1,1,1-trichloroethane.

c. Other hydrocarbons--as specified.

d. N = moles of radiolytic produced gas.

e. No laboratory data available for calculating the expected N (total) for the waste form represented by this content code.

TABLE 61. LANL GAS STANDARD ANALYSIS

		Mol % of Constituents			
Analysis	Date	H_2	N_2	O_2	CO_2
1	08-01-83	2.5	66.3	18.0	10.0
2	12-29-83	2.6	65.9	18.5	11.4
3	02-21-84	3.0	65.3	18.7	11.7
4	03-27-84	3.0	65.8	18.6	11.6
5	03-30-84	2.3	66.7	18.8	11.6
6	04-10-84	3.6	65.0	18.6	11.4
7	05-04-84	2.7	65.6	19.0	11.7
8	05-30-84	1.9	66.3	19.0	11.7
9	06-14-84	2.4	66.3	19.0	11.8
10	07-10-84	2.5	66.1	19.1	11.8
11	08-03-84	2.5	64.9	18.4	11.3
	x^a =	2.65	65.7	18.8	11.6
	σ^b =	0.46	0.57	0.25	0.19
	σ/x^c =	17.4%	0.87%	1.33%	1.64%

a. Mean or average.

b. Standard deviation.

c. Coefficient of variation.

(Nos. BFB-96 and BFB-97) of mixed waste contained 6.6% H_2 and 16.2% O_2 and 18.6% H_2 and 9.4% O_2, respectively. All three drums contained greater than 150 alpha curies of activity. Hydrogen concentrations greater than 0.1% were not observed in 3-year-old and 9-year-old ^{238}Pu-contaminated wastes. These data tend to support earlier laboratory experiments in which less gas is produced, over time, as the organic substrate is depleted by the plutonium contaminant.[3] It has also been shown in laboratory experiments that agitation of the test cylinder can temporarily reverse this process, but that the reversal is short-lived, and the rate of gas generation continues to decrease with time.[3]

3.3 Void Volumes and G-Values

It was not possible to measure void volumes by pressure and volume relationships nor meaningful to calculate G-Values in Los Alamos waste drums because the drums are not required to be sealed gas-tight. Drums are sealed with 0.5-in. semipermeable sponge rubber gaskets, and the closure rings torqued to approximately 40 ft-lb. The drum is liquid- and particle-tight, but not gas-tight. The gaseous contents of the drum are maintained at atmospheric pressure. Any gases generated in excess of approximately 580 torr diffuse harmlessly through the gasket to the atmosphere. The escaping gases have never been found to be radioactive.

Void volumes were estimated by radiography and during visual examination. The estimated void volumes obtained by these two methods, which are reported on the RTR and visual examination sheets in Appendix D, are actually estimates of filling efficiency. Since many of these drums are filled with organic materials, it was suspected that the void volumes would actually be considerably higher. Using the weights and densities of the waste materials, the void volumes for 10 drums were computed to be in the range of 81 to 97%, with the majority over 90% void. The calculated volumes are recorded on the summary sheets.

3.4 Real-Time Radiography Examinations

Most of the LANL drums selected for this program were examined by real-time x-ray radiography (RTR) and recorded on a video tape. The primary purpose for this effort was to verify, to the extent possible, that the contents of the drums did not pose any significant hazard in subsequent handling and sampling operations. It also was of interest to see, however, if adequate information could be determined through this observation to certify the waste contents. The equipment used was older equipment (~1974) available at LANL and was not designed for the purpose of TRU waste certification. State-of-the-art equipment designed specifically for examination and certification of TRU waste, such as the RTR system used at the INEL SWEPP facility, would provide better resolution and examination results. Several drums could not be radiographed with the LANL system due to excessive waste container weight.

Results of the radiographic examinations are contained in Appendix D with the visual examination results. The LANL system did not detect small quantities of free liquids or particulates later found in the drums during visual examination.

3.5 Assay of TRU Content

Reassay of waste drums was conducted using either segmented gamma scan or thermal neutron coincidence counting, whichever was more appropriate for the recorded waste container contents. The summary sheets (Appendix D) indicate the original assay and reassay values are not always in good agreement. In all cases, the original values for these drums were determined as the sum of separate measurements of the individual items in the drum. These individual item measurements were taken by either thermal coincidence neutron (TCN) or segmented gamma assay (SGA) techniques, depending upon the nature of the item. All of the reassays, on the other hand, were conducted on the entire drum of waste. Realizing that the contents of the drums are a mixture of items best measured by either TCN or

SGA, a portion of the contents of each drum, therefore, are not best measured by the technique applied to the drum as a whole. Thus, when items are individually assayed and then placed into a drum and assayed collectively, the problems of assay geometry and matrix effects often can cause significant differences, and the total assay is not equal to the sum of the individual assays. All of the drums reassayed were found still to be within the limits of meeting the WIPP Waste Acceptance Criteria for TRU content.

3.6 Waste Examination

Eighteen ^{238}Pu waste drums and 15 ^{239}Pu waste drums were opened and examined in the Los Alamos Size Reduction Facility (SRF) to determine compliance with the WIPP-WAC. A special glovebox and drum handling rack was constructed and installed inside the SRF for opening and examining the waste containers. Each drum was weighed. The top and upper part of the drum exterior sidewalls were taped with plastic to expedite later decontamination. Each drum was then clamped horizontally on the rack, and the top of the drum pushed through a circular port into the special glovebox. The annular space between the drum and the port was sealed with plastic. The locking ring, lid, and contents of the drum were then removed and examined. The various fractions of waste were separated and weighed (see Tables 62-69). The materials were then categorized to see if they matched the description and content code given on the original disposal record. A determination was then made whether the drum was in compliance with WIPP-WAC. Samples were taken of materials as required. Particulates were collected and measured if sufficient amounts of material were available. Sieves used to categorize particle size were sized at 212 μm and 75 μm.

3.6.1 Waste Form Compliance

Results of the visual examinations are presented in Tables 70 to 77. Specific container results are found in Appendix D.

TABLE 62. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: COMBUSTIBLES (LANL-^{238}PU)

				Material Type (lbs)																
				Glass	Metals				Combustibles							Miscellaneous		WEIGHTS	
Container ID No.	Time Period	Content Code	Proper[a] Code		Hand Tools	Dies	Other	Leaded Gloves	Cheesecloth	Rags	Paper	Filter Media	Latex Gloves	Other** Rubber	Plastics	Graphite	Dry Chem	Aggregate	Gross
BFB-14	16 mo	A-60	A-14	*	--	--	--	--	*	*	--	--	*	--	--	--	--	20.02	60
BFB-20	36 mo	A-60	A-16	--	--	--	--	--	--	--	--	--	--	--	28.81	--	--	28.81	60
BFB-101	8 mo	A-18	--	*	--	--	--	--	*	--	*	--	--	*	*	--	--	22.38	60
BFB-27	35 mo	A-60	A-18	--	--	--	--	--	*	--	*	--	*	--	*	--	--	22.15	50

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

* Visual examination revealed that packages of waste within a drum were often not limited to one specific type of material; neither were they segregated into combustibles and non-combustibles. In these cases of mixed contents an aggregate weight is given, and asterisks indicate which components are present.

TABLE 63. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: METAL (LANL-^{238}PU)

				Material Type (lbs)																
				Glass	Metals				Combustibles							Miscellaneous		WEIGHTS	
Container ID No.	Time Period	Content Code	Proper[a] Code		Hand Tools	Dies	Other	Leaded Gloves	Cheesecloth	Rags	Paper	Filter Media	Latex Gloves	Other** Rubber	Plastics	Graphite	Dry Chem	Aggregate	Gross
BFB-19	37 mo	A-61	--	9.21	--	13.3	--	--	--	--	--	--	--	*	--	--	8.58	22.51	70
BFB-235	111 mo	A-18	A-61	--	--	--	65.0	--	--	--	--	--	--	--	--	--	--	65.0	100
BFB-237	111 mo	A-18	A-61	--	--	--	85.0	--	--	--	--	--	--	--	--	--	--	85.0	120
BFB-238	111 mo	A-18	A-61	--	--	--	65.0	--	--	--	--	--	--	--	--	--	--	65.0	100
BFB-239	111 mo	A-18	A-61	*	*	--	*	--	--	--	--	--	--	--	*	--	--	101.04	136
BFB-240	111 mo	A-18	A-61	*	--	*	*	--	--	--	--	--	--	*	*	--	--	65.0	110

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

* Visual examination revealed that packages of waste within a drum were often not limited to one specific type of material; neither were they segregated into combustibles and non-combustibles. In these cases of mixed contents an aggregate weight is given, and asterisks indicate which components are present.

TABLE 64. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: MIXED WASTE (LANL-^{238}Pu)

				Material Type (lbs)															
				Glass	Metals				Combustibles							Miscellaneous		WEIGHTS	
Container ID No.	Time Period	Content Code	Proper[a] Code		Hand Tools	Oils	Other	Leaded Gloves	Cheesecloth	Rags	Paper	Filter Media	Latex Gloves	Other** Rubber	Plastics	Graphite	Dry Chem	Aggregate	Gross
BFB-92	7 mo	A-18	A-19	*	--	--	*	--	15.4	--	--	--	--	--	--	*	1.46	16.86	50
BFB-96	8 mo	A-19	--	--	--	--	--	20.52	11.14	--	--	--	--	--	5.53	--	--	37.19	70
BFB-97	8 mo	A-19	--	--	*	--	32.65	--	5.51	--	--	--	--	--	*	--	--	5.98	80
BFB-102	7 mo	A-19	--	--	--	--	*	--	*	--	--	--	--	--	*	--	--	32.8	60
BFB-103	7 mo	A-19	--	*	--	--	--	--	*	--	--	--	--	--	*	--	--	27.03	60
BFB-12	39 mo	A-60	A-19	*	*	--	--	--	*	*	*	*	*	--	--	--	--	14.23	50
BFB-26	35 mo	A-60	A-19	*	--	--	*	--	*	--	--	--	*	--	*	--	--	30.26	60
BFB-234	111 mo	A-18	A-19	*	--	--	*	--	--	--	--	--	--	--	--	--	*	14.58	50

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

* Visual examination revealed that packages of waste within a drum were often not limited to one specific type of material; neither were they segregated into combustibles and non-combustibles. In these cases of mixed contents an aggregate weight is given, and asterisks indicate which components are present.

TABLE 65. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: COMBUSTIBLES (LANL-^{239}Pu)

				Material Type (lbs)															
				Glass	Metals				Combustibles							Miscellaneous		WEIGHTS	
Container ID No.	Time Period	Content Code	Proper[a] Code		Hand Tools	Oils	Other	Leaded Gloves	Cheesecloth	Rags	Paper	Filter Media	Latex Gloves	Other** Rubber	Plastics	Graphite	Dry Chem	Aggregate	Gross
10761	11 mo	A-14	--	*	--	--	--	--	--	*	--	--	--	--	*	--	--	20.33	73
010605	11 mo	A-18	A-15	--	--	--	--	--	*	--	--	--	--	--	*	--	--	17.27	100
10753	11 mo	A-16	A-18	--	--	--	--	--	--	--	7.6	--	--	--	6.3	--	--	13.9	73
007060	11 mo	A-18	--	--	--	--	--	--	--	*	*	--	*	--	*	--	--	43.25	100
007220	11 mo	A-18	--	*	--	--	--	--	--	--	*	--	--	--	*	--	--	45.6	120
010362	12 mo	A-18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	15.83	68
010775	30 mo	A-60	--	*	--	--	*	--	--	*	*	--	*	--	*	--	--	4.98	120

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

* Visual examination revealed that packages of waste within a drum were often not limited to one specific type of material; neither were they segregated into combustibles and non-combustibles. In these cases of mixed contents an aggregate weight is given, and asterisks indicate which components are present.

TABLE 66. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: METAL (LANL-^{239}PU)

Container ID No.	Time Period	Content Code	Material Type (lbs) Process Solids	Nitrate Salts	Slag and Crucible	Chemical Treatment Sludge	Metals	Non-Combustible	Organics	Comments	Gross Weight
010435	12 mo	A-52	--	--	--	56.45	100.36	--	--	--	220.0

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

* Visual examination revealed that packages of waste within a drum were often not limited to one specific type of material; neither were they segregated into combustibles and non-combustibles. In these cases of mixed contents an aggregate weight is given, and asterisks indicate which components are present.

TABLE 67. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: CEMENTED SLUDGES (LANL-^{239}PU)

Container ID No.	Time Period	Content Code	Material Type (lbs) Process Solids	Nitrate Salts	Slag and Crucible	Chemical Treatment Sludge	Metals	Non-Combustible	Organics	Comments	Gross Weight
012124	12 month	A-75	--	--	--	*	--	--	--	--	444.0[a]
012307	12 month	A-75	--	--	--	*	--	--	--	--	444.0[a]
012327	12 month	A-75	--	--	--	*	--	--	--	--	444.0[a]
012535	12 month	A-75	--	--	--	*	--	--	--	--	444.0[a]

a. Average weight of drums. Drums were not reweighed.

* Visual examination revealed that packages of waste within a drum were often not limited to one specific type of material; neither were they segregated into combustibles and non-combustibles. In these cases of mixed contents an aggregate weight is given, and asterisks indicate which components are present.

TABLE 68. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: MIXED WASTE (LANL-^{239}PU)

				Material Type (lbs)																
				Glass	Metals				Combustibles							Miscellaneous		WEIGHTS	
Container ID No.	Time Period	Content Code	Proper[a] Code		Hand Tools	Dies	Other	Leaded Gloves	Cheesecloth	Rags	Paper	Filter Media	Latex Gloves	Other** Rubber	Plastics	Graphite	Dry Chem	Aggregate	Gross
010773	11 mo	A-19	--	--	--	--	*	--	--	*	*	--	*	--	*	--	--	4.98	120
010756	30 mo	A-80	A-19	*	--	--	*	--	--	--	*	--	--	--	*	--	--	5.57	45

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

* Visual examination revealed that packages of waste within a drum were often not limited to one specific type of material; neither were they segregated into combustibles and non-combustibles. In these cases of mixed contents an aggregate weight is given, and asterisks indicate which components are present.

TABLE 69. WASTE CONTAINER COMPONENT WEIGHTS

WASTE FORM CATEGORY: PARTICULATE WASTES (LANL-^{239}PU)

			Material Type (lbs)								
Container ID No.	Time Period	Content Code	Process Solids	Nitrate Salts	Slag and Crucible	Chemical Treatment Sludge	Metals	Non-Combustible	Organics	Comments	Gross Weight
010108	25 mo	A-25	*	--	4.68	25.89+	2.68	--	0.19	+Includes $CaCl_2$	63.5
010925	30 mo	A-25	* Basic wet red sludge, multiple containers, approximately 10 lbs each								520.0

a. Proper content code indicated only if the original is incorrect. Correction is based on visual examination results.

* Visual examination revealed that packages of waste within a drum were often not limited to one specific type of material; neither were they segregated into combustibles and non-combustibles. In these cases of mixed contents an aggregate weight is given, and asterisks indicate which components are present.

TABLE 70. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: COMBUSTIBLES ($LANL-^{238}Pu$)

Container ID No.	Time Period	Content Code	Visual Examination Results									
			Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
BFB-14	36-month	A-60	A-14	--	--	--	--	--	--	9.4	Yes	Yes
BFB-20	36-month	A-60	A-16	--	--	--	--	--	--	14.0	Yes	Yes
BFB-101	8-month	A-18	--	--	--	--	--	--	--	8.2	Yes	Yes
BFB-27	35-month	A-60	A-18	--	--	--	--	--	--	14.7	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix D.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 71. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: METAL ($LANL-^{238}Pu$)

Container ID No.	Time Period	Content Code	Visual Examination Results									
			Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
BFB-19	37-month	A-61	--	--	--	--	--	--	--	0.75	Yes	Yes
BFB-235	111-month	A-18	A-61	--	--	--	--	--	--	2.95	Yes	Yes
BFB-237	111-month	A-18	A-61	--	--	--	--	--	--	3.86	Yes	Yes
BFB-238	111-month	A-18	A-61	--	--	--	--	--	--	2.95	Yes	Yes
BFB-239	111-month	A-18	A-61	--	--	--	--	--	--	4.59	Yes	Yes
BFB-240	111-month	A-18	A-61	--	Y	--	--	--	--	2.95	No	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix D.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 72. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: MIXED WASTE (LANL-^{238}PU)

				Visual Examination Results								
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
BFB-92	7-month	A-18	A-19	Y*	--	--	--	--	--	1.93	Yes	Yes
BFB-96	8-month	A-19	--	--	--	--	--	--	--	8.4	Yes	Yes
BFB-97	8-month	A-19	--	--	--	--	--	--	--	7.02	Yes	Yes
BFB-102	7-month	A-19	--	--	--	--	--	--	--	2.98	Yes	Yes
BFB-103	7-month	A-19	--	--	--	--	--	--	--	6.1	Yes	Yes
BFB-26	35-month	A-60	A-19	--	--	--	--	--	--	7.4	Yes	Yes
BFB-12	39-month	A-60	A-19	--	--	--	--	--	--	3.2	Yes	Yes
BFB-234	111-month	A-18	A-19	--	--	--	--	--	Y	0.7	No	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix D.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 73. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: COMBUSTIBLES (LANL-^{239}Pu)

Container ID No.	Time Period	Content Code	Visual Examination Results									
			Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
010761	11-month	A-14	--	--	Y	--	--	--	--	18.3	No	Yes
010605	11-month	A-18	A-15	--	--	--	--	--	--	7.9	Yes	
010753	11-month	A-16	A-18	Y*	--	--	--	--	--	6.3	Yes	Yes
007060	11-month	A-18	--	--	--	--	--	--	--	19.7	Yes	
070226	11-month	A-18	--	--	--	--	--	--	--	21.9	Yes	Yes
010775	30-month	A-60	--	--	--	--	--	--	--	14.2	Yes	

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix D.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 74. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: METAL (LANL-^{239}PU)

Container ID No.	Time Period	Content Code	Visual Examination Results: Proper Content Code[b]	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
010435	12-month	A-52	--	Y	--	--	--	--	--	--	No	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix D.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 75. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: CEMENTED SLUDGES (LANL-^{239}PU)

Container ID No.	Time Period	Content Code	Visual Examination Results: Proper Content Code[b]	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
012124	12-month	A-75	--	Y*	--	Y*	--	--	--	--	Yes	Yes
012307	12-month	A-75	--	Y*	--	Y*	--	--	--	--	Yes	Yes
012327	12-month	A-75	--	Y*	--	Y*	--	--	--	--	Yes	Yes
012535	12-month	A-75	--	Y*	--	Y*	--	--	--	--	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix D.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 76. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: MIXED WASTE (LANL-^{239}PU)

			Visual Examination Results									
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
010773	11-month	A-19	--	--	--	--	--	--	--	20.7	Yes	
010756	30-month	A-60	A-19	--	--	--	--	--	--	7.6	Yes	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix D.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

TABLE 77. WASTE FORM COMPLIANCE WITH THE WIPP-WAC[a]

WASTE FORM CATEGORY: PARTICULATE WASTE (LANL-^{239}PU)

			Visual Examination Results									
Container ID No.	Time Period	Content Code	Proper[b] Content Code	Immobilization[d] (Particulates) ?	Free Liquids ?	Sludge ?	Pyrophorics ?	Explosives/ Compressed Gases ?	Toxic/Corrosive Materials ?	Organic Content ? (lb)	WIPP Certifiable ?	RTR[c] Certifiable ?
010108	25-month	A-25	--	--	--	Y*	--	--	--	1.2	Yes	Yes
010925	30-month	A-25	--	--	Y	Y*	--	--	--	--	No	Yes

a. Data based on the results from the visual examinations. Specific information for all Y and Y* indications are found in Appendix D.

b. Proper content code indicated only if original code is incorrect.

c. Indicates if the waste is certifiable based on the results from the real-time radiography (RTR) examination.

d. KEY: Y = Yes--material exceeds WIPP-WAC limits
Y* = Yes, but within allowable limits or requirements
-- = None present

Five of the 33 (15%) examined drums did not meet the requirements of the WIPP-WAC. These drums contained free liquids, one contained particulates in excess of WIPP-WAC limits, and one drum contained corrosive material. The following additional information is provided:

Liquids

1. Drum No. BFB-240 (Mixed Combustibles): This 30-gal. drum of ^{238}Pu waste contained a double plastic bagged Leverpak (tradename for a small cardboard container). Between the bags was approximately 150 mL of water.

2. Drum No. 010761 (Combustibles): This 55-gal. drum of ^{239}Pu-contaminated combustible decontamination room waste contained 60 mL of hand lotion in a plastic hand lotion bottle.

3. Drum No. 010925 (Leached Process Residue): This 55-gal. drum contained 1/2 gallon cans of ^{238}Pu-contaminated process residues. Each can contained between 100-150 mL free liquid. The total quantity of liquid was estimated at 2-3 L.

Particulate

1. Drum No. 010435 (Scrap Metal): This 55-gal. drum contained ^{238}Pu-contaminated metals and dry filtering aid. The filtering aid was 35.4% of the waste weight. All of the filtering aid was less than 70 μm in diameter.

Corrosive

1. Drum No. BFB-234 (Mixed Combustibles): This 30-gal. drum contained sealed metal cans. The material in one can, which was a wet ^{238}Pu material (pH 3), had corroded through the container walls and had started to corrode the other two cans in the drum.

Eleven drums had the wrong, or at least not the most appropriate, Los Alamos waste code assigned. All of these contained significant portions of combustible material, so this inappropriate coding would not have been a problem from a certification standpoint.

The packaging efficiencies seemed poorer than desirable: 93% of the drums were 50 to 95% filled, while only 66% were 75 to 95% filled. One drum (3%) was only 25% full, and another 35%. There is probably some settling of the contents of the waste material with time, but it does appear that a more efficient use of the disposal volume could be made with a reasonable effort on the part of the waste generators. The calculated void volumes were approximately 90%. No pyrophoric materials, explosives, toxic materials, or compressed gases were found in any of the drums examined. Except for drum BFB-234, corrosive materials were properly packaged to meet WIPP-WAC criteria.

Descriptions of several of the ^{238}Pu waste drums mention a red or brown dust which was observed (e.g., BFB-19, BFB-238). Usually the observers' statement was that "there was not enough to collect." Some of this material probably was rust. However, a portion of it may have been a degradation product from the alpha-attack of ^{238}Pu on cellulosics. This has been previously observed in laboratory experiments.[3] These particles are low density, extremely fine, easily become airborne, and are generally highly contaminated. This material has high potential for spreading contamination if containers of contaminated waste have to be opened. This degradation product is rarely observed in drums of ^{239}Pu-contaminated waste. Drum No. 010753 is the only instance, seen to this time, where brown powder was observed in ^{239}Pu waste. In all instances, however, the quantity of particulate was not sufficient to render the drum noncertifiable. The particulate is not present when the drums are originally filled, but its potential presence in older drums should not be overlooked.

Waste process solids, Codes A-25 through A-29, may not be a certifiable waste form due to the potential for free liquids, particulates, or corrosives in the containers. Some drums may be certifiable, but most probably will require processing. Among the ^{239}Pu drums examined, the following are samples:

- Drum No. 010108: There is no practical way to know whether the damp particulate wastes meet the immobilization criteria. It may be necessary to solidify these materials before packaging.

- Drum No. 010925: This drum was not certifiable due to free liquids. If the wet particulate present in the drum had also been dry, the drum may not have met the immobilization criterion.

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Volume I

APPENDIX A

WASTE FORM CATEGORIES AND CONTENT CODE DESCRIPTIONS

APPENDIX A

WASTE FORM CATEGORIES AND
CONTENT CODE DESCRIPTIONS

Waste Form Category	Content Code	Code Description
Combustibles	328	Filters, Ful-Flo From Incinerator
	330	Combustibles, Dry
	336	Combustibles, Wet
	337	Plastic and Nonleaded Rubber
	900	LSA Plastics, Paper, etc.
	970	Wood
Metals	320	Heavy Non-SS Metal
	480	Light Non-SS Metal
	481	Leached Light Non-SS Metal
Glass	440	Glass
	441	Unleached Raschig Rings
	442	Leached Raschig Rings
Nonmetal Molds and Crucibles	300	Graphite Molds
	301	Graphite Cores
	312	Graphite, Coarse
Uncemented Sludges	1	First Stage (741) or Combined Sludge (7412)
	2	Second Stage Sludge
	3	Grease (organic setups)
	7	Building 374 Sludge
	292	Cemented Sludge (Note: Cement added as absorbent only)
Cemented Sludges and Solutions	4	Special Setups
Concrete, Brick	371	Brick, Fire
	960	Concrete, Asphalt, etc.
Salts	409	Molten Salt, 30% Unpulverized
	414	Direct Oxide Reduction (DOR) Salt
Leaded Rubber	339	Leaded Drybox Gloves and Other Leaded Rubber
Benelex, Plexiglas	302	Benelex and Plexiglas
	464	Benelex and Plexiglas
Resins	432	Resin, Cemented

Mixed Waste-Paper, Metal, Glass, etc.	241	Americium Process Residue
	950	LSA Metal, Glass, etc.
Filters	335	Absolute Filters (8" x 8")
	338	Insulation and CWS Filter Media
	360	Insulation
	490	CWS Filters
Particulate Wastes	374	Blacktop, Concrete, Dirt and Sand
	376	Cemented Insulation and Filter Media

VOLUME I

APPENDIX B

INEL/RFP Radiographic and Visual Examination Results

CONTENTS

Combustibles B-3

Metals B-47

Glass B-82

Nonmetal Molds and Crucibles B-107

Uncemented Sludges B-118

Cemented Sludges and Solutions B-162

Concrete, Brick B-172

Salts B-180

Leaded Rubber B-183

Benelex, Plexiglas B-190

Resins B-197

Mixed Waste-Paper, Metal. Glass, etc. B-210

Filters B-212

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39371
Content Code: 328
Container Wt (lb): 161
Original Assay (g): Pu-26.0
Packaging Location: Bldg 771, Rm 149

Container Type: Drum
Code Description: Filters, Ful-Flo
Surface Dose Rate (mR/h): 1.4
Reassay (g): Pu-24.0
Date Packaged: 12-14-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-24-83
Liner Type: 90-mil; liner also lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Ful-Flo filters

Packaging Description: Filters are contained in polyethylene bags.

Absorbent Information: Vermiculite

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: 2 tbsp Type: Cement

Packaging Efficiency: 70%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Particulate is located outside the polyethylene bags containing the filters

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-17-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Ful-Flo filters; the filters are coated with grease.

Packaging Description: Type II liner is lined with one drum bag. The filters are packaged in a PVC bagout bag and then single- or double-bagged into polyethylene bags.

Absorbent Information: Vermiculite is located on top of the drum bag and around the liner.

Physical State of Waste: Damp
Component Wt (lb): Ful-Flo filters with grease coating--57.5; cloth rag--0.25; polyethylene and PVC bags--17.75; vermiculite--10.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 85%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39453
Content Code: 328
Container Wt (lb): 186
Original Assay (g): Pu-46.0
Packaging Location: Bldg 771, Rm 149

Container Type: Drum
Code Description: Filters, Ful-Flo
Surface Dose Rate (mR/h): 2.0
Reassay (g): Pu-47.0
Date Packaged: 12-8-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-24-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Ful-Flo filters

Packaging Description: Filters are packaged in polyethylene bags.

Absorbent Information: Vermiculite is located on top of sealed drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Portland cement has been placed in the bottom of the rigid liner.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-17-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Ful-Flo filters. The filters are coated with grease.

Packaging Description: Type II liner is lined with two polyethylene drum bags. Filters are packagedin a PVC bag-out bag and then double-bagged in polyethylene bags. Eleven packages total.

Absorbent Information: Vermiculite is located on top of drum bag and at bottom of the liner. Cement located in one bag of filters.
Physical State of Waste: Damp
Component Wt (lb): Ful-Flo filters--98.25; PVC and polyethylene bags--18.5; cement--0.5; vermiculite--4.0.

WIPP-WAC Compliance Information:
1. Liquids: Total of 4 ml found in one bag. Analysis indicates the liquid has a pH of 12. Major components are carbonates or nitrates; minor component is water.

Packaging Efficiency: 70%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: U2-39481
Content Code: 328
Container Wt (lb): 160
Original Assay (g): Pu-45.0
Packaging Location: Bldg 771, Rm 149

Container Type: Drum
Code Description: Filters, Ful-Flo
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-47.0
Date Packaged: 12-15-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-24-83
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Ful-Flo filters

Packaging Description: Filters are contained in polyethylene bags. Some filters are contained in 1-gal residue process containers (RPC).

Absorbent Information: Vermiculite

Free Liquids: Yes Quantity: 1 qt total Contained: Yes
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 66%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Liquids are contained in three RPC's (one RPC contains approximately two cups liquid, two RPC's contain approximately 1 cup liquid each.)

WIPP-Certifiable: No--due to free liquids.

VISUAL EXAMINATION

Examination Date: 8-17-83

Lead-Lined: No
Liner Type: Type II 90-mil
Waste Form Description: Ful-Flo filters. Filters are coated with grease.

Packaging Description: Type II liner is lined with a drum bag. Filters are packaged in a PVC bagout bag and then single- or double-bagged in polyethylene bags. Total of seven bags of filters and two-RPC's containing filters in a PVC bag and a polyethylene bag.

Absorbent Information: Vermiculite located on top of and around the drum bag.

Physical State of Waste: Damp
Component Wt (lb): Ful-Flo filters--59.25; damp rag--0.5; polyethylene and PVC plastic--13.75; vermiculite--9.75.

WIPP-WAC Compliance Information:
1. Liquids: Total of 68 ml of dark liquid contained in a bag of filters. Analysis indicates a pH of 12. The major components is water; the minor components are carbonates and silicates.
2. Sludge: Black grease from a filter. Analysis indicates a pH of 12. Major components are silicates and/or sulfates, minor is water.

Packaging Efficiency: 80%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information: Drum lid lightly rusted on inside.

WIPP-Certifiable: No

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 28-00781
Content Code: 330
Container Wt (lb): 176
Original Assay (g): Pu-4.0
Packaging Location: Building 559, Rm 102

Container Type: Drum
Code Description: Combustibles, Dry
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-4.0
Date Packaged: 12/21/82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: Lead-taped sample vials

Waste Form Description: Glass, test tubes, sample vials, bottles etc.

Packaging Description: Not recorded.

Absorbent Information: Not recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 10%
Correct Content Code? No New Code: 440-glass
Other Information: Estimated organic weight: 25 lb.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8/18/83
Container Condition: Good
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Lead-taped sample vials and glass sample vials.

Packaging Description: Type II liner is lined with a drum bag. Seven bags of lead-taped sample vials, 13 bags of glass sample vials, and a 1-gal glass bottle containing glass sample vials. All packages are double-bagged in PVC bags and then single-contained in a polyethylene bag.

Absorbent Information: Vermiculite located on top of drum bag and on bottom of 90-mil liner.

Physical State of Waste: Dry
Component Weight (LB): Polyethylene and PVC bags and plastic vial caps-10.5; lead-taped glass and glass vials, bottles and tubes-84.5, vermiculite-5.0.

WIPP-WAC Compliance Information: None.

Packaging Efficiency: 80%
Volume % Combustibles: 20%
Correct Content Code? No New Code: 440-glass
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 42-00291
Content Code: 330
Container Wt (lb): 138
Original Assay (g): Pu-1.0
Packaging Location: Bldg 771, Rm 1800

Container Type: Drum
Code Description: Combustibles, Dry
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.0
Date Packaged: 12-8-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined. No Other Lead: No

Waste Form Description: Polyethylene, paper, PVC tubing, etc.

Packaging Description: Waste contained in polyethylene bags.

Absorbent Information: Not recorded.

Free Liquids: Yes Quantity: 1/4 cup Contained: Yes, in poly bag
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: 2 gal Type: Unknown

Packaging Efficiency: 80%
Volume % Combustible: 98
Correct Content Code? Yes New Code:
Other Information: Particulate material contained in two tubes (approximately 2 in. dia. x 2 ft length). A spare rigid liner lid is at bottom of liner.

WIPP-Certifiable: No--due to liquids and particulates.

VISUAL EXAMINATION

Examination Date: 8-17-83
Container Condition: Good, some handling scratches
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Kimwipes, PVC tubing, plastic, two plastic tubes containing resins, and a rigid liner lid at bottom of liner.

Packaging Description: Type II liner is lined with two polyethylene drum bags. All wastes, except the tubes, are double-bagged in polyethylene. The tubes containing the resins were placed directly into the drum.

Absorbent Information: Vermiculite located on top of drum bag and on bottom of liner.

Physical State of Waste: Damp
Component Wts (lb): Kimwipes, smear paper--22.5; polyethylene bags, tubing--28.25; surgeon's gloves--2.5; broken chemical bottle glass--0.5; resin--5.25; vermiculite--0.5.

WIPP-WAC Compliance Information:
1. Particulates--Ion-exchange resin. Analysis of the resin indicates the waste contains 0.009 wt % <212u particulates and ~0.01 wt % 10u particulates.

Packaging Efficiency: 95%
Volume % Combustibles: 100
Correct Content Code? No New Code: 336
Other Information: No free liquids found. Liquids were probably absorbed during handling.

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 22-01194
Content Code: 330
Container Wt (lb): 140
Original Assay (g): Pu-0.0
Packaging Location: Bldg 707, Module C

Container Type: Drum
Code Description: Combustibles, Dry
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-4.0
Date Packaged: 11-15-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Combustibles such as polyethylene, paper, etc. Some bags in center of drum appear to be moist. A few metal items (nails, washers) are also present.

Packaging Description: Waste contained in plastic bags.

Absorbent Information: Information not recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 98%
Volume % Combustible: 99
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-22-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II

Waste Form Description: Kimwipes, paper cards, gloves, rags, plastic, surgeon's gloves, some nails, welding rod, brass rod, and lead tape.

Packaging Description: Type II liner is lined with a drum bag. Wastes are single-contained in polyethylene bags.

Absorbent Information: Vermiculite located on top of liner.

Physical State of Waste: Dry
Component Wt (lb): Kimwipes, cards--14.0; gloves, rags--0.5; polyethylene--15.0; surgeon's gloves--30.0; nails, rod, and tape--1.5; vermiculite--2.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 95%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 38-00101
Content Code: 330
Container Wt (lb): 176
Original Assay (g): Pu-2.0
Packaging Location: Bldg 771, Rm 159

Container Type: Drum
Code Description: Combustibles, Dry
Surface Dose Rate (mR/h): 0.6
Reassay (g): Pu-1.0
Date Packaged: 11-22-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Combustibles such as polyethylene and paper, also a few nails.

Packaging Description: Waste contained in plastic bags. One residue process container in middle of the waste.

Absorbent Information: Not recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 98
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-18-83
Container Condition: Good; some scratches due to handling.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Kimwipes, rubber gloves, plastic vials, plastic bags, ice cream cartons, six small ball bearings, two metal bolts, and two probes.

Packaging Description: Type II liner is lined with two polyethylene drum bags. Waste items are placed directly into the drum.

Absorbent Information: Vermiculite is located on top of the drum bag and on the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Kimwipes, ice cream cartons, etc.--24.75; polyethylene--12.0; surgeon's gloves--53.5; vermiculite--0.75.

WIPP-WAC Compliance Information:
1. Particulate: Sand or grit powder. Analysis of the powder indicates the waste contains 0.071 wt % <212u particulates and <0.001 wt % <20u particulates.

Packaging Efficiency: 95%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information: Light rust on drum and drum lid interior.

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 76-02898
Content Code: 330
Container Wt (lb): 245
Original Assay (g): Pu-32.0
Packaging Location: Bldg 776, Rm 146

Container Type: Drum
Code Description: Combustibles, Dry
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-29.0
Date Packaged: 9-24-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: Cannot determine

Lead-Lined: Yes Other Lead:

Waste Form Description: Combustibles

Packaging Description:

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: Type: Quantity:
Particulates: Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible:
Correct Content Code? New Code:
Other Information: Limited penetration of the lead liner. Unable to evaluate completely.

WIPP-Certifiable: No--due to limited penetration.

VISUAL EXAMINATION

Examination Date: 8-18-83
Container Condition: Good; small dent on upper third of the drum
Lead-Lined: Yes, 1/8-in.-thick sheeting
Liner Type: Type II 90-mil

Waste Form Description: Crushed sample cans, an 8 x 8-in. HEPA filter, plastic, rags, vacuum hose, and plastic sample vials.

Packaging Description: Type II liner is lined with one polyethylene drum bag. Waste items are generally contained in single polyethylene bags. A 1-gal paint can contained the crushed sample cans and was double-contained in polyethylene bags. The HEPA filter was in a box double-wrapped in plastic.

Absorbent Information: Vermiculite located on top of drum bag.
Physical State of Waste: Dry
Component Wt (lb): Damp rags--3.0; rubber gasket and hose--0.25; polyethylene bags, bottles--59.5; lead sheeting and paint can--106.75; HEPA filter and paint brush--6.0; vermiculite--4.0.

WIPP-WAC Compliance Information:
1. Sludge: Damp black sludge contained in a 1-gal plastic bottle. Analysis indicates a pH of 7. The major components are silica and unidentified inorganics.

Packaging Efficiency: 90%
Volume % Combustibles: 95
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39195
Content Code: 330
Container Wt (lb): 165
Original Assay (g): Pu-2.0
Packaging Location: Bldg 771, Rm 181

Container Type: Drum
Code Description: Combustibles, Dry
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-2.0
Date Packaged: 10-13-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Filter frames

Packaging Description: Frames are in polyethylene bags.

Absorbent Information: Vermiculite

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: 1/2 cup Type: Cement

Packaging Efficiency: 85%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Portland cement is believed to be added as absorbent. Filter frames contain nails. Estimated organic weight: 99 lb

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-18-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Filter frames

Packaging Description: Type II liner is lined with two polyethylene drum bags. Filter frames are contained in a PVC bagout bag and then double-contained in polyethylene bags.

Absorbent Information: Vermiculite located on top of drum bag and on bottom of the liner and drum.

Physical State of Waste: Dry
Component Wt (lb): Wood filter frames and nails--73.75; PVC and polyethylene bags--9.25; vermiculite--4.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 389-90417
Content Code: 330
Container Wt (lb): 2000
Original Assay (g): Pu-70.0; U-235: 53.0

Packaging Location: Size Reduction

RADIOGRAPHIC EXAMINATION

Examination Date: 7-5-83
Liner Type: Plastic box liner only.
Lead-Lined: No Other Lead: No

Waste Form Description: Generally plastic and paper.

Packaging Description: Waste generally contained in plastic bags.

Absorbent Information: None identified.

Free Liquids: Yes Quantity: 2 cups total Contained: Yes
Compressed Gases: Yes Type: Aerosol cans Quantity: Four
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 98
Correct Content Code? Yes New Code:
Other Information: Liquid is contained two poly bottles.

WIPP-Certifiable: No--due to small amount of liquids.

VISUAL EXAMINATION

Container Type: Box
Code Description: Combustibles, Dry
Surface Dose Rate (mR/h): 1.3
Reassay (g): Not available--box counter not operational.
Date Packaged: 10-11-82

Examination Date: 9-15-83
Container Condition: Good
Lead-Lined: No
Liner Type: PVC box liner

Waste Form Description: Plastic, Kimwipes, newspaper, paper, paint brushes, surgeon's gloves, plastic pails, cardboard, dried paint, bag-out bags, Teflon, plastic pipe, supplied air tent, bubble suits, dry cell battery, rubber mat, pop cans, etc.

Packaging Description: Wastes contained in double 55-gal drum bags. All bags except for the top four were cut open to improve packaging efficiency.

Absorbent Information:

Physical State of Waste: Damp
Component Wt (lb): Paper--407; booties, overalls and rags--74; rubber mat--8; plastic, buckets, and hose--406; surgeons gloves--143; misc metal--16.

WIPP-WAC Compliance Information:
Liquids: Total of 150 ml liquid. One 1-gal polyethylene bottle contained 140 ml. Analysis indicates a pH of 8. The major component is water and the minor is possibly polyacrylamide. Another bottle contained 10 ml. Analysis indicates a pH of 7. The major component is water and the minor is silicates.

Packaging Efficiency: 100%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Combustibles

GENERAL INFORMATION

Container Identification: 389-90609
Content Code: 330
Container Wt (lb): 1580
Original Assay (g): Pu-52.0

Packaging Location: Size Reduction

RADIOGRAPHIC EXAMINATION

Examination Date: 7-5-83
Liner Type: Plastic box liner and cardboard liner.
Lead-Lined: No Other Lead: No

Waste Form Description: Miscellaneous plastic and paper. Some metal items, such as small bolts, nuts, nails and electrical hardware are near the box bottom.

Packaging Description: Loose waste is contained in bags inside the box.

Absorbent Information: Vermiculite

Free Liquids: Yes Quantity: See below Contained: See below
Compressed Gases: Yes Type: Aerosol cans Quantity: Four
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 99
Correct Content Code? Yes New Code:
Other Information: Approximately 1/2 gal (total) liquid in various locations. Some is contained in poly bottles, other is contained in plastic bags.

WIPP-Certifiable: No--due to liquids and aerosol cans.

Time Period: 3-month-old waste

Container Type: Box
Code Description: Combustibles, Dry
Surface Dose Rate (mR/h): 0.1
Reassay (g): Not available--box counter not operational.
Date Packaged: 12-17-82

VISUAL EXAMINATION

Examination Date: 9-17-83
Container Condition: Good
Lead-Lined: No
Liner Type: PVC box liner and fiberboard liner.

Waste Form Description: Paper, rags, plastics, leaded gloves, and some miscellaneous metal.

Packaging Description: PVC box liner also lined with a fiberboard liner. All waste was contained in drum bags, which were cut open to improve packaging efficiency.

Absorbent Information: Vermiculite

Physical State of Waste: Damp
Component Wt (lb): Paper--336; cloth rage--38; plastics--364; misc. metal--10; leaded gloves--78; vermiculite--14.

WIPP-WAC Compliance Information:
1. Particulates: Graphite fines contained in small polyethylene bottles. Analysis of the fines indicates that the waste contains 0.001 wt % <212$_u$ particulates and <0.001 wt % <10$_u$ particulates.
2. Liquids: 68 ml of green liquid in a 1 qt bottle. Analysis indicates a pH of 7. Major composition is water, minor is silicates and/or sulfate and an unidentified organic material.

Packaging Efficiency: 90%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:

Other Information: No aerosol cans found in the waste.

WIPP-Certifiable: No-free liquid (68 ml)

Waste Form Category: Combustibles

Time Period: 3-year old

GENERAL INFORMATION

Container Identification: 02-35272
Content Code: 330
Container Wt (lb): 156
Original Assay (g): Pu-1.0
Packaging Location: Bldg 771, Rm 181

Container Type: Drum
Code Description: Combustibles, Dry
Surface Dose Rate (mR/h): 1.1
Reassay (g): Pu-1.0
Date Packaged: 2-11-82

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Filter frames

Packaging Description: Frames are contained in plastic bags.

Absorbent Information: Portland cement--approximately 1 qt.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Few nails in the frames.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-4-83
Container Condition: Good; some handling scratches on paint.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Wood filer frames and wood

Packaging Description: Type II liner is lined with two drum bags. Two packages of wood were double-bagged in plastic. One package contained 12 x 12 in. HEPA wood filter frames.

Absorbent Information: Oil-Dri located on bottom of liner.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene bags--6.75; wood and wood chips--81.5; Oil-Dri--4.25

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10215
Content Code: Unknown (330-RFP)
Container Wt (lb): 153
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location: Building 771

Container Type: Drum
Code Description: (see below)(RFP-Combustibles, dry)
Surface Dose Rate (mR/h): <0.5
Reassay (g): 9.7-Pu; 0.0-Am
Date Packaged: 1-24-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Plastics

Packaging Description: Packed in bagging material in a 90-mil liner.

Absorbent Information: None

Free Liquids: No
Compressed Gases: No
Particulates: No

Quantity:
Type:
Quantity:

Contained:
Quantity:
Type:

Packaging Efficiency: 85%
Volume % Combustible: >25%
Correct Content Code? No New Code: 337-plastic and nonleaded rubber
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-29-85
Container Condition: Moderate rust exterior. No rust interior
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Combustible waste including paper (kimwipes, coveralls, filter holders), cloth (hoods, booties), rubber (respirator hoses), poly bags and booties, PVC bags, surgeons gloves, misc. metal (respirator filters, pipe).

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag which contained loose packed waste or waste single bagged in PVC or poly bags.

Absorbent Information: Oil dry was located outside of the poly bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper-28.6; cloth-5.6; rubber-1.4, poly-10.0, PVC-6.0, surgeons gloves-7.4, metal-9.4, oil dry-3.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 85%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code: 330
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08200
Content Code: 330
Container Wt (lb): 129
Original Assay (g): 0.0-Pu, 0.0-Am
Packaging Location: Building 771

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Coveralls or tarps with eyelets

Packaging Description: Packed in poly bags, then a 90-mil liner

Absorbent Information: 2 gallons

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 90%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Paper and rags-Dry
Surface Dose Rate (mR/h): <0.5
Reassay (g): 11.0-Pu, 0.1-Am
Date Packaged: 12-6-72

VISUAL EXAMINATION

Examination Date: 1/29/85
Container Condition: Good-light rust outside and inside
Lead Lined:
Liner Type: Type I, 90 mil

Waste Form Description: Paper (coveralls, wipes); cloth (coveralls, hoods); plastics (raincoats, pants, supplied air hoods, poly bags, booties, squeeze bulbs, surgeons gloves).

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag which contained 5 packages, single bagged in poly.

Absorbent Information: Oil dry was located outside the poly drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper-4.2, cloth-12.4, plastics-24.4, surgeons gloves-3.2, oil dri-9.2.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08796
Content Code: 330
Container Wt (lb): 130
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Paper and rags-dry
Surface Dose Rate (mR/h): <0.5
Reassay (g): 4.5-Pu; 0.0-Am
Date Packaged: 1-8-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-6-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Rags, paper, poly

Packaging Description: Rags, paper, poly packed in 90 mil liner. No poly bags tied at top.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1/29/85
Container Condition: Exterior-light rust, interior-no rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (tissue box, newspaper, paper, tape rolls, wipes, coveralls), cloth (coveralls), plastics (tubing, supplied air hoods, booties), surgeons gloves.

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag. Three packages of waste were in unsealed poly bags, 2 packages were double bagged in poly, 2 more were single bagged in poly.

Absorbent Information: Oil dry was located outside the poly drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper-7.4; cloth-8.0; Plastics-19.5; surgeons gloves-6.0, oil dri-16.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 90-00042
Content Code: 330
Container Wt (lb): 252
Original Assay (g): 6.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Paper and rags-dry
Surface Dose Rate (mR/h): <0.5
Reassay (g): 16.0-Pu; 0.0-Am
Date Packaged: 4-26-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Paper and Polyethylene

Packaging Description: Packed in 90-mil liner, no bagging material. Could have some absorbed liquid at bottom of waste.

Absorbent Information: 2 quarts

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3/29/85
Container Condition: Exterior-light to moderate rust, interior-light rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (coveralls, wipes), cloth (booties), rubber (smoke test bulbs, gloves), polyethylene (vials, caps, bags, bottles, pipettes, tubing), PVC (bags, green metal (thermocouple wire, nuts) and wet sawdust.

Packaging Description: Type I rigid liner was lined with a single PVC drum bag. The drum bag had several 2-3" long tears. This waste had apparently been mechanically compacted. The waste was primarily triple bagged in poly, although a few package had PVC inner bag.

Absorbent Information: Oil dry was located outside the poly drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper-7.9; cloth-1.0; Rubber-7.0, Poly-45.3, PVC-104.7, metal-77, oil dry-1.5, wet sawdust-0.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 100%
Volume % Combustibles: 98%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 37-00689
Content Code: 336
Container Wt (lb): 140
Original Assay (g): 1.0-Pu; 0.0-Am
Packaging Location: Building 771

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Rags and paper, HEPA filters

Packaging Description: Rags and paper are packed in 90-mil liner, no poly bagging. HEPA filters are at bottom of waste.

Absorbent Information: None

Free Liquids: No
Compressed Gases: No
Particulates: Yes

Quantity:
Type:
Quantity: >10% pkg wt

Contained:
Quantity:
Type: HEPA Filters

Packaging Efficiency: 90%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: No-unknown amount of particulates in filters

Container Type: Drum
Code Description: Rags and paper-moist
Surface Dose Rate (mR/h): <0.5
Reassay (g): 1.0-Pu*
Date Packaged: 1-12-73

VISUAL EXAMINATION

Examination Date: 1/29/85
Container Condition: Exterior-light to moderate rust, interior-rusty lid
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (ice cream cartons, paper, wipes, strip charts, radiation monitoring probes, cardboard), cloth (glove liners), polyethylene (bags, pipettes), surgeons gloves, HEPA filters (2 ea. 12" x 12", 3 ea. 8" x 8").

Packaging Description: Type I rigid liner was lined with 2 polyethylene drum bag however only the outer bag was taped. Waste was loose packed in the drum; or single or double bagged in poly. Some ice cream cartons contained wipes, surgeons gloves.

Absorbent Information: Oil dry was located outside of drum bags in the bottom of rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper-19.4; cloth-0.25; Poly-7.4; PVC-3.0; surgeons gloves-3.2; HEPA filters-30.4; Oil dri-1.5.

WIPP-WAC Compliance Information: Particulates. HEPA filters were loaded with particulates. No sample was taken since the particulates appeared tightly bound. The weight of loaded particulates was estimated at 7.65 lbs by subtracting the weight of new wood frame filters of the same dimensions.

Packaging Efficiency: 100%
Volume % Combustibles: 95%
Correct Content Code? No New Code: 330
Other Information: *Not by segmented gamma scan, by Na I detector not sensitive to Am.
WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 89-03607
Content Code: 336
Container Wt (lb): 159
Original Assay (g): 1.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Paper and rags-moist
Surface Dose Rate (mR/h): <0.5
Reassay (g): 3.1-Pu; 0.0-Am
Date Packaged: 1-30-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Rags and poly

Packaging Description: The rags/poly are packed in poly bags, then packed in 90 mil liner. Waste appears dry.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1/29/85
Container Condition: Light to moderate rust on interior and exterior
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (wipes, hoods, coveralls, newspaper), cloth (glove liners), poly (bags, hood), PVC (booties, bags, sheeting), surgeons gloves, steel (sawblades welding rods, etc), aluminum (filter cartridges).

Packaging Description: Type I poly liner was lined with a single polyethylene drum bag. Waste items were loose packed into the poly bag. Two unsealed poly bags also contain waste.

Absorbent Information: Oil dry was located outside the poly drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper-28.4; cloth-3.4; poly-19.4, PVC-12.2, surgeons gloves-3.6, steel-2.0, aluminum-5.6, oil dry-16.0.

WIPP-WAC Compliance Information: 1. Particulates appeared to be floor sweepings. Analysis of the particulate indicates the waste contains 0.36 wt% <212 micron particles and 4.5E-4 wt% <10 micron particles.

Packaging Efficiency: 95%
Volume % Combustibles: 100%
Correct Content Code? No New Code: 330
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 90-00039
Content Code: 336
Container Wt (lb): 280
Original Assay (g): 1.0-Pu; 0.0-Am
Packaging Location:

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Paper, poly, etc.

Packaging Description: Packed in 90-mil liner

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Rags and paper-moist
Surface Dose Rate (mR/h): <0.5
Reassay (g): 9.8-Pu; 0.3-Am
Date Packaged: 4-24-73

VISUAL EXAMINATION

Examination Date: 3/29/85
Container Condition: Exterior-some light rust, Interior-moderate to heavy rust.
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (cardboard, wipes, paper), cloth (towels, skull cap, glove liners), rubber (gasket, respirator, surgeons gloves), polyethylene (tubing, bags, bottles) PVC (taped bag cards, "greenhouse", bag), metal (battery, cable).

Packaging Description: Type I rigid liner was lined with a single PVC bag. Most of the waste was packed directly into drum bag although some was double bagged in poly. This waste appeared to have been mechanically compacted.

Absorbent Information: Oil dry was located outside of the drum bag and outside the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper-40.0; cloth-8.4; rubber-27.3, poly-18.9, PVC-96.8, metal-1.0, oil dry-4.4.

WIPP-WAC Compliance Information: 1. Free liquids, 295 ml was found in a bottle of hand lotion. This hand lotion was not sampled.

Packaging Efficiency: 95%
Volume % Combustibles: 100%
Correct Content Code? No New Code: 330
Other Information:

WIPP-Certifiable: No-free liquids (295 ml)

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39465
Content Code: 336
Container Wt (lb): 231
Original Assay (g): Pu-17.0
Packaging Location: Bldg 771

Container Type: Drum
Code Description: Combustibles, Wet
Surface Dose Rate (mR/h): 3.6
Reassay (g): Pu-10.0
Date Packaged: 1-3-03

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: Unknown if it contains a 90-mil rigid polyethylene liner.
Lead-Lined: Yes Other Lead:

Waste Form Description:

Packaging Description:

Absorbent Information:

Free Liquids: Quantity: Contained:
Compressed Gases: Type: Quantity:
Particulates: Quantity: Type:

Packaging Efficiency:
Volume % Combustible:
Correct Content Code? New Code:
Other Information: Unable to penetrate the lead liner adequately enough to evaluate.

WIPP-Certifiable: No--due to limited penetration.

VISUAL EXAMINATION

Examination Date: 8-13-83
Container Condition: Good
Lead-Lined: Yes
Liner Type: Type II 90-mil

Waste Form Description: Eleven packages containing Kimwipes, rags, polyethylene bottles, ice cream cups, etc.

Packaging Description: The Type II liner is lined with two polyethylene drum bags. All wastes are double-bagged.

Absorbent Information: Vermiculite located on top of liner.

Physical State of Waste: Dry
Component Wt (lb): Kimwipes--0.5; polyethylene bottles, ice cream cups, cut-out bags, Tygon--45.25; vermiculite--3.0; wood--0.25

WIPP-WAC Compliance Information: None

Packaging Efficiency: 85%
Volume % Combustibles: 100
Correct Content Code? No New Code: 330 Dry combustibles

Other Information: Slight internal rust on drum. Lead sheeting was not weighed.

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 23-01599
Content Code: 336
Container Wt (lb): 140
Original Assay (g): Pu-4.0
Packaging Location: Bldg 776, Rm 134

Container Type: Drum
Code Description: Combustibles, Wet
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.0
Date Packaged: 12-2-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil, liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Combustible materials including a few metal items (screws, washers, nails, and thin aluminum or plastic tubing with a nut).

Packaging Description: No individual packaging.

Absorbent Information: Information not recorded.

Free Liquids: No
Compressed Gases: No
Particulates: Yes
Quantity:
Type:
Quantity: 2 tsp
Contained:
Quantity:
Type: Unknown

Packaging Efficiency: 90%
Volume % Combustible: 98
Correct Content Code? Yes New Code:
Other Information: Particulate located at bottom of rigid liner.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-22-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Kimwipes, booties, polyethylene and PVC bags, surgeon's gloves, and nails.

Packaging Description: Ranges from loose waste to triple-bagged waste.

Absorbent Information: Vermiculite located on top of liner.

Physical State of Waste: Damp
Component Wt (lb): Kimwipes--34.0; cloth booties--8.5; polyethylene and PVC bags--17.0; PVC pipe--3.0; surgeon's gloves--5.75; nails--1.5; vermiculite--3.5;

WIPP-WAC Compliance Information:
1. Liquids: Wet Kimwipes--total of 188 ml of free liquid. Analysis indicates a pH of 7. The major composition is Freon TF and an unidentified oil.

Packaging Efficiency: 85%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39084
Content Code: 336
Container Wt (lb): 160
Original Assay (g): Pu-3.0
Packaging Location: Bldg 771, Rm 181

Container Type: Drum
Code Description: Combustibles, Wet
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-3.0
Date Packaged: 9-24-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Primarily wood filter frames, plywood and a few nails.

Packaging Description: Waste contained in polyethylene bags.

Absorbent Information: Information not recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 99.8
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-22-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Four packages of filter frames.

Packaging Description: Type II liner is lined with two polyethylene drum bags. The filter frames are double-contained in plastic.

Absorbent Information: Vermiculite located outside the liner.

Physical State of Waste: Dry
Component Wt (lb): Wood--69.25; polyethylene and PVC bags--12.0; vermiculite--3.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 40%
Volume % Combustibles: 100%
Correct Content Code? No New Code: 330 (Dry combustibles)
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

GENERAL INFORMATION

Container Identification: 02-40137
Content Code: 336
Container Wt (lb): 722
Original Assay (g): Pu-23.0
Packaging Location: Bldg 771, Rm 1796

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type:

Lead-Lined: Yes Other Lead:

Waste Form Description:

Packaging Description:

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: Type: Quantity:
Particulates: Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible:
Correct Content Code? New Code:
Other Information: Unable to penetrate lead lining adequately enough to evaluate completely.

WIPP-Certifiable: No--due to limited penetration.

Time Period: 6-month-old waste

Container Type: Drum
Code Description: Combustibles, Wet
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-23.0
Date Packaged: 3-9-83

VISUAL EXAMINATION

Examination Date: 8-24-83
Container Condition: Good, some small dents on middle ring.
Lead-Lined: Yes
Liner Type: Type II 90-mil

Waste Form Description: Tygon tubing and plastic bottles contained in 15 packages. An extra liner lid was found at the bottom of the liner.

Packaging Description: Type II liner lined with two polyethylene drum bags. The waste items are double-bagged in plastic.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): Cloth rags--1.0; Tygon, PVC, bottles, Teflon--46.5; vermiculite--5.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 70%
Volume % Combustibles: 100
Correct Content Code? No New Code: 330 (Dry combustibles)
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 47-00256
Content Code: 336
Container Wt (lb): 149
Original Assay (g): Pu-48.0
Packaging Location: Bldg 771, Rm 146

Container Type: Drum
Code Description: Combustibles, Wet
Surface Dose Rate (mR/h): 5.2
Reassay (g): Pu-52.0
Date Packaged: 3-18-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner also lined with a poly drum bag.
Lead-Lined: No Other Lead: 1-lead-lined glove

Waste Form Description: Combustibles including some filters inside polyethylene bottles. One tablespoon and one lead-lined glove near bottom of waste.

Packaging Description: Some of the waste is in residue process containers and polyethylene bottles.

Absorbent Information: Information not recorded.

Free Liquids: Yes Quantity: 6 tsp Contained: Yes
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 98%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Liquid contained in three bottles--? tsp each.

WIPP-Certifiable: No--due to small amount of liquids.

VISUAL EXAMINATION

Examination Date: 8-23-83
Container Condition: Lid appeared caved-in
Lead-Lined: No
Liner Type: Type I 90-mil

Waste Form Description: Towels, Tygon tubing, empty plastic bottles, leaded gloves, and Ful-Flo filters.

Packaging Description: Waste items are contained in double plastic bags. Total of 29 packages.

Absorbent Information: Vermiculite located inside the liner.

Physical State of Waste: Damp
Component Wt (lb): Cloth towels--2.25; polyethylene bags, bottles, Tygon tubing--63.0; leaded gloves--2.75; Ful-Flo filters--4.0; vermiculite--2.5.

WIPP-WAC Compliance Information:
1. Liquids: No laboratory results received.

Packaging Efficiency: 85%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 92-00419
Content Code: 336
Container Wt (lb): 105
Original Assay (g): Pu-1.0
Packaging Location: Bldg 371, Rm 3567A

Container Type: Drum
Code Description: Combustibles, Wet
Surface Dose Rate (mR/h): 0.1
Reassay (g): 0.0
Date Packaged: 2-10-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Primarily polyethylene bottles.

Packaging Description: No individual packaging.

Absorbent Information: Information not recorded.

Free Liquids: Yes Quantity: 7 tsp Contained: Yes
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Liquids located in five bottles in the following amounts: 2 tsp, 3 tsp, 1 tsp, and two with 1/2 tsp each.

WIPP-Certifiable: No--due to small amount of liquids.

VISUAL EXAMINATION

Examination Date: 8-22-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Ten small polyethylene bottles, a rainsuit, Kimwipes and paper.

Packaging Description: The Type II liner is lined with a polyethylene drum bag. The bottles are double-bagged in plastic.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): Kimwipes and paper--0.25; cloth towels--1.25; PVC bags and polyethylene bottles--4.75; surgeons gloves--0.5; vermiculite--6.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information: No free liquids found.

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 3-year old

GENERAL INFORMATION

Container Identification: 02-34820
Content Code: 336
Container Wt (lb): 100
Original Assay (g): Pu-3.0
Packaging Location: Bldg 771, Rm 149

Container Type: Drum
Code Description: Combustibles, Wet
Surface Dose Rate (mR/h): 0.1
Reassay (g): 1.0
Date Packaged: 11-13-83

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Combustibles and some wire at bottom of waste.

Packaging Description: Combustibles are contained in plastic bags.

Absorbent Information: Portland cement--1-1/2 gal.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 40%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-3-83
Container Condition: Good; slight rust on drum lid.
Lead-Lined: No
Liner Type: 90-mil

Waste Form Description: Paper and cloth coveralls, Kimwipes, rubber gloves, supply air suits (hoods, pants, booties), and an extension cord.

Packaging Description: 90-mil liner is lined with two 55-gal drum bags. The waste items are contained inside the plastic bags.

Absorbent Information: Oil-Dri is located in the bottom of the liner.

Physical State of Waste: Damp
Component Wt (lb): Paper coveralls and Kimwipes--3.0; cloth overalls--3.0; rubber gloves--1.0; plastic air suits--10.0; extension cord--4.5; Oil-Dri--5.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 40%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information: Slight amount of condensation inside a bag--no sample taken.

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 3-year old

GENERAL INFORMATION

Container Identification: 22-00748
Content Code: 336
Container Wt (lb): 100
Original Assay (g): Pu-0.0
Packaging Location: Not available.

Container Type: Drum
Code Description: Combustibles, Wet
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-3.0
Date Packaged: 1-20-81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Combustibles and two Fibre-Paks.

Packaging Description: Combustible wastes are contained in bottom Fiber-Pak. Top Fiber-Pak is empty.

Absorbent Information: Oil-Dri, 1 quart.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 20%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Lid not closed on bottom Fiber-Pak.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-3-83
Container Condition: Very good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Damp Kimwipes, two leaded gloves, broken Raschig rings, and two Fiber-Paks.

Packaging Description: Type II liner is lined with three polyethylene drum bags. The waste is contained in a Fiber-Pak. The one fiber-pack is empty.

Absorbent Information: Oil-Dri is located on the bottom of the rigid liner.

Physical State of Waste: Damp
Component Wt (lb): Kimwipes and Fiber-Paks--14.0; polyethylene bags--6.0; leaded gloves--1.75; Raschig rings--1.0; Oil-Dri--5.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 30%
Volume % Combustibles: 98
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 744-3792
Content Code: 337
Container Wt (lb): 134
Original Assay (g): Pu-4.2
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Plastic and Nonleaded Rubber
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-6.8
Date Packaged: 9-16-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Empty plastic bottles.

Packaging Description: Bottles are contained in plastic bags.

Absorbent Information: Bottles contain a small amount of Portland cement (2 cups total). Approximately 1-1/1 gal of Oil-Dri is located at bottom of the liner.

Free Liquids: Yes Quantity: 1 quart Contained: Yes, see below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Four bottles contain approximately 1 cup each free liquid.

WIPP-Certifiable: No--due to free liquids.

VISUAL EXAMINATION

Examination Date: 8-24-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Polyethylene and PVC bottles (13 total), and a yellow sludge contained in a polyethylene bottle.

Packaging Description: The Type II liner is lined with one polyethylene and one PVC drum bag. All 13 bottles were double-bagged in plastic.

Absorbent Information: Oil-Dri is located inside the inner drum bag. Vermiculite is located on top of the outer drum bag.

Physical State of Waste: Damp
Component Wt (lb): Plastic bottles and bags--31.5; salt or sludge--6.25; vermiculite--16.25; Oil-Dri--see other information.

WIPP-WAC Compliance Information:
1. Liquids: Volumes not measured. Analysis of three samples indicates a pH of 12, with the major component being water. Minor components are carbonates; and carbonates and/or nitrates for two samples.
2. Sludge: Analysis indicates a pH of 12 with the major component being nitrates and/or carbonates and the minor component is water.

Packaging Efficiency: 90%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:
1. The damp sludge or salt was contained in a polyethylene bottle.
2. Oil-Dri weight is included with the plastics since it was adhered to the plastic.

WIPP-Certifiable: No

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 744-3823
Content Code: 337
Container Wt (lb): 121
Original Assay (g): Pu-0.5
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Plastic and Nonleaded Rubber
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-6.5
Date Packaged: 12-9-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Empty plastic bottles.

Packaging Description: Bottles are contained in plastic bags.

Absorbent Information: Some bottles contain Portland cement as absorbent (total: 1 cup). Approximately 1 gal Oil-Dri has been added to the drum as absorbent.

Free Liquids: Yes Quantity: see below Contained: see below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency:
Volume % Combustible: 100%
Correct Content Code? Yes New Code:
Other Information: Two (2) bottles contain liquids. One contains approximately 1/4 cup, the other contains approximately 1 tsp. Some bottles contain Portland cement as absorbent (total: 1 cup). Approximately 1-gal oil-dry has been added to the drum as absorbent.

WIPP-Certifiable: No--due to small amount of free liquid.

VISUAL EXAMINATION

Examination Date: 8-24-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Fourteen empty polyethylene bottles.

Packaging Description: Type II liner is lined with a PVC and a polyethylene drum bag. Each bottle is either double- or triple-bagged in plastic.

Absorbent Information: Vermiculite is located on top of drum bag.

Physical State of Waste: Dry
Component Wt (lb): Plastic and polyethylene bottles--28.0; vermiculite--16.75.

WIPP-WAC Compliance Information:
1. Liquids: Volume not measured. Analysis of a sample of the liquid (12 ml) indicates a a pH of 7. The major component is water and the minor component is silicates. The liquid was found in a plastic bag containing a bottle.

Packaging Efficiency: 95%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 744-3789
Content Code: 337
Container Wt (lb): 117
Original Assay (g): Pu-2.5
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Plastic and Nonleaded Rubber
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-7.6
Date Packaged: 8-20-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Empty plastic bottles.

Packaging Description: Bottles in plastic bags.

Absorbent Information: Portland cement has been added to some of the bottles as absorbent (approximately 1/2 cup total). Approximately 1 gal Oil-Dri also.

Free Liquids: Yes Quantity: 4 tsp Contained: Yes
Compressed Gases: Type: Quantity:
Particulates: Quantity: Type:

Packaging Efficiency: Not recorded
Volume % Combustible: 100%
Correct Content Code? Yes New Code:
Other Information: Two bottles contain approximately 2 tsp each free liquid. Portland cement has been added to some of the bottles as absorbent (approximately 1/2 cup total). Approximately 1-gal Oil-Dri.

WIPP-Certifiable: No--due to small amount of free liquid.

VISUAL EXAMINATION

Examination Date: 8-24-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Seventeen (17) packages each containing a polyethylene bottle.

Packaging Description: Type II liner is lined with a polyethylene and PVC drum bag. The polyethylene bottles are double- and triple-bagged.

Absorbent Information: Oil-Dri is located inside the inner drum bag. Vermiculite is located on top of the outer drum bag.

Physical State of Waste: Damp
Component Wts (lb): Plastic and plastic bottles--27.25; vermiculite--3.5; Oil-Dri--8.0.

WIPP-WAC Compliance Information:
1. Liquids: Volume not measured. Analysis indicates the liquid sample (1 ml) has a pH of 12. The composition of the liquid is water, carbonates, and/or nitrates.
2. Particulates: Analysis of particulate material mixed with sludge indicates that the waste contains 0.33 wt% <212 μm and 0.005 wt% <10 μm particulates.

Packaging Efficiency: 90%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Combustibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 55-00435
Content Code: 337
Container Wt (lb): 134
Original Assay (g): Pu-37.0
Packaging Location: Bldg 779, Rm 160A

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Miscellaneous plastic items

Packaging Description: Items are individually bagged in plastic.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Plastic and Nonleaded Rubber
Surface Dose Rate (mR/h): 5.0
Reassay (g): Pu-31.0
Date Packaged: 2-21-83

VISUAL EXAMINATION

Examination Date: 8-24-83
Container Condition: Good; small dents on lower 2/3 of drum.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Kimwipes, cloth rags, surgeon's gloves, polyethylene bags, and wood.

Packaging Description: Type II liner is lined with two polyethylene bags. Waste items are contained in a total of 13 packages that are double- and triple-bagged in plastic.

Absorbent Information: Vermiculite located on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): Kimwipes--5.25; cloth rags--1.5; polyethylene--40.25; surgeon's gloves--1.5; wood--0.75; vermiculite--4.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information: Slight rust inside drum.

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10180
Content Code: 337
Container Wt (lb): 142
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location: Building 771; Room 181

Container Type: Drum
Code Description: Plastics and nonleaded rubber
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.0-Pu*
Date Packaged: 1-23-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Plastic

Packaging Description: Plastic is in poly bag which is tied at the top, and then placed in a 90-mil liner. Scissors were left on top of bag.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-30-85
Container Condition: Light to moderate rust; interior and exterior
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (wipes, towels, coveralls), cloth (supplied air suit, hoods), PVC ("greenhouse", sheeting), poly bags, surgeon's gloves, scissors.

Packaging Description: Type I rigid liner was single lined with poly drum bags. The waste was in 2 individual packages in the poly drum bag. The top package--was a taped poly drum liner containing the greenhouse. The bottom package--contained the rest of the waste in double poly drum bags, unsealed.

Absorbent Information: Oil-Dri was located outside of the poly drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper-7.0; cloth-7.0; PVC-40.8, poly-5.8, surgeon's gloves-1.0, scissors-0.5, oil dry-6.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information: *Could not use segmented gamma scan. Reassay done with Na I detector-not sensitive to Am.
WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 37-00698
Content Code: 337
Container Wt (lb): 230
Original Assay (g): 2.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Plastic and nonleaded rubber
Surface Dose Rate (mR/h): <0.5
Reassay (g): 3.7-Pu; 0.1-Am
Date Packaged: 1-23-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Plastics and surgeons gloves

Packaging Description: Waste is in 90-mil liner. One bag is tied at top, but not all is contained in bag.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 90%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-30-85
Container Condition: Exterior-moderate rust, Interior-very light rust on lid.
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (wipes, sheets), cloth (booties, glove liners), rubber 3 ea. nonleaded glovebox gloves), poly bags, surgeon's gloves.

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag. Most of the waste was packed directly into the drum bag although some waste was double bagged in individual poly bags. The lower portion of the drum contained 6-8 unsealed poly drum bags with a small amount of waste in each bag.

Absorbent Information: Oil-Dri was located outside of the poly bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper-2.0; cloth-0.5; rubber-1.5, poly-5.4, surgeon's gloves-143.4, oil dry-3.4.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 95%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 37-00711
Content Code: 337
Container Wt (lb): 191
Original Assay (g): 1.0-Pu; 0.0-Am
Packaging Location: Building 771, Labs

Container Type: Drum
Code Description: Plastic and nonleaded rubber
Surface Dose Rate (mR/h): 0.5
Reassay (g): 5.6-Pu; 0.0-Am
Date Packaged: 2-10-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-9-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Plastics/paper waste

Packaging Description: Packaged in a plastic bag

Absorbent Information: 2 pints

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-30-85
Container Condition: Exterior-moderate rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (wipes, towels), rubber (1 ea. glovebox glove), poly (drum bag), surgeon's gloves, scissors.

Packaging Description: Type I rigid liner was lined with a single poly drum bag. The waste was packed directly into the drum bag or into 5 ea. unsealed poly bags.

Absorbent Information: Oil-Dri was located outside of the poly bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper-1.0; rubber-0.5; poly-1.0; surgeon's gloves-82.0, scissors-0.5, oil dry-7.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustible

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 36-00723
Content Code: 337
Container Wt (lb): 184
Original Assay (g): 5.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Plastic and nonleaded rubber
Surface Dose Rate (mR/h): <0.5
Reassay (g): 11.9-Pu; 0.0-Am
Date Packaged: 2-16-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-9-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Plastic waste

Packaging Description: Waste is packaged in poly bags

Absorbent Information: 2 gallons

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-30-85
Container Condition: Exterior-moderate rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Combustibles including rubber (4 ea. nonleaded glovebox gloves) polyethylene (bottles, vials, syringes, vial caps, bags) PVC (taped bag ends), surgeon's gloves.

Packaging Description: Type I rigid liner was lined with a single poly drum bag. The waste single or double bagged in poly.

Absorbent Information: Oil-Dri was located outside of the poly bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Rubber-3.0, poly-11.7; PVC-26.8, surgeon's gloves 52.6, oil dry 12.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 85%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 65-00137
Content Code: 337
Container Wt (lb): 164
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Plastic and nonleaded rubber
Surface Dose Rate (mR/h): <0.5
Reassay (g): 1.2-Pu; 0.1-Am
Date Packaged: 5-1-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Plastics/paper. Flex-hose at bottom, poly jar.

Packaging Description: Plastics/paper are put in poly bags, flex-hose is at the bottom. There is a poly jar with plastic in the inside of the bag and then the 90-mil liner.

Absorbent Information: 2 quarts

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: 70%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 2-18-85
Container Condition: Exterior-some moderate rust, Interior-light rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (wipes, paper cleanser can), cloth (booties), rubber (tubing hose, vacuum cleaner hose), polyehtylene (1-gal bottle, bags, scrub pads), PVC (sheet), wood (broom).

Packaging Description: Type I rigid liner was double lined with polyethylene drum bags. The waste was contained in a total of 6 packages which were double bagged in 15-gallon poly bags.

Absorbent Information: Oil-Dri was located outside of the poly bag in the bottom of the rigid liner.

Physical State of Waste: Damp
Component Weight (LB): Paper-56.0; cloth-8.0; rubber-5.0, poly-11.8, PVC-4.0, surgeon's gloves-3.0, wood-0.5, oil dry-6.5.

WIPP-WAC Compliance Information: 1. Free liquids:20 ml of liquid was found outside of the rigid liner in the drum bottom. The origin of the liquid did not appear to be from the waste, but rather from residual liquid in the drum when the rigid liner was installed. Analysis indicates a pH of 5 with components of water, fluorides, sulfates, nitrates and trace organics.

Packaging Efficiency: 80%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-free liquid (20 ml)

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 389-85743
Content Code: 337
Container Wt (lb): 1600
Original Assay (g): 13.0-Pu, 0.0-Am
Packaging Location: Building 776, Room 146

Container Type: Box
Code Description: Plastic and nonleaded rubber
Surface Dose Rate (mR/h): <0.5
Reassay (g): Not performed
Date Packaged: 1-29-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-6-84
Liner Type: Poly box liner
Lead-Lined: No Other Lead:

Waste Form Description: Mixture of poly, paper, metal, etc. Also a 5-gallon pail.

Packaging Description: 5-gallon pail at bottom of waste has some absorbed material in the bottom 2 inches. Waste is put in poly bagging material then in a box liner. There is some absorbent at the bottom of the box.

Absorbent Information: 2 quarts

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 800 lbs of organic materials

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 12-19-84
Container Condition: Box and fiberglass condition was very good.
Lead Lined: No
Liner Type: PVC/cardboard

Waste Form Description: Approximately three-fourths of the box contents were plastic as styrofoam (1" sheets). Some sheet plastic in double bags was also present. Other waste such as sheet metal (lids, wall section), copper (pipe), steel (0.25" I-beams, angle sliding bars, pipe, ladder section) wood (planks, sawhorses, scaffolding, lumber) and insulation was also in the box.

Packaging Description: The box was lined with 2 PVC liners, then a cardboard liner, then a third PVC liner. Waste styrofoam was double bagged in poly drum bags. Wood and metal were unwrapped and layered in the box.

Absorbent Information: No absorbents were present.

Physical State of Waste: Dry
Component Weight (LB): Cardboard liner-6.2, plastic-338.4, sheet metal-39.2, copper-4.4, carbon steel-406.6, wood-134.2, insulation 134.1.

WIPP-WAC Compliance: Liquids approximately 1,400 ml of very viscous, black strippable coating was located in a plastic pail. The liquid was under a solidified layer of coating. No sample was taken. Particulates 697.43 grams of dust and floor sweepings were collected. Analysis of the particulate indicated the waste contained 0.043 wt % <212 micron-particles and 1.2 E-4 wt % <12 micron-particles.

Packaging Efficiency: 100%
Volume % Combustibles: 95%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No free liquids (1.4 liters)

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 746-2906
Content Code: 900*
Container Wt (lb): 250
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: LSA Plastics, paper, etc.
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.5-Pu; 0.2-Am
Date Packaged: 12-23-72

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Rags and paper

Packaging Description: Packed in poly bags, then in 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 2-18-85
Container Condition: Exterior and interior moderate rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (wipes), cloth (booties), PVC (booties, tape, bags), poly (bags), surgeon's gloves, stainless steel (shims), carbon steel (pipe cap, welding rod, nut, bolt).

Packaging Description: Type I rigid liner was lined with a polythylene drum bag. The waste was contained in a total of 6 packages which were double bagged in polyethylene.

Absorbent Information: Oil-Dri was located outside of the poly drum bag in the bottom of the rigid liner. Portland cement was located outisde of the individual packages some portland was hardened and some was powdered. Some hardened portland was located outside of the rigid liner in the drum bottom.

Physical State of Waste: Damp
Component Weight (LB): Paper-113.0, cloth-1.8; PVC-7.0, poly-15.4, surgeon's gloves-4.0, stainless steel-0.5, carbon steel-1.5, Portland cement-26.0, oil dry-10.8.

WIPP-WAC Compliance Information: 1. Free liquids: 15 ml of water or condensation was located outside the rigid liner in the drum bottom. The origin of the liquid did not appear to be from the waste, but rather from residual liquid in the drum when the rigid liner was installed. Analysis of the liquid indicates a pH of 12 with components of water, silicates, carbonates, trace organics, nitrates.

Packaging Efficiency: 70%
Volume % Combustibles: 97%
Correct Content Code? Yes* New Code: 330
Other Information: *Code discontinued in 1974. Now using 330, 336 or 337. Old code is correct, new code shown for reference only.
WIPP-Certifiable: No-free liquids (15 ml)

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 746-2918
Content Code: 900*
Container Wt (lb): 370
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Plastic in poly bags. Also a 3/4 HP motor.

Packaging Description: Plastic is packed in poly bags, then packed in 90-mil liner. Also has a 3/4 HP motor buried in middle of waste near top.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: LSA Plastics, paper, etc.
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.6-Pu; 0.2-Am
Date Packaged: 1-23-73

VISUAL EXAMINATION

Examination Date: 2-18-85
Container Condition: Exterior-moderate rust, Interior-light rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (wipes, labels, tags, adding machine paper, monitoring probe, pipe), surgeon's gloves, carbon steel (sheet metal, pipe hanger, flashlight), 1.5 HP electric motor, leather (gloves), wood (broom).

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag which contained 20% of the waste directly. The remaining waste was single or double bagged in polyethylene. The drum bag had several pinholes to 1/4" long holes.

Absorbent Information: Oil-Dri and portland cement powder and chunks were located outside of poly drum bag in the bottom of the rigid liner. Portland cement powder and chunks were located on top of the individual waste packages inside of the poly drum bag.

Physical State of Waste: Dry
Component Weight (LB): Paper-15.4, cloth-11.8; gloves-0.2, poly-5.6, PVC-11.8, surgeon's gloves-16.6, carbon steel-2.2, electric motor-42.9, leather-0.2, wood-1.5, Portland cement-23.0, oil dry-11.8.

WIPP-WAC Compliance Information: 1. Free liquids: less than 10 ml of water of condensation was located outside of the rigid liner on top of the liner lid in the drum bottom. The origin of the liquid did not appear to be from the waste, but rather from residual liquid in the drum when the rigid liner was installed. Therefore no sample was taken.

Packaging Efficiency: 85%
Volume % Combustibles: 95%
Correct Content Code? Yes* New Code: 330
Other Information: *Code discontinued in 1974. Now using 330, 336 or 337. Old code is correct. New code shown for reference only.
WIPP-Certifiable: No-free liquids (10 ml)

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 746-7008
Content Code: 900
Container Wt (lb): 180
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: LSA plastic and paper
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.0-Pu; 0.0-Am
Date Packaged: 5-7-73

RADIOGRAPHIC EXAMINATION

Examination Date:
Liner Type: 90 mil poly bag
Lead-Lined: No Other Lead:

Waste Form Description: Miscellaneous plastics and paper. A 2-in. pipe.

Packaging Description:

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 98%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-22-85
Container Condition: Exterior-some moderate rust, Interior-some light rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Paper (wipes), cloth (booties), surgeon's gloves, poly (bags, containers), stainless steel (1 piece of pipe), concrete chunks, electric cord, wood (scrub brush, paint brush, 2" x 4" x 6" long piece).

Packaging Description: Type I rigid liner was lined with a polyethylene round bottom bag. The waste was contained in 2 packages which were single untaped poly bags and some waste was loose inside the round bottom bag.

Absorbent Information: Oil-Dri was located outside the drum bag in the bottom of the rigid liner (18.0 lbs) and was also located inside the bag (4.4 lbs).

Physical State of Waste: Dry
Component Weight (LB): Paper-24.2; cloth-10.1; surgeon's gloves-11.0, poly-14.4, stainless steel-4.8, concrete-8.8, electric cord-0.9, wood-1.8, oil dry-22.4.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 85%
Volume % Combustibles: 95%
Correct Content Code? Yes* New Code: 330*
Other Information: *code discontinued in 1974. Now using 330, 336 or 337. Old code is correct. New code shown for reference only.
WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08583
Content Code: 970*
Container Wt (lb): 160
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Wood
Surface Dose Rate (mR/h): <0.5
Reassay (g): 2.7-Pu; 0.0-Am
Date Packaged: 1-3-73

RADIOGRAPHIC EXAMINATION

Examination Date: 2-20-85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Wood filter frames, with nails, contained in poly bags.

Packaging Description:

Absorbent Information: Approximately 1 quart of Oil-Dri in bottom of rigid liner.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-22-85
Container Condition: Exterior-some minor light rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Wood filter frames.

Packaging Description: Type I rigid liner was single lined with polyethylene drum bags. Four packages of wood were single bagged in PVC.

Absorbent Information: Oil-Dri was located outside the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC-4.8, poly-2.0, wood-77.9, oil dry-7.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 100%
Correct Content Code? Yes* New Code: 330*
Other Information: *Code 970 discontinued in 1978. The code is correct. The new code shown for reference only.
WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08604
Content Code: 490
Container Wt (lb): 144
Original Assay (g): 3.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: CWS Filters
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.7-Pu; 0.0-Am
Date Packaged: 1-4-73

RADIOGRAPHIC EXAMINATION

Examination Date: 2-21-85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Wood filter frames with some nails.

Packaging Description: Wood is in poly bags tied at the top in a 90 mil liner.!

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 100%
Correct Content Code? No New Code: 970
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-28-85
Container Condition: Exterior-light to moderate rust, Interior-some very light rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Wood filter frames.

Packaging Description: Type I rigid liner was single lined with a polyethylene drum bag. A total of 2 packages contained wood in an inner sealed PVC bag and an outer unsealed poly bag.

Absorbent Information: Oil-Dri was located outside the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC (bags)-3.1, poly (bags)-1.5, wood-57.6, Oil-Dri-2.2.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 70%
Volume % Combustibles: 100%
Correct Content Code? No* New Code: 330 (970)
Other Information: *This drum contained wood filter frames, but not filters. It is therefore code 330 (970) during date packaged).
WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-8700
Content Code: 970
Container Wt (lb): 197
Original Assay (g): 2.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Wood
Surface Dose Rate (mR/h): <0.5
Reassay (g): 1.7-Pu; 0.1-Am
Date Packaged: 1-5-73

RADIOGRAPHIC EXAMINATION

Examination Date: 2-20-85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Wood filter frames with some nails.

Packaging Description: Waste is in poly bags.

Absorbent Information: Oil-Dri; 2-gallons.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-22-85
Container Condition: Exterior-light to moderate localized rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Wood filter frames.

Packaging Description: Type I rigid liner was single lined with a polyethylene drum bag. Five packages of wood were double bagged in PVC outer bags and poly inner bags.

Absorbent Information: Oil-Dri was located outside the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC-11.0, poly-2.9, wood-92.4, oil dry-11.4

WIPP-WAC Compliance Information: None

Packaging Efficiency: 85%
Volume % Combustibles: 100%
Correct Content Code? Yes* New Code: 330
Other Information: Code 970 was discontinued in 1978. The old code is correct. The new code is shown for reference only.
WIPP-Certifiable: Yes

Waste Form Category: Combustibles

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 389-85289
Content Code: 970
Container Wt (lb): 2120
Original Assay (g): 13.0-Pu, 0.0-Am
Packaging Location: Building 776, Room 146

Container Type: Box
Code Description: Wood
Surface Dose Rate (mR/h): 4,6
Reassay (g): Not performed
Date Packaged: 7-11-72

RADIOGRAPHIC EXAMINATION

Examination Date: 11-6-84
Liner Type: Box liner
Lead-Lined: No Other Lead:

Waste Form Description: Wood, metal items

Packaging Description: Wood is packed in poly bagging in the top half of the box. The bottom half is a mixture of waste, but mostly metal items. The box has a liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-15-85
Container Condition: Box and fiberglass condition was very good.
Lead Lined: No
Liner Type: PVC/cardboard

Waste Form Description: Top half of box contained. plywood (old cutup fiberglass box). The bottom half contained cut-up rigid drum liners, PVC (pipe, drum), carbon steel (duct grill, 3 crushed drums, pipe, conduit, steel metal-control panel, angle iron, banding) electrical cables, stainless steel (tank top-0.5" thick).

Packaging Description: The box was lined with a PVC liner, then a cardboard liner. The waste was generally loose packed, but some of the metal was single or double bagged. The top half of the box contained wood, the bottom half contained miscellaneous metal. The two halves were separated by a layer of cardboard.

Absorbent Information: No absorbents were present.

Physical State of Waste: Dry
Component Weight (LB): Paper-13.2, cardboard-57.6, PVC-28.6, poly sheet-13.2, poly drum liners 128.5, carbon steel-781.0, wood 399.1, stainless steel-105.2.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 100%
Volume % Combustibles: 60%
Correct Content Code? Yes* New Code: 330
Other Information: *970 is an old code for wood and was used until 1978. This waste is now classified as 330. The old code is correct; the new code is shown for reference only.

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 02-40153
Content Code: 320
Container Wt (lb): 277
Original Assay (g): Pu-0.0
Packaging Location: Building 771

Container Type: Drum
Code Description: Heavy Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-11.8; Am-0.2
Date Packaged: 03/23/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Waste consists of tubing, conduit, wire, and electrical items and fixtures.

Packaging Description: Waste items are contained in the drum bags.

Absorbent Information: Approximately 5 gallons of absorbent.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 60%
Volume % Combustible: 2%
Correct Content Code? No New Code: 480
Other Information: Organic weight-10 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/12/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Cast iron conduit, light fixtures, aluminum light guards.

Packaging Description: Type II liner is lined with 2 polyethylene drum bags. Waste items directly in drum bags.

Absorbent Information: Vermiculite on top of outer sealed drum bag-8 lbs.

Physical State of Waste: Dry
Component Weight (LB): 180 lbs of cast iron conduit, wiring, light fixtures; 9 lbs of aluminum (light guards).

WIPP-WAC Compliance Information: none

Packaging Efficiency: 70%
Volume % Combustibles: 2%
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 29-00513
Content Code: 320
Container Wt (lb): 137
Original Assay (g): Pu-3.0
Packaging Location: Building 559

Container Type: Drum
Code Description: Heavy Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.2; Am-0
Date Packaged: 3/24/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Waste consists of small metal pieces and several sheet metal items.

Packaging Description: Waste items are contained in polybags.

Absorbent Information: Approximately 20 gallons of absorbent.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 20%
Volume % Combustible: 2%
Correct Content Code? No New Code: 480
Other Information: Organic weight-10 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/12/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Plastic gears, mild steel-instrument panels, brackets, scale bridge and 1/4-in. drill.

Packaging Description: Type II liner is lined with polyethylene drum bag. Waste items double-contained in poly. bags; in drum bag.

Absorbent Information: Vermiculite on top of outer sealed drum bag-19 lbs.

Physical State of Waste: Dry
Component Weight (LB): 4 lbs plastics; 33 lbs mild steel-instrument panel, brackets, scale bridge, drill.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 20%
Volume % Combustibles: 3%
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 29-00528
Content Code: 320
Container Wt (lb): 139
Original Assay (g): Pu-0.0
Packaging Location: Building 559

Container Type: Drum
Code Description: Heavy Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.3; Am-0.0
Date Packaged: 3/24/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Waste consists of electrical components and a Vollrath can.

Packaging Description: Waste items are contained in the plastic drum bag inside the 80-mil liner.

Absorbent Information: Approximately 15 gallons of absorbent.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 15%
Volume % Combustible: 2%
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/12/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Furnace, hotplates, wire brushes, putty knife, knife, respirator filter.

Packaging Description: Type II liner is lined with polyethylene drum bag. Waste items double-contained in plas. bag in drum bag.

Absorbent Information: Vermiculite on top of sealed drum bag-16 1/2 lbs.

Physical State of Waste:
Component Weight (LB): 4.5 lbs plastics, 43 lbs furnace, hotplates, wire brushes, knives, respirator filter, and 6 lbs ceramic furnace plates.

WIPP-WAC Compliance Information: None

Packaging Efficiency:
Volume % Combustibles:
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 78-00199
Content Code: 320
Container Wt (lb): 276
Original Assay (g): Pu-1.0
Packaging Location: Building 771, Rm 182

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: Yes-See below

Waste Form Description: Waste consists of welding rod, two sheets of lead (1/16-in. thick), pieces of equipment, etc.

Packaging Description: Waste items are contained in the plastic drum bag inside the 90-mil liner.

Absorbent Information: None

Free Liquids: Yes Quantity: 1-pint Contained: See below
Compressed Gases: Yes Type: Aerosol can Quantity: 1
Particulates: No Quantity: Type:

Packaging Efficiency: 75%
Volume % Combustible: 2%
Correct Content Code? No New Code: 480
Other Information: (1) Liquids in aerosol can
(2) Organic weight-10 lbs.

WIPP-Certifiable: No-due to free liquids in aerosol can.

Container Type: Drum
Code Description: Heavy Non-SS Metal
Surface Dose Rate (mR/h): 0.8
Reassay (g): Pu-0
Date Packaged: 10/14/83

VISUAL EXAMINATION

Examination Date: 4/12/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Course graphite, steel plates, lead tape, rubber vacuum hose, glass breaker, aluminum foil, thermocouples, produce cans, lead sheeting, flashlight batteries, saw blades, nuts and bolts and copper tubing.

Packaging Description: Type II liner is lined with polyethylene drum bags. Items placed directly into the inner poly. drum bag. Some contained in single plastic bags.

Absorbent Information: None

Physical State of Waste: Dry
Component Weight (LB): 8 1/2 lbs plastics; 148 lbs SS and mild steel; 3 lbs copper tubing, 10 1/2 lbs aluminum foil, can; 27 lbs lead sheeting and tape; 2 lbs graphites pieces, 2 lbs welding rod; 3 lbs batteries, 7 1/2 lbs fines.

WIPP-WAC Compliance Information: 1. Free liquids: 250 ml; WD-40R and DykemR steel blue. 2. Particulates: floor sweepings; analysis indicates 0.81% <212 and 3.5E-4% <10. 3. Explosives/ compressed gas: pressurized aerosol can.

Packaging Efficiency: 80%
Volume % Combustibles: 5%
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: No-Free liquid and compressed gas.

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 29-01396
Content Code: 320
Container Wt (lb): 242
Original Assay (g): Pu-0.4, Am-0.0
Packaging Location: Building 559, Plenum

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil

Lead-Lined: No Other Lead:

Waste Form Description: Approximately six 6-in. diameter motors, miscellaneous wiring, etc.

Packaging Description: Each motor is contained in a poly bag, tied at the top.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <5%
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Heavy non SS metal
Surface Dose Rate (mR/h): <0.5
Reassay (g): 2.1-Pu, 0.1-Am
Date Packaged: 8/20/84

VISUAL EXAMINATION

Examination Date: 3/21/85
Container Condition: Exterior-excellent minor handling scratches, Interior-no rust.
Lead Lined: No
Liner Type: Type III, 90 mil

Waste Form Description: Waste was mainly light metal contained in 3 packages. A total of 7 small pumps and wiring was found; 5 were carbon steel, 2 were plastic. A fourth package contained combustibles such as rubber (gaskets), paper (wipes), surgeon's gloves.

Packaging Description: Type III rigid liner was double lined with polyethylene round bottom drum bags. Four individual packages of waste were double bagged in poly.

Absorbent Information: No absorbents were present

Physical State of Waste: Dry
Component Weight (LB): Paper-3.0, rubber-2.2, poly bags-9.2, surgeon's gloves-2.0 pumps (carbon steel, plastic)-161.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 75%
Volume % Combustibles: 20%
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metal

Time Period: 3-year old

GENERAL INFORMATION

Container Identification: 55-00290
Content Code: 320
Container Wt (lb): 138
Original Assay (g): Pu-97.0
Packaging Location: Bldg 779A, Rm 160

Container Type: Drum
Code Description: Heavy Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-154.0
Date Packaged: 10-23-81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Funnels

Packaging Description: Waste is contained in a plastic bag inside of a Fiber-Pak. The Fiber-Pak is contained in double plastic bags.

Absorbent Information: Oil-Dri, 2 quarts

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 20%
Volume % Combustible: 50
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-9-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Tantalum crucibles and funnels. Waste also contained a small bag of tantalum chips.

Packaging Description: Type II liner is lined with two polyethylene drum bags. The waste items are double-bagged in polyethylene and inside a Fiber-Pak.

Absorbent Information: Oil-Dri is located in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Plastic bags--6.75; tantalum funnels, crucibles and chips--40.87; Oil-Dri--3.5.

WIPP-WAC Compliance Information:
1. Particulates (tantalum chips): Analysis of the chips indicates that the waste contains 0.025 wt % <212$_\mu$ particulates and 0.002 wt % <10$_\mu$ particulates.

Packaging Efficiency: 25%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10613
Content Code: 320
Container Wt (lb): 190
Original Assay (g): 6.0-Pu; 0.0-Am
Packaging Location: Building 771, Room 149

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Heavy metal

Packaging Description: Metal is packed in 2 fiber pack containers, then bagging material, then 90 mil liner.

Absorbent Information: 1 pint

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 6.75 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Heavy non SS metals
Surface Dose Rate (mR/h): <0.5
Reassay (g): 3.9-Pu; 0.1-Am
Date Packaged: 2-18-73

VISUAL EXAMINATION

Examination Date: 2-18-85
Container Condition: Exterior-light rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Tantalum crucibles and funnels.

Packaging Description: Type I rigid liner is double lined with polyethylene drum bags which contain two fibre-paks. In the top fibre-pak there were 4 packages containing 9 tantalum pieces; in the bottom fibre-pak there were 5 packages containing 9 tantalum pieces. The packages were double-bagged with an inner PVC bag and an outer poly bag.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): 2 fibre-paks-12.0, poly bags-2.2, PVC bags-7.0 tantalum-91.4, oil dry-10.4.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10128
Content Code: 320
Container Wt (lb): 220
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location: Building 771, Room 149

Container Type: Drum
Code Description: Heavy non-SS metals
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.3-Pu; 0.0-Am
Date Packaged: 1-21-73

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: Cardboard liner
Lead-Lined: No Other Lead:

Waste Form Description: One heavy metal cylinder, pieces of pipe, metal cans, conduit, miscellaneous metal.

Packaging Description: All waste is contained in plastic bags.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <5%
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-22-85
Container Condition: Some light to moderate rust
Lead Lined: No
Liner Type: PVC, poly and cardboard

Waste Form Description: Miscellaneous waste primarily light metal such as stainless steel (hand tools, pipe fittings, sample carriers), carbon steel (pipe, conduit, lanterns, paint cans, aluminum cans), aluminum/filter cartridges), lead (2 pieces) copper (electric cord), wood (broom, clipboards), rubber (air hose), dry cell batteries.

Packaging Description: A rigid 90-mil liner was not used. The drum was double-lined with a PVC outer bag and a polyethylene inner bag. A cardboard liner was used inside of the poly bag. Waste was contained directly inside of the cardboard liner.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC-3.0, poly-1.0, cardboard-4.0, stainless steel-38.7, carbon steel-46.2, aluminum-6.6, lead-17.6, copper-6.6, wood-10.1, rubber-2.2, batteries-4.4, oil dry-2.2.

WIPP-WAC Compliance Information: 1. Particulates. 1838.38 grams of dessicant as 68 paper packets were located in ammunition carriers. Analysis of the particulate indicated the waste contained 7.7E-3 wt% <212 micron particles and <2.8E-6 wt% <10 micron particles.

Packaging Efficiency: 85%
Volume % Combustibles: 5%
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-12224
Content Code: 320 Note: Wrong code (see below)
Container Wt (lb): 235
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Heavy non-SS metal
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.1-Pu; 0.1-Am
Date Packaged: 4-26-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Small hardware, metal sheet, tubing

Packaging Description: Light metal packed in bagging material then 90-mil liner. Small hardware in poly bottles. A one gallon bottle appears to have fine particulate.

Absorbent Information: None

Free Liquids: No
Compressed Gases: No
Particulates: Yes

Quantity:
Type:
Quantity: 1 gallon

Contained:
Quantity:
Type: Unknown

Packaging Efficiency: 80%
Volume % Combustible: <25%
Correct Content Code? No New Code: 480-Unleached light non SS metal.
Other Information: 14 lbs of organic material.

WIPP-Certifiable: No-1 gallon of particulate

VISUAL EXAMINATION

Examination Date: 2-19-85
Container Condition: Exterior-some light rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Miscellaneous light metal such as stainless (airduct, 1 1/4" sch. 40 pipe), carbon steel (sawblades, channel (16 gauge), nuts, bolts, pressure gauge), grinding disk.

Packaging Description: Type I rigid liner was lined with a single polyehtylene drum bag. The waste was generally double bagged in polyethylene although some waste was in half-gallon poly bottles. Paper wipes were used to cover sharp metal edges. The drum bag had 2 small tears in the top.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Stainless steel-91.5, carbon steel-33.8, poly bags and half-gallon bottles-9.0, paper wipes-5.4, oil dry-6.2.

WIPP-WAC Compliance Information: 1. Particulates. 4630 grams of particulates <6000 micron such as weld grindings, and floor sweepings were located in 4 half-gallon plastic bottles. Analysis of the particulate indicates the waste contained 2.61 wt% <212 micron particles and 1.9E-3 wt% <10 micron particles.

Packaging Efficiency: 80%
Volume % Combustibles: 15%
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 32-00544
Content Code: 320
Container Wt (lb): 180
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Heavy non-SS metals
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.0-Pu; 0.1-Am
Date Packaged: 1-10-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-9-84
Liner Type: Cardboard
Lead-Lined: No Other Lead:

Waste Form Description:

Packaging Description: Waste is in a cardboard liner. It is not in bagging material.

Absorbent Information: 2 quarts

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 21%
Correct Content Code? No New Code: 480 Unleached light non-SS metal
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 2-19-85
Container Condition: Exterior-some light rust, interior-no rust
Lead Lined: No
Liner Type: Cardboard and polyethylene.

Waste Form Description: Miscellaneous light metal such as carbon steel (wire, crushed cans, lids, tools, turnings and shavings), aluminum (foil).

Packaging Description: A rigid 90-mil liner was not used. The drum was lined with two polyethylene drum bags and a cardboard liner. The waste was packed into crushed Fibre-Paks either loose or double bagged in poly.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper (fibre-paks (4), cardboard liner)-28.0, polyethylene bags-7.0, carbon steel-72.5, aluminum-2.6, oil dry-5.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 20%
Correct Content Code? No New Code: 480
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-40002
Content Code: 480
Container Wt (lb): 341
Original Assay (g): Pu-0.0
Packaging Location: Bldg 771, Rm 181

Container Type: Drum
Code Description: Unleached Light Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.0
Date Packaged: 2-28-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: Some rolled-up lead shielding material

Waste Form Description: Metal items such as conduit and electrical hardware.

Packaging Description: Waste contained in plastic bags.

Absorbent Information: Vermiculite

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 73%
Volume % Combustible: 5
Correct Content Code? Yes New Code:
Other Information: Lead does not appear to be shielding any item in the drum. Estimated organic weight: 25.1b.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-25-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Kimwipes, polyethylene and PVC plastic, lead shielding, conduit, duct, and miscellaneous metal.

Packaging Description: Type II liner is lined with two polyethylene drum bags. The waste items are contained in 14 double- and triple-bagged packages.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): Kimwipes--2.5; polyethylene and PVC--6.0; lead--191.5; miscellaneous metal--54.5; vermiculite--6.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 31-00939
Content Code: 480
Container Wt (lb): 143
Original Assay (g): Pu-0.0
Packaging Location: Bldg 707, Module F

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Mixed wastes. Rope and plastic in a bag at top of waste, metal objects in the middle, and glass (test tubes) in polyethylene bottles at bottom.

Packaging Description: See waste form description; wastes also contained in plastic bags.

Absorbent Information: Information not recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: 1 gal Type: Floor sweep/metal chips

Packaging Efficiency: 67%
Volume % Combustible: 50
Correct Content Code? No New Code: Mixed codes (330, 440, 480)
Other Information: Estimated organic weight--27.3 kg. Particulates consist of one poly bag containing approximately 1 gal of course material such as floor sweepings or metal chips.

WIPP-Certifiable: No--due to wrong content code.

Container Type: Drum
Code Description: Unleached Light Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-3.0
Date Packaged: 2-16-83

VISUAL EXAMINATION

Examination Date: 8-24-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Metal filter, aluminum foil, copper tubing, vacuum grease, O-ring, gasket, asbestos tie-wraps, and a glass vacuum tube.

Packaging Description: Type II liner is lined with two polyethylene drum bags. Waste items are contained in a total of seven double-bagged packages.

Absorbent Information: Vermiculite is located on top of drum bag.

Physical State of Waste: Dry
Component Wts (lb): Kimwipes--2.0; rubber O-ring gasket--1.5; plastic--4.25; surgeon's gloves--1.0; stainless steel--15.0; copper tubing and aluminum foil--26.5; asbestos tie-wraps and floor sweepings--11.5; vermiculite--4.5.

WIPP-WAC Compliance Information:
1. Particulates (floor sweepings): Analysis of the sweepings indicates that the waste contains 0.001 wt % <212$_\mu$ and <0.001 wt % <10$_\mu$particulates.

Packaging Efficiency: 70%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information: Glass vacuum tube is too light to weigh.

WIPP-Certifiable: Yes

Waste Form Category: Metals

GENERAL INFORMATION

Container Identification: 02-39738
Content Code: 480
Container Wt (lb): 102
Original Assay (g): Pu-9.0
Packaging Location: Bldg 771, Rm 181

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Waste appears to be all polyethylene.

Packaging Description: Waste contained in plastic bags.

Absorbent Information: Information not recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 100
Correct Content Code? No New Code: 330
Other Information: Estimated organic weight--52 lb

WIPP-Certifiable: No-due to wrong content code.

Time Period: 6-month-old waste

Container Type: Drum
Code Description: Unleached Light Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-9.0
Date Packaged: 2-15-83

VISUAL EXAMINATION

Examination Date: 8-24-83
Container Condition: Several dents in upper third of drum.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Aluminum foil

Packaging Description: Type II liner is lined with one polyethylene drum bag. Waste items are contained in a total of four double-bagged packages.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): Aluminum foil--15.0; polyethylene plastic--9.5; vermiculite--3.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 30
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 45-00528
Content Code: 480
Container Wt (lb): 222
Original Assay (g): Pu-31.0; U-235--2.0
Packaging Location: Not available

Container Type: Drum
Code Description: Unleached Light Non-SS Metal
Surface Dose Rate (mR/h): 5.0
Reassay (g): Pu-32.4; U-235--13.6
Date Packaged: 3-18-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Variety of metal objects.

Packaging Description: Waste is contained in plastic bags.

Absorbent Information: Information not recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 10
Correct Content Code? Yes New Code:
Other Information: Estimated organic weight--25 lb.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-25-83
Container Condition: Three dents on lower two-thirds of the drum.
Lead-Lined: No
Liner Type: Type I 90-mil

Waste Form Description: Waste consists of 16 packages containing a furnace, hot plate, wire brush, scale, a small motor, etc.

Packaging Description: Type I liner is lined with two polyethylene drum bags. Each package containing waste is triple-bagged.

Absorbent Information: Vermiculite located on top of drum bag.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC plastic--18.25; stainless steel--29.0; mild steel and iron--92.75; brass--4.5; vermiculite--2.0.

WIPP-WAC Compliance Information:
1. Particulates (rust fines): Analysis of the fines indicates that the waste contains 0.062 wt % <212$_\mu$ particulates and <0.001$_\mu$ wt % <10$_\mu$ particulates.

Packaging Efficiency: 85%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 389-90895
Content Code: 480
Container Wt (lb): 3480
Original Assay (g): Pu-0.2; U-235--141
Packaging Location: Size Reduction

Container Type: Box
Code Description: Unleached Light Non-SS Metal
Surface Dose Rate (mR/h): 3.0
Reassay (g): Not available--box counter not operational.
Date Packaged: 4-6-83

RADIOGRAPHIC EXAMINATION

Examination Date: 7-5-83
Liner Type: Plastic box liner and a cardboard liner.
Other Lead: No Lead-Lined: No

Waste Form Description: Miscellaneous metal items.

Packaging Description: Some waste is wrapped in plastic; remaining waste has been placed directly into the box.

Absorbent Information: Vermiculite

Free Liquids:	Yes	Quantity:	1-2 pints	Contained: Yes, see below
Compressed Gases:	No	Type:		Quantity:
Particulates:	No	Quantity:	See below	Type:

Packaging Efficiency: 98%
Volume % Combustible: 5
Correct Content Code? Yes New Code:
Other Information: Liquid is contained in a plastic bag. Limited examination due to many dense areas (limited penetration). Bottom inch of box is vermiculite.

WIPP-Certifiable: No--due to small amount of liquid.

VISUAL EXAMINATION

Examination Date: 9-19-83
Container Condition: Good Lead-Lined: No
Liner Type: PVC box liner and a cardboard liner.

Waste Form Description: Waste includes 29 steel drums (crushed), 18 drum lids, eight drum rings, tools, Raschig rings, face masks and filter canisters, motors, oil filters, Tygon tubing, plastic bottles, tantalum crucibles, two aerosol cans, etc.

Packaging Description: Some of the waste is contained in polyethylene bags, remaining waste has been placed directly into the box.

Absorbent Information: Vermiculite in the bottom of the PVC box liner.

Physical State of Waste: Damp
Component Wt (lb): Paper--15.0; plastics--71.0; tantalum crucibles--68.0; steel drums and tools--1844.5; Raschig rings--24.0; masks, canisters, motors, oil filters--420.0; vermiculite--23.0.

WIPP-WAC Compliance Information:
1. Liquids: 60 ml of oil in a polyethylene bag. Analysis indicates the liquid has a pH of 7 and is a chlorinated paraffin oil and unidentified ester. The liquid in the aerosol cans was not measured.
2. Particulates (MgO sand): Analysis indicates that the waste contains 0.013 wt % <212$_\mu$ particulates and <0.001 wt % <10$_\mu$ particulates.
3. Compressed Gases: One pressurized paint can and one shaving cream can.

Packaging Efficiency: 100%
Volume % Combustibles: 2
Correct Content Code? Yes New Code:
Other Information:
WIPP-Certifiable: No

Waste Form Category: Metals

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 389-90828
Content Code: 480
Container Wt (lb): 2920
Original Assay (g): Pu-57.0
Packaging Location: Size Reduction

Container Type: Box
Code Description: Unleached Light Non-SS Metal
Surface Dose Rate (mR/h): 8.4
Reassay (g): Not available--box counter not operational.
Date Packaged: 3-15-83

RADIOGRAPHIC EXAMINATION

Examination Date: 7-5-83
Liner Type: Plastic box liner and cardboard liner.
Lead-Lined: No Other Lead: No

Waste Form Description: Metal waste--several dense areas. Appears to be tubing.

Packaging Description: Waste placed directly into box.

Absorbent Information: None identified.

Free Liquids:	No	Quantity:	Contained:
Compressed Gases:	Below	Type:	Quantity:
Particulates:	No	Quantity:	Type:

Packaging Efficiency: 95%
Volume % Combustible: 5
Correct Content Code? Yes New Code:
Other Information: One container is approximately 12 in. long x 8 in. diameter; the ends are flat and the container probably is not pressurized.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-21-83
Container Condition: Good
Lead-Lined: No
Liner Type: PVC box liner and a fiberboard liner.

Waste Form Description: Crushed drums, drum lids, lock-chines, furnaces, Vollrath cans, thermocouples, crushed paint and oil cans, hand tools, lead shielding, bolts, hydraulic jack (drained), piping, refrigeration unit (parts), electric motors, aluminum air grill, console, extension cord, pipe wrenches, valves, Kimwipes, plastic, tantalum crucibles, etc.

Packaging Description: Both loose and double-bagged wastes.

Absorbent Information: None

Physical State of Waste: Damp
Component Wt (lb): Paper and plastic--73; stainless steel cans--177; tantalum crucibles--5; miscellaneous metal--1412; lead, cabinet, Metco, fiberglass--333.

WIPP-WAC Compliance Information:
1. Liquids: 10 ml of oil from crushed cans. Analysis indicates a pH of 7 and consists of an alkyl phenol polyoxyethylene and unidentifiable oil.
2. Particulates: Analysis of welding flux indicates that the waste contains 1.5 wt % <212$_\mu$ particulates and 0.006 wt % <10$_\mu$ particulates.

Packaging Efficiency: 100%
Volume % Combustibles: 2
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 12-12505
Content Code: 480
Container Wt (lb): 165
Original Assay (g): Pu-5.0, Am-0.0*
Packaging Location: Building 776, Area 1

Container Type: Drum
Code Description: Light non SS metal
Surface Dose Rate (mR/h): 2.2
Reassay (g): 49.9-Pu, 0.2-Am
Date Packaged: 8/15/84

RADIOGRAPHIC EXAMINATION

Examination Date: 2/21/85
Liner Type: 90 mil

Lead-Lined: No Other Lead:

Waste Form Description: Metal pans, gallon buckets, metal cans, scissors, one 12-in. diameter by 1-in. wide plate.

Packaging Description: All waste items are contained in plastic.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3/21/85
Container Condition: Exterior-excellent, Interior-no rust.
Lead Lined: No
Liner Type: Type III, 90 mil

Waste Form Description: Miscellaneous light metal including stainless steel (4 each, trays, can lids) carbon steel (produce cans, banding, paint cans, pedestal 12" dia x 0.375"), aluminum (foil), copper (electric cord), tantalum (pan, crucible), wood (paint brushes).

Packaging Description: Type III rigid liner was single lined with a polyethylene round bottom bag. Fifteen packages contained waste which was generally double-bagged in PVC liner bags and poly outer bags.

Absorbent Information: No absorbents were present

Physical State of Waste: Dry
Component Weight (LB): PVC-11.0, poly-5.2, stainless steel-9.2, tantalum-4.8, carbon steel-38.7, aluminum 1.0, copper-13.2, wood-1.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 70%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information: *The original assay was 50.0 grams, but was transmitted to INEL as 5.0 grams in the original shipping papers.

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 389-20305
Content Code: 480
Container Wt (lb): 3080
Original Assay (g): Pu-296, Am-0.0
Packaging Location: Building 776, Room 146

Container Type: Box
Code Description: Light non SS metal
Surface Dose Rate (mR/h): 2.7
Reassay (g): Not performed
Date Packaged: 10/13/84

RADIOGRAPHIC EXAMINATION

Examination Date: January 1985
Liner Type: Plastic box liner
Lead-Lined: No Other Lead: No

Waste Form Description: Box appears to have 40-50% plastics. The remaining volume contains large and small pieces of miscellaneous metals.

Packaging Description:

Absorbent Information:

VISUAL EXAMINATION

Examination Date: 3/19/85
Container Condition: Box and fiberglass condition was very good.
Lead Lined: No
Liner Type: PVC/cardboard

Waste Form Description: Miscellaneous metals including stainless steel, (parts carriers, flanges cylinder & die, pipe, fittings, tools, cans, molds, spool pieces w/1" flanges, copper (pipe, coils) lead (sheeting) carbon steel (2 motors, produce cans, pump, heat exchanger, electric grinder, all thread, drums, lids, rings, fire extinguisher, conduit, pipe, fittings) lighting ballast, gloveport covers (carbon steel with lead) filter canisters, lead glove, lead taped glass sample vials, aluminum (foil, glove change ring).

Packaging Description: The box was lined with a PVC liner then a cardboard liner. The waste was generally packaged in 2 inner PVC bags and 1 outer poly bag. Twelve crushed drums were loose packed as the top layer of waste in the box. The drum lids were the bottom layer of waste.

Absorbent Information: No absorbents were present

Free Liquids: Yes
Compressed Gases: No
Particulates: No

Quantity: 1 quart
Type:
Quantity:

Contained:
Quantity:
Type:

Packaging Efficiency:
Volume % Combustible:
Correct Content Code?
New Code:
Other Information: Box was not completed thawed out, appears that there are two places that contain free liquids. Maximum quantity would be 1 quart.

WIPP-Certifiable: No-free liquid

Physical State of Waste: Dry
Component Weight (Lb): Cardboard-19.6, rubber-22.1, PVC-51.8, poly-12.4, stainless steel-607.0, cooper-113.5, lead-6.6, gloveport shield-15.2, carbon steel-583.7, filter canisters-40.5, lead glove-0.9, sample vials-8.8, aluminum-11.2, 12 drums-580.8, 12 lids-100.3, 12 rings-46.2, ballast 28.6.

WIPP-WAC Compliance Information: 1. Liquids-several drops (approximately 5 ml) spilled from the coils of a Helicoil heat exchanger. The liquid was not sampled. 2. Compressed gas. A fire extinguisher was found, however, the valve was taped in the open position and the extinguisher was not pressurized.

Packaging Efficiency: 100%
Volume % Combustibles: 3%
Correct Content Code? Yes
New Code:
Other Information:

WIPP-Certifiable: No-free liquids (5 ml)

Waste Form Category: Metals

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 02-34855
Content Code: 480
Container Wt (lb): 251
Original Assay (g): Pu-5.0
Packaging Location: Not available.

Container Type: Drum
Code Description: Unleached Light Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.0
Date Packaged: 11-21-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Metal items such as electrical hardware and appears to include a small transformer.

Packaging Description: Waste is contained in plastic bags.

Absorbent Information: Oil-Dri, 1-gal.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-9-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Electrical equipment such as recorders, timers, switches, controllers, etc.

Packaging Description: Type II liner is lined with two polyethylene drum bags. The waste items were placed directly inside the drum bags.

Absorbent Information: Oil-Dri is at the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene drum bags--2.0; miscellaneous electrical hardware (metal)--161.5; other (cables, cord, wire, circuit boards)--7.25; Oil Dry--7.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 95%
Volume % Combustibles: 5
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 02-35083
Content Code: 480
Container Wt (lb): 210
Original Assay (g): Pu-0.0
Packaging Location: Bldg 771, Rm 161

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Metal items including bolts, wire, tubing, and piping.

Packaging Description: Waste is contained in plastic bags.

Absorbent Information: Absorbent is either Portland cement or Oil-Dri (7 cup total) and is located at top of waste in some of the bags containing the waste, and in the bottom of the liner.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:

Particulates: No Quantity: Type:

Packaging Efficiency: 67%
Volume % Combustible: 10
Correct Content Code? Yes New Code:
Other Information: Absorbent is either Portland cement or Oil-Dri and is located at top of waste in some of the bags containing the waste, and in the bottom of the liner.

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Unleached Light Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.0
Date Packaged: 1-15-81

VISUAL EXAMINATION

Examination Date: 8-9-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Extension cords, valve flange, hammers, a leaded apron, welding hood, glass, two trouble-lights, plastic flashlights, batteries, cement, Kimwipes, etc.

Packaging Description: Type II liner is lined with two polyethylene drum bags. All waste items are double-bagged in polyethylene.

Absorbent Information: Oil-Dri is located on top of the drum bag and in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Kimwipes--1.0; plastics--22.5; surgeon's gloves--0.25; stainless steel--12.25; aluminum, galvanized metal, mild steel--58.37; leaded apron--7.5; glass--1.0; cement pieces and fines--16.0; other (extension cords, trouble lights)--8.0; Oil-Dri--4.25.

WIPP-WAC Compliance Information:
1. Particulates (cement pieces and fines): Analysis of the fines indicates that the waste contains 0.37 wt % <212μ particulates 0.006 wt % <10μ particulates.

Packaging Efficiency: 75%
Volume % Combustibles: 20
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 31-01321
Content Code: 480
Container Wt (lb): 140
Original Assay (g): Pu-6.0
Packaging Location: Bldg 707

Container Type: Drum
Code Description: Unleached Light Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-5.0
Date Packaged: 2-16-81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: Yes, lead apron near bottom of drum

Waste Form Description: Mixture of leaded rubber, glass, metal, polyethylene, and some combustibles.

Packaging Description: Waste is contained in plastic bags.

Absorbent Information: Oil-Dri, 2-gal.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 65
Correct Content Code? No New Code: No proper code available
Other Information: Liner lid is out of the joint in one spot.

WIPP-Certifiable: No--due to mixture of waste types.

VISUAL EXAMINATION

Examination Date: 8-9-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Pair of leaded gloves, plastic parts and fixtures; aluminum foil; paper; metal fixtures, parts and bearings; empty plastic containers; wire brushes; etc.

Packaging Description: Type II liner is lined with two polyethylene drum bags. All waste items are double-bagged in polyethylene.

Absorbent Information: Oil-Dri is located in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Paper--3.0; plastics--10.5; metal fixtures, bearings, parts and aluminum foil--42.0; leaded gloves--4.5; wire brushes--1.5; Oil-Dri--4.25.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 66%
Volume % Combustibles: 15%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 42-00209
Content Code: 480
Container Wt (lb): 260
Original Assay (g): Pu-27.0
Packaging Location: Bldg 771, Rm 157

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Miscellaneous metal items.

Packaging Description: Waste is contained in plastic bags.

Absorbent Information: Portland cement (1-gal) is located on top of outer drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 10%
Correct Content Code? Yes New Code:
Other Information: There is a liner lid at the bottom of the rigid liner. Absorbent is located on top of outer drum bag.

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Unleached Light Non-SS Metal
Surface Dose Rate (mR/h): 1.2
Reassay (g): Pu-27.5
Date Packaged: 12-22-80

VISUAL EXAMINATION

Examination Date: 8-9-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Stainless steel cyrogenic Dewar vessels; small metal crucible; heating element; plastic vials, tools; wire; scissors; clamp rings; stainless steel piping and tubing; muffle furnace; and standard calibration weights.

Packaging Description: Type II liner is lined with two polyethylene drum bags. Some waste is contained in Vollrath cans or ice cream cartons. Waste is double-bagged in plastic.

Absorbent Information: Oil-Dri is located on top of the drum bag and in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC bags--19.25; stainless steel--45.0; misc. mild steel, aluminum, and lead bricks--94.25; ceramic pellets and particulate--6.37; Oil-Dri--5.0.

WIPP-WAC Compliance Information:
1. Particulates: Possibly iron oxide from steel cylinders. Analysis of the fines indicates that the waste contains 0.022 wt % <212$_\mu$ and 0.001 wt % <10$_\mu$ particulates.

Packaging Efficiency: 95%
Volume % Combustibles: 35
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08226
Content Code: Unknown (RFP-480)
Container Wt (lb): 422
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: (see below)
Surface Dose Rate (mR/h): <0.5
Reassay (g): 3.8-Pu; 0.2-Am
Date Packaged: 12-7-72

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Metal hardware

Packaging Description: Packed in poly bags, then in a 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: <25%
Correct Content Code?No New Code: 480-Unleached light non SS metal
Other Information: 8 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 2-19-85
Container Condition: Exterior-light to moderate rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Miscellaneous light metal including carbon steel (triangular plates with angle iron 0.125-0.25, "pipe hangers 0.375" diameter all-thread rods)

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag. The waste was double-bagged in poly. Paper wipes were used to cover sharp metal edges. The drum bag had approximately 6-0.5" diameter holes.

Absorbent Information: Oil-Dri was located outside the single drum bag on top and in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Carbon steel-317.7, paper wipes-6.6, poly bags-9.0, oil dry-11.2.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08232
Content Code: Unknown (RFP-480)
Container Wt (lb): 280
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Metal

Packaging Description: Metal is packed in bagging material then in 90-mil liner.

Absorbent Information: 1 1/2 gallons

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: <25%
Correct Content Code? No New Code: 480-unleached light non-SS metal.
Other Information: 10 lbs of organic material.

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: (see below)
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.9-Pu; 0.0-Am
Date Packaged: 12-7-72

VISUAL EXAMINATION

Examination Date: 2-19-85
Container Condition: Exterior-moderate rust, Interior-very light rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Miscellaneous light metal including carbon steel (angle iron 0.375", small channel iron 0.25", sheet metal, sheet metal bands).

Packaging Description: Type I rigid liner was lined a single polyethylene drum bag. The waste was double bagged in poly. Sharp metal edges were covered with paper wipes. There were three holes and tears up to 1" length.

Absorbent Information: Oil-Dri was located outside of the single drum liner on top and in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper wipes-2.2, poly bags-5.0, carbon steel-189.2, oil dry-48.8.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 50%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 18-00025
Content Code: 480
Container Wt (lb): 174
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Unleached light non SS metal
Surface Dose Rate (mR/h): <0.5
Reassay (g): 1.7-Pu; 0.2-Am
Date Packaged: 1-25-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Metal containers with clamp lids. Hydraulic ram.

Packaging Description: Metal packed in bagging material, then 90-mil liner.

Absorbent Information: 2 quarts

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: ~25%
Correct Content Code? Yes New Code:
Other Information: 14 lbs of organic material.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 2-19-85
Container Condition: Exterior-some light rust, Interior-heavy rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Miscellaneous light metal including stainless steel (duct work 0.625 thick, 10" dia. pipe plug 0.75", machine turnings) carbon steel (5-glovebox port covers, hydraulic rams. 18" long x 3" dia., thermocouples), lead sheeting, rubber (tubing, gloveport seals), air prefilters.

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag. The waste was generally single or double-bagged in poly. The sharp metal edges were taped and covered with paper wipes.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper wipes-4.4, rubber-1.2, poly drum bags-8.3, stainless steel-24.2, carbon steel-36.2, lead-5.2, oil dry 10.0, prefilter-3.4.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code: 480
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 42-00043
Content Code: 480
Container Wt (lb): 286
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Metal hardware

Packaging Description: Hardware packed in bagging material, then put in 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 14 lbs of organic material.

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Unleached light non-SS metals
Surface Dose Rate (mR/h): 2.4
Reassay (g): 7.9-Pu; 0.1-Am
Date Packaged: 4-5-73

VISUAL EXAMINATION

Examination Date: 2-20-85
Container Condition: Some light rust on interior and exterior
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Miscellaneous light metal including stainless steel (block or mount, 6-small gas sampling cylinders, vollrath can, flange, trays, gloveport covers, rods, criticality drain), carbon steel (pump, lab stand, cans, gauges, plate, knife, hot plate, tongs, tweezers, dessicator, batteries, flashlight, filter cartridge, tape holder, valves, nuts and bolts, ceramic (mortar, pestle).

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag. Most of the waste was double-bagged in PVC and poly bags, although some waste was triple bagged. A 1 gallon poly bottle was double bagged also. The drum bag had a 3" tear in the bottom.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper (wipes, wood brush, cardboard)-2.5, PVC bags-10.5, poly (bags, bottle)-8.8, stainless steel-110.0, carbon steel-32.0, ceramic-2.8, oil dry-4.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metal

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 25-00036
Content Code: 480
Container Wt (lb): 395
Original Assay (g): 4.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Light non SS metal
Surface Dose Rate (mR/h): <0.5
Reassay (g): 3.7-Pu; 0.2-Am
Date Packaged: 12-12-72

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Metal object ~10 in. diameter by ~18 in. long. Also some pans, scissors and miscellaneous metal objects.

Packaging Description: Metal contained in plastic.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: <5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-23-85
Container Condition: Exterior-light to moderate rust, Interior-light rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Miscellaneous waste including light metal such as stainless steel (trays, plate, gear), carbon steel (instruments, motor case, gauges), glass (fluorescent light tubes), cloth (felt padding), PVC (bags), poly (bags, templates, pads).

Packaging Description: type I rigid liner was double lined with polyethylene drum bags. Eight waste packages were single or double-bagged in PVC. The liner had a small (0.25") hole and the outer bag had a hole.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Stainless steel-25.96, carbon steel-14.5, glass-1.0, cloth-1.0, PVC-13.6, poly-3.3, oil dry-4.0.

WIPP-WAC Compliance Information: 1. Particulates: 4767 grams of magnesium oxide sand was located in a 1-gallon paint can. 2. Analysis of the particulates indicated the waste contained 0.96 wt% <212 micron particules and 4.4E-3 wt% <10 micron particles.

Packaging Efficiency: 90%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 389-85769
Content Code: 480
Container Wt (lb): 330C
Original Assay (g): 13.0-Pu, 0.0-Am
Packaging Location: Building 776, Room 146

RADIOGRAPHIC EXAMINATION

Examination Date: 11-6-84
Liner Type: Box liner
Lead-Lined: No Other Lead:

Waste Form Description: Assorted metal items, predominately piping.

Packaging Description: Packed in poly bagging, put in wooden box with box liner

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Container Type: Box
Code Description: Unleached light non SS metal
Surface Dose Rate (mR/h): <0.5
Reassay (g): Not performed
Date Packaged: 2-8-73

VISUAL EXAMINATION

Examination Date: 1-9-85
Container Condition: Box and fiberglass condition was very good.
Lead Lined: No
Liner Type: PVC/cardboard

Waste Form Description: Steel [conduit (1-3"dia.) containing wire, junction boxes, 6" square conduit, motors, gear drives], aluminum (light fixtures) ballasts (22 ea), copper (wire), fluorescent light tube.

Packaging Description: The box was lined with a PVC liner, then a cardboard liner. The metal was loose-packed in the box.

Absorbent Information: No absorbents were present.

Physical State of Waste: Dry
Component Weight (LB): Cardboard-47.5, PVC liner-18.9, steel-2267.3, aluminum 16.3, ballast-193.6, cooper-4.4, light bulb-10.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 100%
Volume % Combustibles: 3%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 389-85811
Content Code: 480
Container Wt (lb): 3560
Original Assay (g): 13.0-Pu, 0.0-Am
Packaging Location: Building 776, Room 146

Container Type: Box
Code Description: Unleached light non SS metal
Surface Dose Rate (mR/h): <0.5
Reassay (g): Not performed
Date Packaged: 3-13-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-6-84
Liner Type: Box liner
Lead-Lined: No Other Lead:

Waste Form Description: Metal hardware, predominately pipe.

Packaging Description: Waste is wrapped in poly material then put in a wood box with liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-8-85
Container Condition: Box and fiberglass condition was very good.
Lead Lined: No
Liner Type: PVC/cardboard

Waste Form Description: Paper (wipes), rubber (gaskets, surgeon's gloves), plastic (styrofoam polyethylene, PVC, glove retainer rings, PVC liner) stainless (pipe-8"sch 10), steel (conduit w/wiring, junction box, pipe hangers) aluminum (respirator filters) lead (block-18" x 12" x 8"). The majority of waste was conduit.

Packaging Description: The box was lined with a PVC liner, then a cardboard liner. Most of the waste was loose-packed in the box, but some was single or double bagged.

Absorbent Information: No absorbents were present.

Physical State of Waste: Dry
Component Weight (LB): Paper-30.8, cardboard liner-15.0, rubber-10.6, plastics-61.2, stainless steel-411.4, steel-1997.2, aluminum-1.5, lead-259.6.

WIPP-WAC Compliance Information: 1. Liquids-3100. ml of grey liquid was found with wet paper wipes in double plastic bags located on top the Waste. Analysis indicated a pH of 7. The components were water, silicates, carbonates, trace organics, nitrates. 2. Particulates-97.76 grams of metal trimings, metal fines, dirt and sawdust was found. Analysis indicated the waste contained 5.3 E-4 wt%<212 micron particles and <7.7 E-7 wt % <10 micron particles.

Packaging Efficiency: 100%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-free liquids (3.1 liters)

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 15-00049
Content Code: 481
Container Wt (lb): 152
Original Assay (g): Pu-7.0
Packaging Location: Building 707

Container Type: Drum
Code Description: Leached Light Non-SS Metal
Surface Dose Rate (mR/h): 0.8
Reassay (g): Pu-16.3; Am-0
Date Packaged: 4/15/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Waste consists of two cage type devices, bolts, and small, miscellaneous metal objects.

Packaging Description: Waste is contained in plastic bags and 1 gallon polyethylene bottles.

Absorbent Information: Drum contains approximately 20 gallons of vermiculite.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 2%
Correct Content Code? Yes New Code:
Other Information: Organic weight-10 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/13/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Drill bits, nuts, bolts, bird cages (part carriers), knives and screwdrivers.

Packaging Description: Type II liner is lined with polyethylene drum bag. Small waste items in 1 gallon poly. bottles in double Poly. bags, birdcages in double bags.

Absorbent Information: Vermiculite on top and sides of outer sealed drum bag. (6 lbs)

Physical State of Waste: Dry
Component Weight (LB): 11 lbs plastics; 34 lbs miscellaneous metal; 20 lbs steel bird cages.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 3%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 19-01827
Content Code: 481
Container Wt (lb): 211
Original Assay (g): Pu-22.0
Packaging Location: Building 776, Rm. 146

Container Type: Drum
Code Description: Leached, Light Non-SS Metal
Surface Dose Rate (mR/h): 1.2
Reassay (g): Pu-12.9; Am-0
Date Packaged: 2/21/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Waste consists of test weights, pipe, a Vollrath can containing small items such as a gage, electrical wire, etc.

Packaging Description: Waste is contained in a plastic bag inside the 90-mil liner.

Absorbent Information: Drum contains approximately 10 gallons of vermiculite.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 60%
Volume % Combustible: 3%
Correct Content Code? Yes New Code:
Other Information: (1)
(2)

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/13/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Hotplate, scull plates, standard weights, sample can, extension cord, drill press and stand, Vollrath cans, thermocouples, wires, and hotplate bottom.

Packaging Description: Type II liner is lined with 3 poly. drum bags. Waste items were individually double-bagged before placing in drum.

Absorbent Information: Cement between inner and outer bag (6 lb); vermiculite on top of outer drum bag (6.5 lb).

Physical State of Waste: Dry
Component Weight (LB): 18 lbs plastics; 48 lbs SS; 69 lbs mild steel.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 70%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 19-01901
Content Code: 481
Container Wt (lb): 336
Original Assay (g): Pu-51.0
Packaging Location: Building 776, Rm. 146

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Waste consists of aluminum or polyethylene tubing, one or two tantalum funnels, and two dense cylindrical items.

Packaging Description: Waste is contained in plastic bags.

Absorbent Information: Drum contains approximately 15 gallons of absorbent.

Free Liquids: No
Compressed Gases: No
Particulates: No

Quantity:
Type:
Quantity:

Contained:
Quantity:
Type:

Packaging Efficiency: 45%
Volume % Combustible: 3%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Leached, Light Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-44; Am-0.1
Date Packaged: 2/16/83

VISUAL EXAMINATION

Examination Date: 4/13/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Tantalum funnel, aluminum sample cans, cylinder head from punch press, copper coils and lead sheet.

Packaging Description: Type II liner is lined with 2 polyethylene drum bags. Items placed directly into drum.

Absorbent Information: Small amt. of vermiculite in drum bottom; on top of outer drum bag (13 lbs).

Physical State of Waste: Dry
Component Weight (LB): 2 lbs plastics; 5 lbs funnel; 26 lbs copper coil; 181.5 lbs other metal; 22 lbs aluminum cans; 6 lb lead sheet.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 50%
Volume % Combustibles: 2%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 19-01919
Content Code: 481
Container Wt (lb): 200
Original Assay (g): Pu-10.0
Packaging Location: Building 776

Container Type: Drum
Code Description: Leached, Light Non-SS Metal
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-11.6; Am-0.1
Date Packaged: 4/28/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type:
Lead-Lined: Other Lead:

Waste Form Description: Metal waste--banding, pipe, Vollrath cans (empty) etc.

Packaging Description: Waste items are contained in plastic bags.

Absorbent Information: Drum contains approximately 10 gallons of vermiculite.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: 3%
Correct Content Code? New Code:
Other Information: Organic weight-5 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/16/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Vollrath cans, rusty tin cans, tools, copper gaskets and strips, piping, flange, valve.

Packaging Description: Type II liner is lined with polyethylene drum bag. Waste items placed directly inside the drum bag.

Absorbent Information: Vermiculite on top of outer sealed drum bag. (16 lbs.) Note: vermiculite was moist.

Physical State of Waste: Dry
Component Weight (LB): 3 lbs plastics; 50 lbs SS; 8 lbs tin cans; 18 lbs copper strips and gasket; 29 lbs miscellaneous mild iron metals.

WIPP-WAC Compliance Information: 1. Particulates: rust fines; analysis indicates 0.09% <212 and 4.2E-4% <10.

Packaging Efficiency: 60%
Volume % Combustibles: 2%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Metals

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 76-00416
Content Code: 481
Container Wt (lb): 350
Original Assay (g): 9.0-Pu; 0.0-Am
Packaging Location: Building 776, Room 146

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Metal hardware

Packaging Description: Packed in bagging material, tied at top, then packed in 90 mil liner.

Absorbent Information: 2 gallons

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic material.

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Leached light non-SS metals
Surface Dose Rate (mR/h): <0.5
Reassay (g): 5.5-Pu; 0.1-Am
Date Packaged: 5-8-73

VISUAL EXAMINATION

Examination Date: 2-20-8.
Container Condition: Some minor rust on interior and exterior
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Miscellaneous light metal including stainless steel (bars, filter cartridges, tubing, gloveport ring, baffled stirrer, filter screen, rod, flange 0.75" thick 10" dia.), carbon steel (heat plate, pipe, knives, plate, cable, valves, flange, cans.)

Packaging Description: Type I rigid liner was double lined with polyethylene drum bags. The waste items were contained directly in the poly bags. The outer poly bag had several small holes and tears (0.25"). The inner bag was torn which may have happened during the examination.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper (wipes)-0.1, poly bags-2.0, PVC skirt (used for bag out in original operation)-1.5, stainless steel-145.2, carbon steel-9., oil dry-25.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 3%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 37-02339
Content Code: 440
Container Wt (lb): 153
Original Assay (g): Pu-3.0
Packaging Location: Bldg 771, Rm 164

Container Type: Drum
Code Description: Glass
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-3.0
Date Packaged: 1-10-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Primarily glass test tubes, one polyethylene bottle containing broken glass.

Packaging Description: Glass is contained in polyethylene bottles. The polyethylene bottles are contained in plastic bags.

Absorbent Information: Oil-Dri, (approximately 1/4 cup) is located at bottom of the rigid liner.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-2-83
Container Condition: Good, two small handling dents in drum middle.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Eighteen packages of glass test tubes and other assorted glassware.

Packaging Description: Type II liner is lined with a polyethylene drum bag. All glass is contained in polyethylene bottles. Each bottle is double-bagged in plastic.

Absorbent Information: Not recorded. Films indicate a small amount of Oil-Dri or vermiculite in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Plastic bags and bottles--18.0; glass--54.75.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 30
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 28-00755
Content Code: 440
Container Wt (lb): 174
Original Assay (g): Pu-11.0
Packaging Location: Bldg 559, Rm 102

Container Type: Drum
Code Description: Glass
Surface Dose Rate (mR/h): 0.7
Reassay (g): Pu-10.0
Date Packaged: 12-8-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.

Lead-Lined: No Other Lead: Lead-tape on sample bottles (vials)

Waste Form Description: Glass items including test tubes, sample vials, lead-taped sample vials, and one bottle containing broken glass.

Packaging Description: Glass items are contained in plastic bags and polyethylene bottles, which are contained in plastic bags.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: 5
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-2-83
Container Condition: Sharp dent in drum middle, and small dents on lid; paint is scratched.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Total of 24 packages containing glass sample vials, some lead-taped glass vials, and some metal mixed with the glass.

Packaging Description: Type II liner is lined with a polyethylene drum bag. Some wastes are contained in 1-gal polyethylene bottles and the bottles are double-bagged in plastic. Other wastes are double-bagged in plastic.

Absorbent Information: Vermiculite is located inside and on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): Plastic bottles and bags--8.5; metal--5.0; glass and lead-taped glass--75.0; vermiculite--6.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 85%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information: Rust on inside of the drum.

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 12-11241
Content Code: 440
Container Wt (lb): 123
Original Assay (g): Pu-3.0
Packaging Location: Bldg 707, Module K

Container Type: Drum
Code Description: Glass
Surface Dose Rate (mR/h): 1.5
Reassay (g): Pu-4.0
Date Packaged: 1-17-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Miscellaneous glass items such as fluorescent tubes. A denser type of material in the waste appears to be a plate with rounded edges and is probably not glass.

Packaging Description: Waste contained in plastic bags.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 60%
Volume % Combustible: 5
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-2-83
Container Condition: Small dents in middle of drum and some scratches in the paint.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Nine packages containing glass bottles, a flood lamp, two dry box windows, light bulbs, and rubber gaskets for dry box windows.

Packaging Description: Type II liner is lined with a polyethylene drum bag. The waste items are contained in plastic.

Absorbent Information: Vermiculite is located on top of the drum bag and in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Plastic bags--8.75; rubber gaskets--4.0; glass (as described above)--24.0; vermiculite--10.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 45%
Volume % Combustibles: 15
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 37-02336
Content Code: 440
Container Wt (lb): 150
Original Assay (g): Pu-14.0
Packaging Location: Bldg 771, Rm 164

Container Type: Drum
Code Description: Glass
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-4.0
Date Packaged: 12-21-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: Lead tape on some bottles.

Waste Form Description: Primarily glass test tubes.

Packaging Description: Glass is packaged in poly bottles. The bottles are packaged in plastic bags.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: 1/4 cup Type: Unknown

Packaging Efficiency: 98%
Volume % Combustible: 15
Correct Content Code? Yes, New Code:
Other Information: Particulate is located at bottom of liner.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-2-83
Container Condition: Good; small dent in lower third of drum.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Glass sample vials, lead-taped glass sample vials, and some broken glass vials.

Packaging Description: Type II liner is lined with a polyethylene drum bag. The wastes are in 15 double-bagged packages containing 19 1-gal polyethylene bottles filled with the glass waste items.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): Plastic bottles and bags--28.5; sample vials and other glass--22.5; vermiculite--1.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 95%
Volume % Combustibles: 20
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 02-34934
Content Code: 440
Container Wt (lb): 425
Original Assay (g): Pu-10.0
Packaging Location: Bldg 771, Rm 249

Container Type: Drum
Code Description: Glass
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-5.0
Date Packaged: 12-9-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Crushed glass

Packaging Description: Waste packaged in poly drum bags.

Absorbent Information: Portland cement, approximately 1 cup. Cement is located in folds of the poly bag at top of the waste.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: 5
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-8-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Waste consists of broken and crushed glass light bulbs and fluorescent tubes.

Packaging Description: Type II liner is lined with two polyethylene drum bags. The glass is contained in the inner polyethylene drum bag.

Absorbent Information: Oil-Dri is located in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene bags--1.75; glass--305.75; Oil-Dri--4.0.

WIPP-WAC Compliance Information:
1. Particulates (glass fines): Analysis of the glass fines indicates that the waste contains 0.002 wt% <212$_\mu$ particulates and <0.001 wt% <10$_\mu$ particulates.

Packaging Efficiency: 85%
Volume % Combustibles: 3
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 29-00030
Content Code: 440
Container Wt (lb): 214
Original Assay (g): Pu-12.0
Packaging Location: Bldg 559, Rm 102

Container Type: Drum
Code Description: Glass
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-10.0
Date Packaged: 12-12-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: Yes; lead tape on one bottle

Waste Form Description: Miscellaneous glass--approximately 1/2 is crushed.

Packaging Description: Glass is contained in polyethylene bottles. One bottle is lead-taped. Bottles are in plastic bags.

Absorbent Information: Portland cement, approximately 2 cups. Cement is located inside the plastic bags containing the bottles.

Free Liquids: No
Compressed Gases: No Quantity: Contained:
Particulates: No Type: Quantity:
Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-8-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Glass sample vials, test tubes, and broken glass.

Packaging Description: Type II liner is lined with a polyethylene drum bag. Glass items are contained in polyethylene bottles and a 1-gal metal paint can. These containers are triple-bagged in plastic (PVC and polyethylene).

Absorbent Information: Oil-Dri is located in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC bags, polyethylene bottles--16.0; metal paint can--1.0; glass--112.0; Oil-Dri--4.25.

WIPP-WAC Compliance Information:
1. Particulates (glass fines): Analysis of the glass fines indicates that the waste contains 0.375 wt% <212$_\mu$ particulates and 0.017 wt% <10$_\mu$ particulates.

Packaging Efficiency: 75%
Volume % Combustibles: 15
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 37-02018
Content Code: 440
Container Wt (lb): 188
Original Assay (g): Pu-6.0
Packaging Location: Bldg 771, Rm 164

Container Type: Drum
Code Description: Glass
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-2.0
Date Packaged: 1-15-81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Primarily test tubes. Two bottles at top of waste and one bottle at bottom of waste contain broken glass.

Packaging Description: Glass items are contained in plastic bottles.

Absorbent Information: Vermiculite or Oil-Dri is located between the drum and the rigid liner.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-8-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II

Waste Form Description: Broken and unbroken glass vials and unbroken test tubes.

Packaging Description: Type II liner is lined with a polyethylene drum bag. All glass waste is contained in 1-gal polyethylene bottles. Each bottle is double-bagged in plastic.

Absorbent Information: Oil-Dri is located on top of drum bag and in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene bottles, PVC and polyethylene bags--32.0; glass vials and test tubes--79.75; Oil-Dri--5.0.

WIPP-WAC Compliance Information:
1. Particulates (glass fines): Analysis of the sample indicates that the waste contains 0.286 wt% $<212_{\mu}$ particulates and 0.002 wt% $<10_{\mu}$ particulates.

Packaging Efficiency: 50%
Volume % Combustibles: 15
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 76-01366
Content Code: 440
Container Wt (lb): 333
Original Assay (g): Pu-0.0
Packaging Location: Not available.

Container Type: Drum
Code Description: Glass
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-2.0
Date Packaged: 2-2-81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag and cardboard liner.
Lead-Lined: No Other Lead: No

Waste Form Description: Waste consists of broken glass.

Packaging Description: Waste contained in plastic bags.

Absorbent Information: Oil-Dri or Portland cement located on top of outer drum bag and inside the drum bag at bottom. Total quantity is approximately 2 quarts.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 66%
Volume % Combustible: 5
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-8-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Broken and crushed glass

Packaging Description: Type II liner is lined with a polyethylene drum bag. The drum bag is lined with a cardboard liner. The glass is contained in plastic bags (inside the cardboard liner).

Absorbent Information: Oil-Dri is located in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC bags--5.0; crushed glass--385.0; Oil-Dri--4.0.

WIPP-WAC Compliance Information:
1. Particulates (glass fines): Analysis of the sample indicates that the waste contains 0.006 wt% <212μ and 0.001 wt% <10μ particulates.

Packaging Efficiency: 80%
Volume % Combustibles: 1
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10576
Content Code: 442 (wrong code-see below)
Container Wt (lb): 375
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Raschig rings
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.0-Pu; 0.2-Am*
Date Packaged: 2-15-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: Cardboard
Lead-Lined: No Other Lead:

Waste Form Description: Crushed glass

Packaging Description: Crushed glass packed in poly bags which are tied at the top and put into a cardboard liner. (No 90-mil liner.)

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: ~28%
Correct Content Code?No New Code: 440-Glass
Other Information: 14 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 2-20-85
Container Condition: Exterior-moderate to heavy rust, Interior-no rust.
Lead Lined: No
Liner Type: Carboard

Waste Form Description: Broken fluorescent tubes and incondescent bulbs.

Packaging Description: A rigid 90-mil liner was not used. The drum was double lined with polyethylene drum bags with a cardboard liner inside of the innermost bag. Broken light tubes and bulbs were directly contained in the cardboard and 4-mil poly liners. Outside drum bag had one hole (<0.125").

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Cardboard liner-6.6, 2 ea. poly drum bags-2.0, glass-289.4, oil dry-5.4.

WIPP-WAC Compliance Information: 1. Particulates: the entire waste matrix contained particulate, a representative sample was analyzed. Analysis of the sample indicates the waste contained 0.8 wt% <212 micron particles and 3.0E-2 wt% <10 micron particles.

Packaging Efficiency: 90%
Volume % Combustibles: 2%
Correct Content Code? No New Code: 440
Other Information: *This waste form was too dense for a reliable sequented gamma scan this assay is an estimate only.
WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 36-00628
Content Code: 440
Container Wt (lb): 440
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Crushed glass

Packaging Description: Packed in a poly bag. Oil-Dri added to the top, then packed in a 90-mil liner.

Absorbent Information: 5 gallons

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 8 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Glass
Surface Dose Rate (mR/h): <0.5
Reassay (g): 2.7-Pu; 0.0-Am*
Date Packaged: 11-10-72

VISUAL EXAMINATION

Examination Date: 2-20-85
Container Condition: Exterior-light to moderate rust, Interior-no rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Broken glass (thin plate glass, broken chemical bottles, vials, small bottles).

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag which directly contained the glass. The bag had a few minor (<0.25") holes.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Poly drum bag-1.0, glass-334.8, oil dry-21.0.

WIPP-WAC Compliance Information: 1. Particulates: 11,990 grams of particulates were calculated to be in the drum based on obtaining 358.12 grams of particulate by sieving 4540 grams of the waste matrix. Analysis of the particulate indicates the waste contained 0.32 wt% <212 micron particles and 7.9E-4 wt% <10 micron particles.

Packaging Efficiency: 80%
Volume % Combustibles: 2%
Correct Content Code? Yes New Code:
Other Information: *This waste form was too dens. fo. a reliable sequented gamma scan this assay is an estimate only.
WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 36-00805
Content Code: Unknown (RFP-440)
Container Wt (lb): 240
Original Assay (g): 7.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: (see below)(RFP-Glass)
Surface Dose Rate (mR/h): 3.2
Reassay (g): 3.6-Pu; 0.1-Am
Date Packaged: 5-9-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Glass, crushed glass

Packaging Description: Some glass is contained in bagging material, but most is put directly in 90-mil liner. Crushed glass is in containers.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: <25%
Correct Content Code?No New Code: 440-Glass
Other Information: 10 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-1-85
Container Condition: Exterior-some light rust, Interior-no rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Glass including Raschig rings, separatory funnel, broken pipettes, sample bottles and vials, and lead taped sample vials.

Packaging Description: Type I rigid liner was single lined with a polyethylene drum bag. The waste was double bagged in polyethylene or in double-bagged 2- or 4 liter poly bottles. There were a total of 15 poly bottles. One waste package was a double bagged gallon paint can.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Polyethylene bags and bottles-24.5, metal (paint cans, pipe)-1.0, Raschig rings-26.5, other glass-95.5, oil dry-25.5.

WIPP-WAC Compliance Information: 1. Particulates: 1516 grams of particulates were calculated to be in the drum based on obtaining125.01 grams of particulate by sieving 6469.5 of the waste matrix. Analysis of the particulate indicates the waste contained 0.17 wt% <212 micron particles and <1.9E-4 wt% <10 micron particles.

Packaging Efficiency: 85%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 89-04043
Content Code: 441
Container Wt (lb): 278
Original Assay (g): 5.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Raschig rings
Surface Dose Rate (mR/h): 2.0
Reassay (g): 3.5-Pu; 0.1-Am
Date Packaged: 4-13-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Raschig rings

Packaging Description: Raschig rings are packed in 1 fiber pack container, surrounded by Oil-Dri, then 90-mil liner.

Absorbent Information: None

Free Liquids: No
Compressed Gases: No Type: Contained:
Particulates: No Quantity: Quantity:
Type:

Packaging Efficiency: 80%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 14 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-1-85
Container Condition: Exterior-some minor rust, Interior-no rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Raschig rings coated with a dry residue.

Packaging Description: Type I rigid liner was double lined with polyethylene drum bags. A single fiber pak was double bagged in poly. The rings were contained in the Fibre-Pak. The interior lid of the Fibre-Pak had light rust.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper (wipes, tape roll, fibre-pak)-6.2, poly drum bags-2.0, raschig rings-66.3, oil dry-127.0.

WIPP-WAC Compliance Information: None.

Packaging Efficiency: 30%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 89-04071
Content Code: 441
Container Wt (lb): 205
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Raschig rings
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.0-Pu; 0.1-Am
Date Packaged: 4-13-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Raschig rings

Packaging Description: Packed in two fiber packs, then put in bagging material and packed in 90-mil liner.

Absorbent Information: 1 pint

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 14 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-1-85
Container Condition: A little rust on interior and exterior.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Raschig rings coated with a dry residue.

Packaging Description: Type I rigid liner was double lined with polyethylene drum bags. Two Fibre-Paks were single bagged in poly. The Raschig rings were contained directly in the Fibre-Pak.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): 2 ea. fibre-paks-12.0, cloth glove-0.1, poly bags-4.3, Raschig rings-91.3, Portland cement-0.7, oil dry-6.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 89-04114
Content Code: 441
Container Wt (lb): 250
Original Assay (g): 2.0-Pu; 0.0-Am
Packaging Location:

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Raschig rings

Packaging Description: Raschig rings are packed in cardboard gallon containers, then packed inside the 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 14 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Raschig rings
Surface Dose Rate (mR/h): <0.5
Reassay (g): 1.9-Pu; 0.0-Am
Date Packaged: 4-25-73

VISUAL EXAMINATION

Examination Date: 3-1-95
Container Condition: Exterior-light to moderate rust, Interior-no rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Raschig rings coated with a dry residue.

Packaging Description: Type I rigid liner was double lined with polyethylene drum bags. Raschig rings were placed directly into 8 fiberboard cylinders (6" dia. x 18" tall). The cylinders were placed directly into the drum bags.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): 8 ea. fiberboard containers-16.3, drum bags-2.5, Raschig rings-151.8, oil dry-1.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 100%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 89-04072
Content Code: 441
Container Wt (lb): 293
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Unleached Raschig rings
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.0-Pu; 0.1-Am
Date Packaged: 4-13-73

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil.
Lead-Lined: No Other Lead:

Waste Form Description: Raschig rings

Packaging Description: Raschig rings are packed in 2 Fibre-Paks.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: <10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-23-85
Container Condition: Exterior-some minor light rust, Interior-no rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Raschig rings coated with a dry residue.

Packaging Description: Type I rigid liner was single lined with a polyethylene drum bag. A single fibre pak contained Raschig rings. The Fibre-Pak was triple bagged in poly. The drum bag had small (<0.25") hole.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper (1 ea. fibre pak, 2 ea. oil dry bags, wipes)-7.0, poly (3 ea. 30-gal bags, 1 ea. 55-gal bag)-1.5, Raschig rings-47.5, oil dry-155.3.

WIPP-WAC Compliance Information: 1. Particulates: 371.97 grams of dry residue was on the fibre pak and coated the rings. Analysis of the particulates indicated the waste contained <3.7 wt% <212 micron particles and 9.3E-4 wt% <10 micron particles.

Packaging Efficiency: 30%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39564
Content Code: 442
Container Wt (lb): 152
Original Assay (g): Pu-1.0
Packaging Location: Bldg 771, Rm 149

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Raschig rings

Packaging Description: Rings are contained in plastic bags and packaged in Fibre-Paks. There are two Fibre-Paks in the drum.

Absorbent Information: Portland cement or Oil-Dri has been added to each Fibre-Pak (1 cup/each) as absorbent. Vermiculite has also been added on top of sealed drum bag

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: 15
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Leached Raschig Rings
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-1.0
Date Packaged: 12-14-82

VISUAL EXAMINATION

Examination Date: 8-25-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Raschig rings

Packaging Description: Type II liner is lined with a polyethylene drum bag. The Raschig rings are contained in a plastic bag and placed inside a Fibre-Pak. There are two Fibre-Paks in the drum.

Absorbent Information: Vermiculite is located on top of the drum bag. The Oil-Dri is located in both Fibre-Paks.

Physical State of Waste: Dry
Component Wt (lb): Two Fibre-Paks--12.0; polyethylene and PVC plastic--4.0; Raschig rings--23.5; vermiculite--11.0; Oil-Dri--4.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 50%
Volume % Combustibles: 20
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39533
Content Code: 442
Container Wt (lb): 162
Original Assay (g): Pu-2.0
Packaging Location: Bldg 771, Rm 149

Container Type: Drum
Code Description: Leached Raschig Rings
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-3.0
Date Packaged: 12-8-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Raschig rings

Packaging Description: The Raschig rings are contained in two or three poly bags inside a Fibre-Pak. There are two Fibre-Paks in the drum.

Absorbent Information: Approximately one cup of cement has been added to each Fibre-Pak as absorbent.

Free Liquids:	No	Quantity:	Contained:
Compressed Gases:	No	Type:	Quantity:
Particulates:	No	Quantity:	Type:

Packaging Efficiency: 50%
Volume % Combustible: 15
Correct Content Code? Yes New Code:
Other Information: Estimated organic weight--20.0 lb. Liner lid is too small (the liner is dented in).

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-25-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Raschig rings

Packaging Description: Type II liner is lined with a polyethylene drum bag. The Raschig rings are triple-bagged in plastic inside a Fibre-Pak. There are two Fibre-Paks in the drum.

Absorbent Information: Vermiculite is located on top of the drum bag. The Oil-Dri is located in each Fibre-Pak.

Physical State of Waste: Dry
Component Wt (lb): Two-Fibre-Paks--12.0; polyethylene and PVC plastic--2.0; Raschig rings--50.25; vermiculite--15.0; Oil-Dri--2.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 20
Correct Content Code? Yes New Code:
Other Information: Internal rust on the drum lid and in the drum.

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39803
Content Code: 442
Container Wt (lb): 193
Original Assay (g): Pu-1.0
Packaging Location: Bldg 771, Rm 114

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Raschig rings

Packaging Description: Raschig rings are contained in two Fibre-Paks. The Fibre-Paks are lined with plastic bags (rings are in the bags).

Absorbent Information: Approximately 1 cup of Oil-Dri or Portland cement is contained in each Fibre-Pak as absorbent. Vermiculite midway up top Fibre-Pak.
Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: 15
Correct Content Code? Yes New Code:
Other Information: Estimated organic weight--20.0 lb.

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Leached Raschig Rings
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-2.0
Date Packaged: 1-17-83

VISUAL EXAMINATION

Examination Date: 8-25-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Raschig rings

Packaging Description: Type II liner is lined with a polyethylene drum bag. The Raschig rings are triple-bagged in plastic inside Fibre-Paks. There are two Fibre-Paks in the drum.

Absorbent Information: Vermiculite is located on top of the drum bag. The Oil-Dri is located inside each Fibre-Pak.
Physical State of Waste: Dry
Component Wt (lb): Two Fibre-Paks--12.0; polyethylene and PVC plastic--2.0; Raschig rings--88.5; vermiculite--12.5; Oil-Dri--2.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 20
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39805
Content Code: 442
Container Wt (lb): 199
Original Assay (g): Pu-6.0
Packaging Location: Bldg 771, Rm 111

Container Type: Drum
Code Description: Leached Raschig Rings
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-6.0
Date Packaged: 1-24-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Raschig rings.

Packaging Description: The Raschig rings are contained in plastic bags and packaged in Fibre-Paks. There are two Fibre-Paks in the drum.

Absorbent Information: Portland cement has been added to each fibre-pak (approximately 1 cup each).

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: 15
Correct Content Code? Yes New Code:
Other Information: Estimated organic weight--20.0 lb. The lid on bottom Fibre-Pak is loose.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-25-83
Container Condition: Badly dented on lower two-thirds of drum; paint is scratched.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Raschig rings.

Packaging Description: Type II liner is lined with a polyethylene drum bag. The Raschig rings are triple-bagged in plastic inside Fibre-Paks. There are two Fibre-Paks in the drum.

Absorbent Information: Vermiculite is located on top of the drum bag. The Oil-Dri is located inside each Fibre-Pak.

Physical State of Waste: Dry
Component Wt (lb): Two Fibre-Paks--12.0; polyethylene and PVC plastic--2.5; Raschig rings--78.5; vermiculite--12.5; Oil-Dri--2.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 20
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 19-02730
Content Code: 442
Container Wt (lb): 264
Original Assay (g): Pu-0.018, Am-0.0
Packaging Location: Building 776, Room 146

Container Type: Drum
Code Description: Leached Raschig Rings
Surface Dose Rate (mR/h):
Reassay (g): 0.8-Pu, 0.0-Am
Date Packaged: 9/6/84

RADIOGRAPHIC EXAMINATION

Examination Date: 2/21/85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Raschig rings.

Packaging Description: Raschig rings are contained in plastic bags.

Absorbent Information: Oil-dri (~3 gallons) is contained in the bags.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 8%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3/21/85
Container Condition: Exterior-lid and lower ring, minor light rust. Interior no-rust.
Lead Lined: No
Liner Type: Type III, 90 mil

Waste Form Description: Raschig rings

Packaging Description: Type III rigid liner was double-lined with polyethylene drum bags. Raschig rings were contained in 3 individual packages. The packages were triple-bagged with 2 poly outer bags and an inner PVC bag. A PVC loading skirt was also contained in the drum bags.

Absorbent Information: Oil-Dri was located inside the PVC bag of the individual packages.

Physical State of Waste: Dry
Component Weight (LB): PVC-5.3, poly-6.0, Raschig rings-145.0, oil dry-20.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 70%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 05-01596
Content Code: 442
Container Wt (lb): 191
Original Assay (g): Pu-0.0
Packaging Location: Bldg 771, Rm 114

Container Type: Drum
Code Description: Leached Raschig Rings
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-3.0
Date Packaged: 8-26-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Raschig rings

Packaging Description: Rings contained in two Fibre-Paks.

Absorbent Information: Oil-Dri, approximately 2 gal

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: 50
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-8-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type I 90-mil

Waste Form Description: Unbroken Raschig rings and some broken rings.

Packaging Description: The Type I liner is lined with a polyethylene drum bag. The Raschig rings are double-bagged in plastic inside a Fibre-Pak. There are two Fibre-Paks in the drum.

Absorbent Information: Oil-Dri is located on the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Fiber-packs--12.0; polyethylene bags--3.0; Raschig rings--84.5; and Oil-Dri--4.0.

WIPP-WAC Compliance Information:
1. Particulates (glass fines): Analysis of the sample indicates that the waste contains 0.022 wt% <212$_\mu$ particulates and 0.002 wt% <10$_\mu$ particulates.

Packaging Efficiency: 60%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 05-01772
Content Code: 442
Container Wt (lb): 182
Original Assay (g): Pu-3.0
Packaging Location: Bldg 771, Rm 114

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Raschig rings

Packaging Description: Rings are packaged in two Fibre-Paks.

Absorbent Information: Oil-Dri, approximately 1 gal

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: 50
Correct Content Code? Yes New Code:
Other Information: Rigid liner is dented--lid is too small. Lid on bottom Fibre-Pak is either upside-down or offset.

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Leached Raschig Rings
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-5.0
Date Packaged: 2-2-81

VISUAL EXAMINATION

Examination Date: 8-5-83
Container Condition: Good; small dent (1/2 x 3/4 in.) on drum
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Raschig rings

Packaging Description: Type II liner is lined with a polyethylene drum bag. The Raschig rings are contained in plastic bags (six bags total) inside Fibre-Paks (three bags/ Fibre-Pak). There are 2 Fibre-Paks in the drum.

Absorbent Information: Oil-Dri is located in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene plastic--4.5; Raschig rings--82.25; two Fibre-Paks--12.0; Oil-Dri--5.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 15
Correct Content Code? Yes New Code:
Other Information: Lid on one Fibre-Pak is on upside-down.

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 17-04562
Content Code: 442
Container Wt (lb): 182
Original Assay (g): Pu-19.0
Packaging Location: Bldg 707, Module C

Container Type: Drum
Code Description: Leached Raschig Rings
Surface Dose Rate (mR/h): 1.2
Reassay (g): Pu-20.0
Date Packaged: 11-13-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Raschig rings

Packaging Description: Rings are contained in plastic bags inside of two Fibre-Paks. Lid on bottom Fibre-Pak is unclamped.

Absorbent Information: Oil-Dri, approximately 1 gal. Oil-Dri is located between the Fibre-Pak and drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: 50
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-5-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Raschig rings. The rings and plastic are coated with a film of oil.

Packaging Description: Type II liner is lined with a polyethylene drum bag. The Raschig rings are triple-bagged in plastic (two packages) and contained inside the Fibre-Paks (one package/Fibre-Pak). There are two Fibre-Paks in the drum.

Absorbent Information: Oil-Dri located on top of the drum bag.

Physical State of Waste: Wet
Component Wt (lb): Two Fibre-Paks--12.0; polyethylene bags--4.0; Raschig rings--89.0; Oil-Dri--5.0.
WIPP-WAC Compliance Information:
1. A piece of plastic coated with the oil was sampled. The analysis indicates the composition as being grease and phthalate ester.

Packaging Efficiency: 60%
Volume % Combustibles: 10
Correct Content Code? No New Code: 441 (Unleached Raschig rings)

Other Information: Few internal rust spots on drum bottom.

WIPP-Certifiable: No. The oil is considered a free liquid since it is not absorbed into or on a host material as required by the WIPP-WAC.

Waste Form Category: Glass

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 22-00722
Content Code: 442
Container Wt (lb): 188
Original Assay (g): Pu-2.0
Packaging Location: Bldg 707

Container Type: Drum
Code Description: Leached Raschig Rings
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-1.0
Date Packaged: 1-15-81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Raschig rings

Packaging Description: Rings are contained in plastic bags inside a Fibre-Pak. There are two Fibre-Paks in the drum.

Absorbent Information: Oil-Dri, approximately 1-1/2 gal. Oil-Dri is located between the drum bag and Fibre-Pak.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: 50
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-8-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Raschig rings

Packaging Description: Type II liner is lined with a polyethylene drum bag. The Raschig rings are triple bagged in a PVC and two polyethylene bags inside a Fibre-Pak. There are two Fibre-Paks in the drum.

Absorbent Information: Oil-Dri is located in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Two Fibre-Paks--12.0; polyethylene and PVC bags--9.25; Raschig rings--89.0; Oil-Dri--4.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glass

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 42-00226
Content Code: 442
Container Wt (lb): 158
Original Assay (g): Pu-0.0
Packaging Location: Bldg 771, Rm 153

Container Type: Drum
Code Description: Leached Raschig Rings
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.0
Date Packaged: 3-13-81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Raschig rings

Packaging Description: Rings are packaged in Fibre-Paks. The drum contains two Fibre-Paks. Bottom Fibre-Pak is half-full.

Absorbent Information: Oil-Dri, approximately 2 gal.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 40%
Volume % Combustible: 50
Correct Content Code? Yes New Code:
Other Information: Lid on top Fibre-Pak appears to be on upside-down.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-5-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Raschig rings including some broken Raschig rings.

Packaging Description: Type II liner is lined with two polyethylene drum bags. The Raschig rings are triple-bagged in plastic inside a Fibre-Pak. There are two Fibre-Paks in the drum.

Absorbent Information: Oil-Dri is located in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Two Fibre-Paks--12.0; polyethylene bags--4.5; Raschig rings--57.0; Oil-Dri--4.0.

WIPP-WAC Compliance Information:
1. Particulates (broken glass): Analysis of the sample indicates that the waste contains 0.010 wt% of $<212\mu$ particulates and <0.001 wt% $<10\mu$ particulates.

Packaging Efficiency: 40%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information: Few small, internal rust spots.

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 12-11023
Content Code: 300
Container Wt (lb): 220
Original Assay (g): Pu-18.0
Packaging Location: Bldg 707, Module J

Container Type: Drum
Code Description: Graphite Molds
Surface Dose Rate (mR/h): 0.5
Reassay (g): Pu-20.0
Date Packaged: 11-15-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-24-83
Liner Type: 90-mil; liner lined with poly drum bag and cardboard liner.
Lead-Lined: No Other Lead: No

Waste Form Description: Graphite molds

Packaging Description: Molds placed directly into prepared drum--no individual packaging.

Absorbent Information: Vermiculite located on top of sealed drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 45%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-16-83
Container Condition: Scratched, with small dents from handling.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Graphite molds

Packaging Description: Type II liner is lined with a PVC O-ring bag. The O-ring bag is lined with a cardboard liner. The molds are placed directly into the cardboard lined O-ring bag.

Absorbent Information: Vermiculite is located on top of the O-ring bag.

Physical State of Waste: Dry
Component Wt (lb): Cardboard liner--4.5; PVC O-ring bag--4.0; graphite molds--135.75; vermiculite--3.0.

WIPP-WAC Compliance Information:
1. *Particulates (graphite fines):* Analysis of the graphite fines recovered from brushing the molds indicates that the waste contains 0.038 wt% <212μ particulates and <0.001 wt% <10$_\mu$ particulates.
2. Pyrophorics: Some Pu metal found adhered to the molds. No evidence of spontaneous combustion.

Packaging Efficiency: 50%
Volume % Combustibles: 5
Correct Content Code? Yes New Code:
Other Information: Light internal rust on drum lid.

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 12-11229
Content Code: 300
Container Wt (lb): 150
Original Assay (g): Pu-0.0
Packaging Location: Bldg 707, Module A

Container Type: Drum
Code Description: Graphite Molds
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.0
Date Packaged: 1-17-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-24-83
Liner Type: 90-mil; rigid liner lined with poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Graphite molds

Packaging Description: Molds placed directly into prepared drum--no individual packaging.

Absorbent Information: Vermiculite is located on top of the sealed drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 20%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-17-83
Container Condition: Good; several small dents in center of the drum.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Graphite molds

Packaging Description: Type II liner is lined with a polyethylene drum bag. The drum bag is lined with a fiberboard liner. The graphite molds are contained inside the fiberboard liner.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene drum bag--1.5; fiberboard liner--4.0; graphite molds--48.75; vermiculite--22.0.

WIPP-WAC Compliance Information:
1. Particulates (graphite fines): Analysis of the fines recovered from brushing the molds indicates that the waste contains 0.018 wt% <212$_\mu$ particulates and <0.001 wt% <10$_\mu$ particulates.

Packaging Efficiency: 30%
Volume % Combustibles: 5
Correct Content Code? Yes New Code:

Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 19-01811
Content Code: 300
Container Wt (lb): 158
Original Assay (g): Pu-18.0
Packaging Location: Bldg 776, Rm 146

Container Type: Drum
Code Description: Graphite Molds
Surface Dose Rate (mR/h): 1.2
Reassay (g): Pu-18.0
Date Packaged: 1-17-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-24-83
Liner Type: 90-mil; rigid liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Graphite molds

Packaging Description: Molds placed directly into prepared drum. No individual packaging.

Absorbent Information: Vermiculite is located on top of the sealed drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:

Particulates: No Quantity: Type:

Packaging Efficiency: 25%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: No cardboard liner. Rigid liner lid not properly installed.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-16-83
Container Condition: Good; small dent in lower-third of drum.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Graphite molds

Packaging Description: Type II liner is lined with a polyethylene drum bag. The molds are contained in three separate single-bagged packages. There are small holes in the plastic bags.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): PVC and polyethylene bags--2.25; graphite molds--56.5; vermiculite--20.0.

WIPP-WAC Compliance Information:
1. Particulates (graphite fines): Analysis of the fines indicate that the waste contains 0.013 wt% <212$_\mu$ particulates and <0.001 wt% <10$_\mu$ particulates.

Packaging Efficiency: 33%
Volume % Combustibles: 5
Correct Content Code? Yes New Code:
Other Information: Light internal rust on drum lid.

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 41-01531
Content Code: 300
Container Wt (lb): 182
Original Assay (g): Pu-19.0
Packaging Location: Bldg 776, Rm 146

Container Type: Drum
Code Description: Graphite Molds
Surface Dose Rate (mR/h): 1.2
Reassay (g): Pu-10.0
Date Packaged: 1-10-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-24-83
Liner Type: 90-mil; rigid liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Graphite molds

Packaging Description: Molds placed directly into prepared drum--no individual packaging.

Absorbent Information: Vermiculite

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 33%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: No cardboard liner on inside of drum bag.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-16-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Broken graphite molds

Packaging Description: Type II liner is lined with two polyethylene drum bags. The graphite molds are packaged in two single polyethylene drum bags.

Absorbent Information: Vermiculite is located on top of the outer drum bag.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene bags--5.0; graphite molds--88.75; vermiculite--13.0.

WIPP-WAC Compliance Information:
1. Particulates (graphite fines): Analysis of the fines recovered from brushing the molds indicates that the waste contains 0.012 wt% <212μ particulates and <0.001 wt% <10μ particulates.

Packaging Efficiency: 40%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 12-09189
Content Code: 300
Container Wt (lb): 248
Original Assay (g): Pu-11.0
Packaging Location: Bldg 707, Module J

Container Type: Drum
Code Description: Graphite Molds
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-5.0
Date Packaged: 12-9-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag and cardboard liner
Lead-Lined: No Other Lead: No

Waste Form Description: Graphite molds

Packaging Description: Molds are inside the cardboard liner that lines the inside of the poly drum bag.

Absorbent Information: Oil-Dri (approximately 2 gal) is located on top of the drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 55%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-4-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Broken pieces of graphite molds

Packaging Description: Type II liner is lined with a PVC O-ring bag. The bag is lined with a cardboard liner. The molds are inside the cardboard liner.

Absorbent Information: Oil-Dri is located on top of the bag.

Physical State of Waste: Dry
Component Wt (lb): PVC bag--4.0; cardboard--4.0; graphite molds--149.75; Oil-Dri-4.0.

WIPP-WAC Compliance Information:
1. Particulates (graphite fines): Analysis of the graphite fines recovered from brushing the molds indicates that the waste contains 0.020 wt% <212$_\mu$ and particulates <0.001 wt% <10$_\mu$ particulates.

Packaging Efficiency: 50%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information: The cardboard liner has a small hole in the middle.

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 12-09295
Content Code: 300
Container Wt (lb): 290
Original Assay (g): Pu-23.0
Packaging Location: Bldg 707, Module J

Container Type: Drum
Code Description: Graphite Molds
Surface Dose Rate (mR/h): 3.0
Reassay (g): Pu-37.0
Date Packaged: 2-11-81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag and cardboard liner.
Lead-Lined: No Other Lead: No

Waste Form Description: Graphite molds.

Packaging Description: Molds are inside the cardboard liner that lines the inside of the poly drum bag.

Absorbent Information: Oil-Dri, approximately 2 gal is located on top of the drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 60%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-4-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Graphite molds and pieces.

Packaging Description: Type II liner is lined with a PVC O-ring bag that is lined with a cardboard liner. The molds are inside the cardboard liner.

Absorbent Information: Oil-Dri is located on top of the bag.

Physical State of Waste: Dry
Component Wt (lb): PVC bag--4.0; cardboard liner--4.0; graphite molds and pieces--210.5; Oil-Dri--3.5.

WIPP-WAC Compliance Information:
1. Particulates (graphite fines): Analysis of the fines indicates that the waste contains 0.022 wt% <212μ particulates and <0.001 wt% <10μ particulates.
2. Pyrophorics: Two pieces of Pu metal on a mold that sparked only when scraped. Weight of Pu is less than 1% of the waste weight.

Packaging Efficiency: 70%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information: The cardboard liner has a 12 x 12-in. tear in it.

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 12-09161
Content Code: 300
Container Wt (lb): 252
Original Assay (g): Pu-15.0
Packaging Location: Bldg 707, Module J

Container Type: Drum
Code Description: Graphite Molds
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-15.0
Date Packaged: 11-11-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag and cardboard liner.
Lead-Lined: No Other Lead: No

Waste Form Description: Graphite molds

Packaging Description: Waste is inside the cardboard liner that lines the inside of the drum bag.

Absorbent Information: Oil-Dri, approximately 1-1/2 gal is located on top of the drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 63%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-4-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Graphite molds and pieces

Packaging Description: Type II liner is lined with a PVC O-ring bag that is lined with a cardboard liner. The molds and pieces are inside the cardboard liner.

Absorbent Information: Oil-Dri is located on top of the bag.

Physical State of Waste: Dry
Component Wt (lb): PVC bag--3.75; cardboard liner--4.0; graphite molds and pieces--167.5; Oil-Dri--4.0.

WIPP-WAC Compliance Information:
1. Particulates (graphite fines): Analysis of recovered fines indicates that the waste contains 0.026 wt% <212μ particulates and <0.002 wt% <10μ particulates.

Packaging Efficiency: 50%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information: Cardboard liner has a 2 x 4-in. tear in it.

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 12-09300
Content Code: 300
Container Wt (lb): 270
Original Assay (g): Pu-7.0
Packaging Location: Bldg 707, Module J

Container Type: Drum
Code Description: Graphite Molds
Surface Dose Rate (mR/h): 1.0
Reassay (g): Pu-9.0
Date Packaged: 2-11-81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag and cardboard liner.
Lead-Lined: No Other Lead: No

Waste Form Description: Graphite molds

Packaging Description: Molds are inside the cardboard liner that lines the inside of the poly drum bag.

Absorbent Information: Oil-Dri, approximately 1 gal is located on top of the sealed drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 67%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-4-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Graphite molds and pieces

Packaging Description: Type II liner is lined with an O-ring bag that is lined with a cardboard liner. The molds and pieces are inside the cardboard liner.

Absorbent Information: Oil-Dri located outside the plastic bag.

Physical State of Waste: Dry
Component Wt (lb): PVC bag--3.0; cardboard liner--4.0; graphite molds and pieces--185.5; Oil-Dri--3.5.

WIPP-WAC Compliance Information:
1. Particulates (graphite fines mixed with Oil-Dri): Analysis of the mixture indicates the waste contains 0.033 wt% <212μ and particulates <0.001 wt% <10μ particulates.

Packaging Efficiency: 40%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information: Light internal rust on drum bottom.

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 11-01625
Content Code: 301
Container Wt (lb): 233
Original Assay (g): Pu-34.0
Packaging Location: Not available.

RADIOGRAPHIC EXAMINATION

Examination Date: 6-24-83
Liner Type: 90-mil; liner lined with a poly drum bag and cardboard liner.
Lead-Lined: No Other Lead: No

Waste Form Description: Graphite cores

Packaging Description: Graphite waste placed directly into prepared drum no individual packaging.

Absorbent Information: Oil-Dri is located inside the drum bag at bottom. Vermiculite is on top of sealed drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 55%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Graphite Cores
Surface Dose Rate (mR/h): 4.6
Reassay (g): Pu-29.0
Date Packaged: 9-10-82

VISUAL EXAMINATION

Examination Date: 8-17-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil
Waste Form Description: Graphite molds and cores; some metal bolts and aluminum shavings.

Packaging Description: Type II liner is lined with two polyethylene drum bags and a PVC O-ring bag. The O-ring bag is lined with a cardboard liner. The graphite waste is inside the cardboard liner.

Absorbent Information: Vermiculite located on top and sides of outer drum bag. The Oil-Dri is between the cardboard and plastic bags and on top of the inner drum bag.

Physical State of Waste: Dry
Component Wt (lb): Cardboard liner--3.75; polyethylene and PVC bags--5.75; metal--0.125; graphite--133.75; vermiculite--2.5; Oil-Dri--8.5.

WIPP-WAC Compliance Information:
1. Particulates (graphite fines): Analysis of the recovered fines indicates that the waste contains 0.014 wt% <212μ particulates and <0.002 wt% <10μ particulates.

Packaging Efficiency: 40%
Volume % Combustibles: 5
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 32-01049
Content Code: 312
Container Wt (lb): 156
Original Assay (g): Pu-3.0
Packaging Location: Building 371, Rm. 3701

Container Type: Drum
Code Description: Graphite, Coarse
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-3.9; Am-0
Date Packaged: 11/08/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Waste consists of chunks and pieces of graphite.

Packaging Description: Graphite is contained in 1 gallon polyethylene bottles. The bottles are contained in plastic bags inside of the rigid liner. Bottles are 1/2 to 3/4 full.

Absorbent Information: None

Free Liquids: No	Quantity:	Contained:
Compressed Gases: No	Type:	Quantity:
Particulates: Yes	Quantity: See below	Type:

Packaging Efficiency: 65%
Volume % Combustible: 10%
Correct Content Code? Yes New Code:
Other Information: (1) Particulate consists of graphite pieces. Quantity present does not exceed WIPP-WAC
(2) Organic weight-25 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/16/84
Container Condition: Good
Lead Lined: No
Liner Type: Type III

Waste Form Description: Graphite pieces and chunks inside 16 1-gallon polyethylene bottles.

Packaging Description: Type II liner is lined with 2 polyethylene drum bags and 1 PVC O-ring bag. Bottles of graphite stored inside the PVC O-ring bag.

Absorbent Information: None

Physical State of Waste: Dry
Component Weight (LB): 14 3/4 lbs plastics; 74 lbs graphite pieces.

WIPP-WAC Compliance Information: 1. Particulates: graphite fines; analysis indicates 0.16% <212 and 3.1E-3% <10.

Packaging Efficiency: 95%
Volume % Combustibles: 15%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Nonmetal Molds and Crucibles

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 32-01055
Content Code: 312
Container Wt (lb): 196
Original Assay (g): Pu-35.0
Packaging Location: Building 371, Rm. 3701

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Waste consists of graphite chunks and pieces. Three packages contain powder.

Packaging Description: The graphite pieces and powder are contained in 1 gallon polyethylene bottles. The bottles are contained in plastic bags inside the rigid liner. The bottles are approximately half-full.

Absorbent Information: None

Free Liquids: No
Compressed Gases: No
Particulates: Yes

Quantity:
Type:
Quantity: 1 1/2 gal.

Contained:
Quantity:
Type:

Packaging Efficiency: 90%
Volume % Combustible: 10%
Correct Content Code? Yes New Code:
Other Information: Powder is contained in three (3) half-full 1 gallon bottles.

WIPP-Certifiable: No-due to particulates

Container Type: Drum
Code Description: Graphite, Coarse
Surface Dose Rate (mR/h): 4.0
Reassay (g): Pu-313
Date Packaged: 11/08/83

VISUAL EXAMINATION

Examination Date: 4/16/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Graphite pieces are contained in 23 1-gallon and 1/2 gallon polyethylene bottles. 3 bottles contained very fine graphite powder.

Packaging Description: Type II liner is lined with 2 poly. drum bags. Graphite pieces are contained in 23 1-gallon and 1/2 gallon poly. bottles; each is triple-bagged.

Absorbent Information: None

Physical State of Waste: Dry
Component Weight (LB): 23 1/2 lbs plastics; 80 3/4 lbs graphite mold pieces; 16 lbs graphite fines.

WIPP-WAC Compliance Information: 1. Particulates: graphite fines; analysis indicates 11.56% <212 and 6.9E-2% <10.

Packaging Efficiency: 95%
Volume % Combustibles: 15%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-exceeds 200 g/55 gallon drum

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 7412-03121
Content Code: 1
Container Wt (lb): 383
Original Assay (g): Pu-2.8; Am-1.2
Packaging Location: Building 774

Container Type: Drum
Code Description: Combined Sludge
Surface Dose Rate (mR/h): 0.5
Reassay (g): Pu-0.48; Am-0.04
Date Packaged: 1/17/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is packaged in two plastic bags.

Absorbent Information: None

Free Liquids: Yes Quantity: 4 gallons Contained: See below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: (1) Liquid is on top of the sludge
(2) Organic Weight: 10 lbs.

WIPP-Certifiable: No-due to free liquids

VISUAL EXAMINATION

Examination Date: 4/9/84
Container Condition: Good
Lead-Lined: No
Liner Type: Type II

Waste Form Description: Reddish-brown "7412 series" sludge in a PVC O-ring bag. Free liquids on top of sludge and liquid in liner and outer bag, some outside of the outer bag.

Packaging Description: Type II liner lined with polyethylene drum bag & PVC O-ring bag. Sludge contained in PVC bag.

Absorbent Information: Portland cement & vermiculite weight included in weight of sludge.

Physical State of Waste: Wet
Component Weight (lb): 4.5 lbs. poly. drum bag & PVC O-ring bag; 245.5 lbs. sludge mixed with Portland cement: 17.35 liters of liquid.

WIPP-WAC Compliance Information: 1. Free liquids: vol. 17,350 ml; pH 12; analysis indicates water & nitrates. 2. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 50%
Volume % Combustibles: 2%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 7412-03125
Content Code: 1
Container Wt (lb): 456
Original Assay (g): Pu-2.8; Am-1.2
Packaging Location: Building 774

Container Type: Drum
Code Description: Combined Sludge
Surface Dose Rate (mR/h): 0.5
Reassay (g): Pu-0.73; Am-0.07
Date Packaged: 11/17/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in two plastic bags.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 75%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: (1) Appears to be excess cement on top of waste.
(2) Organic Weight: 10 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/9/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: "7412 series" sludge in PVC O-ring bag; top half of sludge wet, bottom half of sludge dry. Free liquids in both outer & inner bags.

Packaging Description: Type II liner lined with polyethylene drum bag & PVC O-ring bag. Sludge contained in PVC bag.

Absorbent Information: Portland cement included in with weight of sludge.

Physical State of Waste: Wet
Component Weight (lb): 4.5 lbs. plastics; 355.5 lbs. of reddish brown sludge mixed with Portland cement; 0.507 liters of liquid.

WIPP-WAC Compliance Information: 1. Free liquids: 507 ml; pH 12; analysis indicates water and nitrates. 2. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 75%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 7412-03127
Content Code: 1
Container Wt (lb): 365
Original Assay (g): Pu-2.8; Am-1.2
Packaging Location: Building 774

Container Type: Drum
Code Description: Combined Sludge
Surface Dose Rate (mR/h): 0.0
Reassay (g): Pu-1.18; Am-0.09
Date Packaged: 11/17/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in two plastic bags.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 60%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: (1) Liner lid does not appear to be on the liner properly.
(2) Organic Weight: 10 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/9/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: "7412 series" sludge in PVC O-ring bag

Packaging Description: Type II liner lined with polyethylene drum bag & PVC O-ring bag. Sludge contained in PVC bag

Absorbent Information: Portland cement on top of inner sealed O-ring bag, intermixed w/sludge

Physical State of Waste: Damp
Component Weight (LB): 4.5 lbs. plastics; 274.5 lbs. sludge intermixed with Portland cement

WIPP-WAC COMPLIANCE INFORMATION: 1. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 65%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 7412-03128
Content Code: 1
Container Wt (lb): 436
Original Assay (g): Pu-2.8; Am-1.2
Packaging Location: Building 774

Container Type: Drum
Code Description: Combined Sludge
Surface Dose Rate (mR/h): 0.5
Reassay (g): Pu-1.13; Am-0.10
Date Packaged: 11/17/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in two plastic bags.

Absorbent Information: Cement (1 qt.)

Free Liquids: Yes Quantity: 3 gallons Contained: See below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 55%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: (1) Free liquid located on top of sludge
(2) Organic Weight: 10 lbs

WIPP-Certifiable: No-due to free liquids

VISUAL EXAMINATION

Examination Date: 4/9/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: "7412 series" sludge. Liquids in PVC O-ring bag, top and bottom

Packaging Description: Type II liner lined with polyethylene drum bag & PVC O-ring bag. Sludge contained in PVC bag

Absorbent Information: Portland cement-1.5 lbs.

Physical State of Waste: Damp
Component Weight (LB): 4.5 lbs. plastics; 326.5 lbs. sludge mixed with cement; 5.5 liters of liquid

WIPP-WAC COMPLIANCE INFORMATION: 1. Free liquids: 5,500 ml: pH 12 analysis indicates water, nitrates, sulfates, and/or silicates. 2. sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 60%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 7412-00483
Content Code: 1
Container Wt (lb): 553
Original Assay (g): Pu-0.4, Am-0.1
Packaging Location: Building 774

Container Type: Drum
Code Description: First Stage Sludge
Surface Dose Rate (mR/h): 4.2
Reassay (g): Pu-6.58; Am-0.256
Date Packaged: 8/18/80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in a poly bag.

Absorbent Information: Portland cement, approximately 2 cups.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 0
Correct Content Code? Yes New Code:
Other Information: Portland cement is located outside the bag containing the sludge. Unable to penetrate the sludge at the center.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8/15/83
Container Condition: See other information.
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Precipitation sludge.

Packaging Description: Type II liner is lined with a polyethylene drum bag. The sludge is contained in a PVC O-ring bag.

Absorbent Information: Portland cement is located on top of the O-ring bag and layered in the sludge. Oil-Dri is located in the bottom of the liner and is mixed in the sludge.

Physical State of Waste: Damp
Component Weight (LB): Polyethylene drum bag and PVC O-ring bag-4.5; 7412 sludge-433.5; Portland cement-28.5; vermiculite-3.0.

WIPP-WAC Compliance Information: 1. Sludge: The sludge pH is 12 with the major component being carbonates and/or nitrates and the minor component is water.

Packaging Efficiency: 95%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information: 1. Large dent in drum middle, light rust on dented areas, paint condition fair.
2. Interior of the drum is moderately rusted on drum bottom and slightly rusted on the sides.

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 7412-00636
Content Code: 1
Container Wt (lb): 399
Original Assay (g): Pu-2.0, Am-1.0
Packaging Location: Building 774

Container Type: Drum
Code Description: First Stage Sludge
Surface Dose Rate (mR/h): 12.0
Reassay (g): Pu-4.824; Am-1.356
Date Packaged: 12/9/80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in a poly bag.

Absorbent Information: Portland cement, approximately 1 quart.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 66%
Volume % Combustible: 0
Correct Content Code? Yes New Code:
Other Information: Portland cement is located outside the bag containing the sludge. Unable to penetrate the sludge at the center.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8/11/83
Container Condition: Good
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Red-brown precipitation sludge with some very hard-dense, black sludge at the bottom and top of the waste.

Packaging Description: Type II liner is lined with a polyethylene drum bag. The sludge is packaged in two bags.

Absorbent Information: Portland cement on top of the inner bag. The Oil-Dri is located on top of the outer bag.

Physical State of Waste: Damp
Component Weight (LB): Polyethylene and PVC bags-4.5; 7412 sludge and black sludge-395.5. Absorbents could not be separated from the sludge for weighing.

WIPP-WAC Compliance Information: 1. Sludge: The sludge pH is 12 with the major component being carbonates and/or nitrates, silicates and/or sulfates, and the minor component being water.

Packaging Efficiency: 80%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 7412-00766
Content Code: 1
Container Wt (lb): 526
Original Assay (g): Pu-1.6, Am-1.6
Packaging Location: Building 774

Container Type: Drum
Code Description: First Stage Sludge
Surface Dose Rate (mR/h): 20.0
Reassay (g): Pu-3.405; Am-1.246
Date Packaged: 2/21/81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in a poly bag.

Absorbent Information: Portland cement, approximately 2 cups.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 0
Correct Content Code? Yes New Code:
Other Information: Portland cement is located outside the bag containing the sludge. Unable to penetrate the sludge at the center.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8/15/83
Container Condition: Good; some surface scratches on paint.
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Precipitation sludge.

Packaging Description: Type II liner is lined with a polyethylene drum bag. The sludge is contained in a PVC O-ring bag.

Absorbent Information: Portland cement in bottom of and on top of the O-ring bag. the oil-Dri is located on top of the outer drum bag.

Physical State of Waste: Damp
Component Weight (LB): Polyethylene drum bag and PVC O-ring bag-4.5; 7412 sludge (including intermixed cement)-398.5; Portland cement-27.0; Oil-Dri-4.0.

WIPP-WAC Compliance Information: 1. Sludge: Analysis indicates a pH of 12. The major component is carbonates and/or nitrates and silicates, the minor component is water.

Packaging Efficiency: 90%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 7412-00797
Content Code: 1
Container Wt (lb): 432
Original Assay (g): Pu-1.1; Am-1.4
Packaging Location: Building 774

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner also lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in a poly bag.

Absorbent Information: Portland cement, approximately 2 cups.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: 0
Correct Content Code? Yes New Code:
Other Information: Portland cement is located outside the poly bag containing the sludge. Unable to penetrate the sludge at the center.

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: First Stage Sludge
Surface Dose Rate (mR/h): 2.0
Reassay (g): Pu-1.801; Am-0.054
Date Packaged: 2/20/81

VISUAL EXAMINATION

Examination Date: 8/15/83
Container Condition: Good
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Precipitation sludge.

Packaging Description: Type II liner is lined with a polyethylene drum bag. The sludge is contained in a PVC O-ring bag.

Absorbent Information: Portland cement is located in the bottom of and on top of the O-ring bag. Oil-Dri is located on the bottom of the liner.

Physical State of Waste: Damp
Component Weight (LB): Polyethylene drum bag and PVC O-ring bag-4.5; 7412 sludge (including intermixed cement)-319.5; cement-20.75; Oil-Dri-2.0.

WIPP-WAC Compliance Information: 1. Sludge: No laboratory results received on the sludge sample.

Packaging Efficiency: 80%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information: 1. Moderate rust on interior drum bottom.

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludge

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 741-12404
Content Code: 1
Container Wt (lb): 530
Original Assay (g): 0.9-Pu; 1.7-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: First Stage Sludge
Surface Dose Rate (mR/h): 19.0
Reassay (g): 1.35-Pu; 1.69-Am
Date Packaged: 1-3-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-29-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Sludge

Packaging Description: Packed in pply bags and then 90-mil liner

Absorbent Information: None

Free Liquids: Yes Quantity: 1/2 qt. Contained: on top waste
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 5%
Correct Content Code?Yes New Code:
Other Information: 10 lbs of organic material

WIPP-Certifiable: No-free liquid

VISUAL EXAMINATION

Examination Date: 1-22-85
Container Condition: Exterior-dents and bulges, moderate rust, interior-light rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Precipitation sludge with Portland cement absorbent intermixed.

Packaging Description: Type I rigid liner was lined with a round bottom polyethylene drum bag. The sludge was combined in a PVC O-ring bag.

Absorbent Information: Oil dry was located on top of the poly outer bag. Portland cement on top was hardened and was located between PVC inner and poly outer bags. Portland cement was dry powder in the bottom section and was located between the bags and also outside the outer bag.

Physical State of Waste: Damp
Component Weight (LB): PVC bag-3.0, poly bag-1.0, sludge with intermixed Portland cement-427.5, hardened portland cement-22.0, Oil-Dri and powdered portland could not be separated and are included in sludge weight.

WIPP-WAC Compliance Information: 1. Free liquids: 430 ml on top of sludge. Analysis indicates a pH of 12. The components were water, sodium nitrate, and an undentified basic compound. 2. Sludge having a pH of 8. Corrosion protection was provided.

Packaging Efficiency: 95%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-free liquid (430 ml)

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 741-12411
Content Code: 1
Container Wt (lb): 495
Original Assay (g): 0.9-Pu; 0.9-Am
Packaging Location: Building 774

RADIOGRAPHIC EXAMINATION

Examination Date: 11-21-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Sludge

Packaging Description: Packed in poly bags and then in 90-mil liner

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 6%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic materials

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: First Stage Sludge
Surface Dose Rate (mR/h): 19.0
Reassay (g): 1.28-Pu; 1.44-Am
Date Packaged: 1-4-73

VISUAL EXAMINATION

Examination Date: 1-22-85
Container Condition: Exterior-moderate rust, interior-light rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Precipitation sludge with portland cement absorbent intermixed.

Packaging Description: Type I rigid liner was lined with a round bottom polyethylene drum bag. The sludge was contained in a PVC O-ring bag.

Absorbent Information: Oil dry was located on top of the poly outer bag. Portland cment was mostly hardened and was located on top between PVC inner and poly outer bags and was located in bottom section outside of both bags, between the 2 bags and also inside the inner bag. Portland cement was also intermixed with the sludge.

Physical State of Waste: Damp
Component Weight (LB): PVC bag-3.0, poly bag-1.0, sludge with intermixed Portland cement 268.0, hardened Portland cement-39.0, Oil-Dri could not be separated and weight is included with sludge.

WIPP-WAC Compliance Information: 1. Sludge having a pH of 6. Corrosion protection was provided.

Packaging Efficiency: 80%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 741-12794
Content Code: 1
Container Wt (lb): 472
Original Assay (g): 4.7-Pu; 1.6-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: First Stage Sludge
Surface Dose Rate (mR/h): 28.0
Reassay (g): 1.87-Pu; 1.91-Am
Date Packaged: 4-6-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-9-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Sludge

Packaging Description: Packed in poly bags and then in 90-mil liner

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 24%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic materials

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-23-85
Container Condition: Some light rust-Interior and exterior
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Precipitation sludge with portland cement absorbent intermixed.

Packaging Description: Type I rigid liner was lined with a round bottom polyethylene drum bag. The sludge was combined in a PVC O-ring bag.

Absorbent Information: Oil-Dri outside of the outer poly bag. Hardened Portland cement on top betwen bags. Hardened Portland cement on bottom inside of the inner PVC bag. Powdered outside of outer poly bag.

Physical State of Waste: Damp
Component Weight (LB): PVC bag-3.0, poly bag-1.0, sludge with intermixed Portland cement 365.0, hardened Portland cement 20.0, Oil-Dri and powdered Portland cement weight is included with sludge.

WIPP-WAC Compliance Information: 1. Sludge having a pH of 8. Corrosion protection was provided.

Packaging Efficiency: 90%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 741-12847
Content Code: 1
Container Wt (lb): 511
Original Assay (g): 2.1-Pu; 0.9-Am
Packaging Location: Building 774

RADIOGRAPHIC EXAMINATION

Examination Date: 11-9-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Sludge

Packaging Description: Packed in poly bags and then in 90-mil liner

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 5%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic materials

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: First Stage Sludge
Surface Dose Rate (mR/h): 18.0
Reassay (g): 7.69-Pu; 1.29-Am
Date Packaged: 4-18-73

VISUAL EXAMINATION

Examination Date: 1-23-85
Container Condition: Very little rust-Interior and exterior
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Precipitation sludge with portland cement absorbent intermixed.

Packaging Description: Type I rigid liner was lined with a round bottom polyethylene drum bag. The sludge was contained in a PVC O-ring bag.

Absorbent Information: Oil-Dri was located on top of outer poly bag. Portland cement was located on top between the two bags and was both hardened and powdered. Hardened Portland cement was located between the bags on bottom. Dry Portland cement was also intermixed with the sludge.

Physical State of Waste: Damp
Component Weight (LB): PVC bag-3.0, poly bag-1.0, sludge with intermixed Portland cement-411.0, Portland cement-8.0, Oil-Dri and powdered Portland cement weight is included with sludge.

WIPP-WAC Compliance Information: 1. Sludge having a pH of 8. Corrosion protection was provided.

Packaging Efficiency: 90%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code.
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 741-12858
Content Code: 1
Container Wt (lb): 508
Original Assay (g): 5.4-Pu; 3.3-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: First Stage Sludge
Surface Dose Rate (mR/h): 38.0
Reassay (g): 14.0-Pu; 3.2-Am
Date Packaged: 4-27-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-21-84
Liner Type: 90-mil
Lead-Lined: No
Other Lead: Sheets of lead on top and buried in sludge. Approximately 15 lbs

Waste Form Description: Sludge

Packaging Description: No poly bags, 90-mil liner

Absorbent Information: None

Free Liquids: No
Compressed Gases: No
Particulates: No
Quantity:
Type:
Quantity:
Contained:
Quantity:
Type:

Packaging Efficiency: 85%
Volume % Combustible: 5%
Correct Content Code? Yes
New Code:
Other Information: 10 lbs of organic materials

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-28-85
Container Condition: Exterior-light rust, Interior-light to moderator rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Precipitation sludge with portland cement absorbent intermixed.

Packaging Description: Type I rigid liner had 0.125" lead sheeting outside the rigid liner on the top of the drum and lead lid inside the rigid liner lid. Rigid liner was lined with a polyethylene drum bag. The sludge was contained in a PVC O-ring bag.

Absorbent Information: Oil-Dri was located on top of the lead sheeting inside rigid liner top. Oil-Dri was also located on top of the outer poly drum bag and on the bottom between the poly drum bag and the rigid liner. Hardened Portland cement located on top and on the bottom between the two bags.

Physical State of Waste: Damp
Component Weight (LB): PVC bag-3.0, poly drum bag-1.0, lead sheeting-27.7, sludge with intermixed Portand-370.6, Portland cement-15.8, Oil-Dri-15.4.

WIPP-WAC Compliance Information: 1. Sludge having a pH of 8. Corrosion protection was provided.

Packaging Efficiency: 80%
Volume % Combustibles: 5%
Correct Content Code? Yes
New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 742-26150
Content Code: 2
Container Wt (lb): 536
Original Assay (g): Pu-0.3
Packaging Location: Building 774

Container Type: Drum
Code Description: Second-Stage Sludge
Surface Dose Rate (mR/h): 1.5
Reassay (g): Pu-0.43; Am-0.07
Date Packaged: 3/09/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in two plastic bags.

Absorbent Information: None

Free Liquids: Yes Quantity: 4 gallons Contained: See below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: (1) Free liquid located on top of sludge
(2) Sludge partially penetrated by x-rays.
(3) Organic Weight: 14 lbs

WIPP-Certifiable: No-due to free liquids

VISUAL EXAMINATION

Examination Date: 4/9/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: "742 series" sludge. Free liquids drained from drum & liner; bottom of drum rusted & liner outside was wet. Both bags contained liquids.

Packaging Description: Type II liner lined with polyethylene drum bag & PVC O-ring bag. Sludge inside of PVC O-ring bag.

Absorbent Information: Portland cement on top of outer drum bag; some between bags; in bottom of rigid liner, and intermixed w/sludge. Vermiculite on top of outside bag.

Physical State of Waste: Damp
Component Weight (LB): 2.0 lbs. plastics; 389 lbs. sludge intermixed with layered Portland cement; 18.95 liters of liquid

WIPP-WAC Compliance Information: 1. Free liquids: 18,950 ml: pH 12; analysis indicates water, nitrates, oxides, sulfates and/or silicates.
2. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 70%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 742-26152
Content Code: 2
Container Wt (lb): 490
Original Assay (g): Pu-0.3
Packaging Location: Building 774

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in two plastic bags.

Absorbent Information: Drum contains approximately 1 quart Portland cement.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 75%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: Organic Weight: 10 lbs

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Second-Stage Sludge
Surface Dose Rate (mR/h): 2.0
Reassay (g): Pu-1.31; Am-0.09
Date Packaged: 12/07/83

VISUAL EXAMINATION

Examination Date: 4/10/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: "742 series" sludge. Sludge is wet on top dry on bottom. Liquids contained in outer bag; very little in inner bag.

Packaging Description: Type II liner is lined with polyethylene drum bag & PVC O-ring bag. Sludge contained in PVC bag

Absorbent Information: Cement located in middle of drum and in bottom of inner-bag--included with sludge.

Physical State of Waste: Damp
Component Weight (LB): 2.0 lbs. plastics; 399 lbs. sludge with Portland cement; 1.425 liters liquid.

WIPP-WAC Compliance Information: 1. Free liquids: 1425 ml; pH 12; analysis indicated water, carbonates, and/or nitrates, silicates and/or sulfates. 2. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 80%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 742-26154
Content Code: 2
Container Wt (lb): 480
Original Assay (g): Pu-0.3
Packaging Location: Building 774

Container Type: Drum
Code Description: Second-Stage Sludge
Surface Dose Rate (mR/h): 2.5
Reassay (g): Pu-1.48; Am-0.01
Date Packaged: 12/07/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in two plastic bags.

Absorbent Information: Portland cement-approximately 1 quart.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: Organic Weight: 10 lbs

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/10/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: "742 series" sludge, top wetter than bottom. Liquids on outside & inside of outer bag and at bottom of drum outside the inner bag.

Packaging Description: Type II liner lined with polyethylene drum bag & PVC O-ring bag. Sludge contained in PVC bag

Absorbent Information: Portland cement located 1/4 way up; cement between the bags that had hardened.

Physical State of Waste: V. Damp
Component Weight (LB): 2 lbs. plastics; 390 lbs. sludge & Portland cement; 0.950 liters liquid

WIPP-WAC Compliance Information: 1. Free liquids: 950 ml; pH 12; analysis indicated water, carbonates, and/or nitrates, sulfates and/or silicates. 2. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 80%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 742-21396
Content Code: 2
Container Wt (lb): 460
Original Assay (g): 0.3-Pu; 0.0-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: Second Stage Sludge
Surface Dose Rate (mR/h): 1.2
Reassay (g): 0.8-Pu; 0.1-Am
Date Packaged: 1-24-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-21-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Sludge

Packaging Description: Packed in poly bags, then 90-mil liner

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 6%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic materials

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-28-85
Container Condition: Interior and exterior, moderate rust. Paint flaked off bottom 4 in. leaving shiny metal.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Precipitation sludge with Portland cement absorbent intermixed.

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag which directly contained the sludge.

Absorbent Information: Hardened Portland cement was located directly on top of the sludge.

Physical State of Waste: Damp
Component Weight (LB): Poly drum bag-1.0, sludge with intermixed Portland cement-382.7, hardened Portland cement-8.8.

WIPP-WAC Compliance Information: 1. Sludge having a ph of 8. Corrosion protection was provided.

Packaging Efficiency: 85%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 742-21440
Content Code: 2
Container Wt (lb): 460
Original Assay (g): 0.3-Pu; 0.0-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: Second Stage Sludge
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.26-Pu; 0.03-Am
Date Packaged: 2-8-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Sludge

Packaging Description: Packed in poly bags, then 90-mil liner.

Absorbent Information: None

Free Liquids: Yes Quantity: 4 gallons Contained: on top sludge
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 60%
Volume % Combustible: ~25%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic materials

WIPP-Certifiable: No-due to free liquid

VISUAL EXAMINATION

Examination Date: 1-23-85
Container Condition: Exterior-moderate rust, Interior-no rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Precipitation sludge with Portland cement absorbent intermixed.

Packaging Description: Type I rigid liner was lined with a single round bottom polyethylene drum bag which directly contained the sludge.

Absorbent Information: Hardened Portland cement was located directly on top of the sludge.

Physical State of Waste: Damp
Component Weight (LB): Paper-0.5, poly drum bag-1.0, sludge with intermixed Portland cement-227, liquids-58.0, hardened Portland cement-47.0.

WIPP-WAC Compliance Information: 1. Free liquids 22,000 ml on top of bag and also on top of sludge. Analysis indicates a pH of 12. The components were water, sodium nitrate and an unidentified basic component. 2. Sludge having a pH of 8. Corrosion protection was provided.

Packaging Efficiency: 50%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPF-Certifiable: No-free liquids (22 liters)

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 742-21594
Content Code: 2
Container Wt (lb): 480
Original Assay (g): 0.3-Pu; 0.0-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: Second Stage Sludge
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.21-Pu; 0.03-Am
Date Packaged: 4-18-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-21-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Sludge

Packaging Description: Packed in poly bags, then 90-mil liner.

Absorbent Information: None

Free Liquids: Yes Quantity: 2 cups Contained: bagging mat.
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency:
Volume % Combustible: 6%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic materials

WIPP-Certifiable: No-free liquid

VISUAL EXAMINATION

Examination Date: 1-23-85
Container Condition: Exterior-moderate rust, Interior-very light rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Precipitation sludge with portland cement absorbent intermixed.

Packaging Description: Type I rigid liner was lined with a single round bottom polyethylene drum bag which directly contained the sludge.

Absorbent Information: Oil-Dri was located on top of the single poly bag. Hardened cement was located on top of the sludge, on the bottom between the rigid liner and the drum bag, and also inside the bottom of the drum bag. Possibly calcium silicate located inside the bottom of the poly bag.

Physical State of Waste: Damp
Component Weight (LB): Poly drum bag-1.0, sludge with intermixed Portland cement and hardened Portland cement-37.0, oil dry weight is included with sludge.

WIPP-WAC Compliance Information: 1. Sludge having a pH of 8. Corrosion protection was provided.

Packaging Efficiency: 85%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 742-21640
Content Code: 2
Container Wt (lb): 510
Original Assay (g): 0.3-Pu; 0.0-Am
Packaging Location: Building 774

RADIOGRAPHIC EXAMINATION

Examination Date: 11-21-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Sludge

Packaging Description: Packed in poly bags, then 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 5%
Correct Content Code? Yes New Code:
Other Information: 100 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Second Stage Sludge
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.55-Pu; <0.01-Am
Date Packaged: 5-10-73

VISUAL EXAMINATION

Examination Date: 1-23-85
Container Condition: Exterior-moderate rust, Interior-light rust.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Precipitation sludge with Portland cement absorbent intermixed.

Packaging Description: Type I rigid liner was lined with a single round bottom polyethylene drum bag which directly contained the sludge.

Absorbent Information: Oil-Dri was located on top of the single poly bag. The Oil-Dri was wet. Hardened Portland was located on the bottom between the rigid liner and the drum bag and also inside the bottom of the drum bag.

Physical State of Waste: Damp
Component Weight (LB): Poly drum bag-1.0, sludge with intermixed Portland cement-415.5, hardened Portland-17.0, oil dry weight is included with sludge.

WIPP-WAC Compliance Information: 1. Free liquids: 2700 ml on top of bag and also on top of sludge. Analysis indicates pH of 8. The components were water and sodium nitrate. 2. Sludge having a pH of 8. Corrosion protection was provided.

Packaging Efficiency: 90%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-free liquids (2.7 liters)

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 743-16469
Content Code: 3
Container Wt (lb): 444
Original Assay (g): Pu-0.0
Packaging Location: Building 774

Container Type: Drum
Code Description: Organic Setups (Grease)
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.34; Am-<0.01
Date Packaged: 3/09/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Grease (organic setup)

Packaging Description: Grease is packaged in a plastic bag.

Absorbent Information: None recorded

Free Liquids: Yes Quantity: 2 quarts Contained: See below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: 50%
Correct Content Code? Yes New Code:
Other Information: (1) Liquid located on top of grease (1 quart) and at bottom of drum (1 quart) in the packaging material
(2) Organic weight: 250 lb.

WIPP-Certifiable: No-free liquids

VISUAL EXAMINATION

Examination Date: 4/11/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Bldg. 774 grease and one small bag containing 15 ml. of oil, liquid on top of grease and in bottom of drum bag.

Packaging Description: Type II liner is lined w/polyethylene drum bag. Grease is in the drum bag.

Absorbent Information: 7 lbs. of vermiculite on top of outer drum bag; Oil-Dri in bottom of drum bag--oil-dry layers 1/4 and 3/4 way up in the grease.

Physical State of Waste: Damp
Component Weight (LB): 1 lb of plastics, 340 lbs. of grease which includes mixed in Oil-Dri; 3.0 liters of liquid.

WIPP-WAC Compliance Information: 1. Free liquid: 3000 ml; pH 7; analysis indicates unidentified oil and unidentified ester 2. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 75%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 743-16487
Content Code: 3
Container Wt (lb): 499
Original Assay (g): Pu-0.0
Packaging Location: Building 774

Container Type: Drum
Code Description: Organic Setups (Grease)
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.51; Am-<0.01
Date Packaged: 4/14/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Organic setup (grease)

Packaging Description: Grease is contained in a plastic bag.

Absorbent Information: 2 gallons of absorbent vermiculite

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 50%
Correct Content Code? Yes New Code:
Other Information: (1) Partial penetration of grease with x-rays.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/11/84
Container Condition: Fair
Lead Lined: No
Liner Type: Type II

Waste Form Description: Building 774 grease. Small amount of liquid drained from top of grease.

Packaging Description: Type II liner is lined with polyethylene drum bag. Grease is in drum bag and layered with Oil-Dri.

Absorbent Information: Vermiculite on top of sealed drum bag; Oil-Dri layered in sludge and in bottom of drum bag.

Physical State of Waste: Damp
Component Weight (LB): Grease includes intermixed Oil-Dry (385 lbs), 9 lb. vermiculite, and 1 liter liquid.

WIPP-WAC Compliance Information: 1. Free liquids: 1000 ml; pH 12; analysis indicates unidentified oil and unidentified ester.
2. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 75%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 743-16656
Content Code: 3
Container Wt (lb): 400
Original Assay (g): Pu-0.03
Packaging Location: Building 774

Container Type: Drum
Code Description: Organic Setups (Grease)
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.57; Am-<0.01
Date Packaged: 10/10/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Organic setup (grease)

Packaging Description: Grease is contained in two plastic bags.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 75%
Volume % Combustible: 50%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/12/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Building 774 Grease

Packaging Description: Type II liner is lined with PVC O-ring bag.

Absorbent Information: Oil-Dri between bag and grease, Oil-Dri layered in sludge and on top and sides of grease. Oil-Dri included with grease in weight.

Physical State of Waste: Damp
Component Weight (LB): 3.5 lbs plastics; 316.5 lbs. grease and absorbent.

WIPP-WAC Compliance Information: 1. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 90%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 743-16733
Content Code: 3
Container Wt (lb): 512
Original Assay (g): Pu-0.04
Packaging Location: Building 774

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Organic setup (grease)

Packaging Description: Grease is contained in plastic bags.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 50%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: yes

Container Type: Drum
Code Description: Organic Setups (Grease)
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.73; Am-<0.01
Date Packaged: 9/22/83

VISUAL EXAMINATION

Examination Date: 4/12/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Building 774 grease, bottom wetter than top.

Packaging Description: Type II liner is lined with PVC O-ring bag. Grease is contained in O-ring bag.

Absorbent Information: Oil-Dri in bottom of O-ring bag; included with grease.

Physical State of Waste: Damp
Component Weight (LB): 3.5 lbs. plastic, 422.5 lbs grease and Oil-Dri combined.

WIPP-WAC Compliance Information: 1. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 70%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 743-15075
Content Code: 3
Container Wt (lb): 521
Original Assay (g): Pu-0.1
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Organic Setups
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.094; Am-0.018
Date Packaged: 9-5-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Organic setup.

Packaging Description: Setup is contained in a poly bag.

Absorbent Information: Oil-Dri, 1 quart.

Free Liquids: Yes Quantity: 9 pints Contained: No, see below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 90
Correct Content Code? Yes New Code:
Other Information: Liquid between rigid liner and drum (1 pint) and inside the packaging material (8 pints).

WIPP-Certifiable: No-due to free liquids.

VISUAL EXAMINATION

Examination Date: 8-10-83
Container Condition: Good; two small dents in middle and upper drum sections.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Organic setup (grease).

Packaging Description: Type II liner is lined with a PVC drum bag. The grease is contained in a PVC O-ring bag.

Absorbent Information: Oil-Dri is located on the bottom of the liner and on top of the grease.

Physical State of Waste: Wet
Component Wt (lb): PVC drum and O-ring bags--11.75; organic setup--397.0; Oil-Dri--6.0.

WIPP-WAC Compliance Information:
1. Liquids: A total 6000 ml of free liquid found on top of the grease and around the plastic. Analysis of all three samples indicates the composition to be: grease; 1,1,1-trichloroethane; 1,1,2-trichloroethane-1,2,2-trifluoroethane; and an unidentified carbonyl containing compound.
2. Sludge: Analysis of a grease sample indicates a pH of 12 with the major component being carbonates and/or nitrates, and silicates and/or sulfates; and the minor component is water.

Packaging Efficiency: 90%
Volume % Combustibles: 50-55
Correct Content Code? Yes New Code:
Other Information: Rust on interior side of the drum lid.

WIPP-Certifiable: No

Waste Form Category: Uncemented Sludges

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 743-15037
Content Code: 3
Container Wt (lb): 474
Original Assay (g): Pu-0.0
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Organic Setups
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.114; Am-0.017
Date Packaged: 8-8-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.

Lead-Lined: No Other Lead: No

Waste Form Description: Organic setup..

Packaging Description: Setup is contained in a poly bag.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Limited penetration of the waste.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-11-83
Container Condition: Good, slight rust on drum seam
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Organic setup (grease)

Packaging Description: Type II liner is lined with a PVC drum bag. The organic setup is contained in a PVC O-ring bag.

Absorbent Information: Not recorded.

Physical State of Waste: Damp
Component Wt (lb): PVC bags--8.0; organic setup--375.0; Oil-Dri--10.5.

WIPP-WAC Compliance Information:
1. Sludge: No laboratory results received.

Packaging Efficiency: 90%
Volume % Combustibles: 50-55
Correct Content Code? Yes New Code:
Other Information: Interior of drum lid is rusted and the sides and bottom of the drum interior are moderately to heavily rusted.

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 743-15312
Content Code: 3
Container Wt (lb): 542
Original Assay (g): Pu-0.0
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Organic Setups
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-6.615; Am-0.025
Date Packaged: 3-18-81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Organic setup is contained in a poly bag.

Packaging Description: Organic setup is contained in a poly bag.

Absorbent Information: Portland cement or Oil-Dri, approximately 2 cups.

Free Liquids: Yes Quantity: 1/2 gal Contained: Yes, see below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: The liquid is contained in a bottle near the bottom of the waste. Absorbent is located between the rigid liner and drum. Limited penetration of the drum.

WIPP-Certifiable: No--due to free liquids.

VISUAL EXAMINATION

Examination Date: 8-11-83
Container Condition: Good; two small dents in lower one-third of drum; rust on drum seam.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Organic setup (grease). A 1-gal polyethylene bottle containing free liquid was buried in the grease. The bottle label indicates the contents as used pump oil dated 1-12-81, Bldg 559.

Packaging Description: Type II liner is lined with a PVC bag. The organic setup is contained in a PVC O-ring bag. The bottle containing the liquid is contained in a single polyethylene bottle.

Absorbent Information: Oil-Dri is located in the bottom of the O-ring bag and in the bottom of liner.

Physical State of Waste: Damp
Component Wt (lb): PVC and polyethylene--9.0; organic setup--437.0; Oil-Dri--4.5.

WIPP-WAC Compliance Information:
1. Liquids: The 1-gal polyethylene bottle contained 2450 ml of liquid. Analysis of the liquid indicates a pH of 7. The major components of the liquid are oil and an unidentified ester.
2. Sludge: Analysis of the yellow organic setup indicates a pH of 7 with the major components being silicates and/or sulfates, carbonates and/or nitrates; the minor component is water.

Packaging Efficiency: 90%
Volume % Combustibles: 50-55%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Uncemented Sludges

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 743-15023
Content Code: 3
Container Wt (lb): 495
Original Assay (g): Pu-0.0
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Organic Setups
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.268; AM-0.018
Date Packaged: 7-25-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Organic setup

Packaging Description: Setup is contained in a poly bag.

Absorbent Information: Vermiculite or Oil-Dri, approximately 2 cups.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Vermiculite or Oil-Dri is located between the drum and the rigid liner. Limited penetration of the drum.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-11-83
Container Condition: Good; lower one-third of drum dented and misshapen, paint condition is fair.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Organic setup. Free liquids found on top of the grease and inside the outermost bag.

Packaging Description: Type II liner is lined with a PVC bag. The organic setup is contained in a PVC O-ring bag.

Absorbent Information: Oil-Dri is located on top of the drum bag.

Physical State of Waste: Wet
Component Wt (lb): PVC bags--9.25; organic setup--396.0; Oil-Dri--6.75.
WIPP-WAC Compliance Information:
1. Liquids: Total of 400 ml of free liquid found. Analysis indicates the liquid is composed of light hydrocarbons, grease, and an alkylphenol--polyoxyethylene.
2. Sludge: No laboratory results received.

Packaging Efficiency: 90%
Volume % Combustibles: 50-55
Correct Content Code? Yes New Code:
Other Information: Drum lid interior is badly rusted. The drum is also internally rusted.

WIPP-Certifiable: No

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 743-11586
Content Code: 3
Container Wt (lb): 592
Original Assay (g): 0.3-Pu; 0.0-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: Organic setups
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.76-Pu; 0.04-Am
Date Packaged: 12-28-72

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Grease

Packaging Description: Packed in bagging material, then put in a 90 mil liner. Liquid between liner and,drum and outside and inside poly bag.

Absorbent Information: None

Free Liquids: Yes Quantity: 4 to 5 gal Contained: liner & drum
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: 5%
Correct Content Code? Yes New Code:
Other Information: 200 lbs of organic material

WIPP-Certifiable: No-due to free liquid

VISUAL EXAMINATION

Examination Date: 1-25-85
Container Condition: Moderate-rust-Interior and exterior

Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Grease-setup of organic liquids in calcium silicate.

Packaging Description: Type I rigid liner was lined with a PVC O-ring bag which directly contained the grease.

Absorbent Information: Oil-Dri was located in bottom of rigid liner outside the PVC bag.

Physical State of Waste: Damp
Component Weight (LB): PVC bag-3.0, grease-477.5, liquids-33.0, oil dry weight is included with grease.

WIPP-WAC Compliance Information: 1. Free liquids: (1) 12,250 ml of light brown liquid was located inside and outside of the PVC bag. Analysis indicates pH of 5 and components of paraffinic base oil, carbon tetrachloride, trichloroethylene, perchloroethylene, unidentified esther oil and small water layer. (2) 4,000 ml of light brown liquid was located in a 4 liter bottle in bottom of grease. Analysis indicates a pH of 3 and components of paraffinic base oil, carbon tetrachloride, trichloroethylene, perchloroethylene, small water layer. Sludge: corrosion protection was provided.

Packaging Efficiency: 90%
Volume % Combustibles: 50%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-free liquids (>1b liters)

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 743-11682
Content Code: 3
Container Wt (lb): 570
Original Assay (g): 1.4-Pu; 0.0-Am
Packaging Location: Building 774

RADIOGRAPHIC EXAMINATION

Examination Date: 11-21-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Organic setups

Packaging Description: Waste packed in poly bags, not closed, then in 90 mil liner. Cement is between the liner and the drum.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 200 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Organic setups
Surface Dose Rate (mR/h): <0.5
Reassay (g): 2.41-Pu; 0.05-Am
Date Packaged: 1-30-73

VISUAL EXAMINATION

Examination Date: 1-25-85
Container Condition: Exterior-heavy rust, Interior-very light rust
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Grease-setup of organic liquids in calcium silicate.

Packaging Description: Type I rigid liner was single lined with a PVC O-ring bag which directly contained the grease.

Absorbent Information: Oil-Dri was located in bottom of rigid liner outside the PVC bag which directly contained the grease.

Physical State of Waste: Damp
Component Weight (LB): PVC bag-3.0, grease-490.5, Oil-Dri weight is included with grease.

WIPP-WAC Compliance Information: 1. Free liquids: 130 ml of liquid was located in the PVC bag probably at the bottom of the grease. Analysis indicates a pH of 5. The components were paraffinic base oil, carbon tetrachloride, trichloroethylene and a small water layer. 2. Sludge: Corrosion protection was provided.

Packaging Efficiency: 95%
Volume % Combustibles: 50%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-free liquids (130 ml)

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 743-11838
Content Code: 3
Container Wt (lb): 445
Original Assay (g): 1.3-Pu; 0.0-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: Organic setups
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.045-Pu; 0.034-Am
Date Packaged: 4-12-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Grease

Packaging Description: Grease is in poly bagging which is not tied at the top. It is in a 90-mil liner. There is something between the liner and drum.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 200 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-28-85
Container Condition: Moderate rust-interior and exterior
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Grease-setup of organic liquids in calcium silicate. This grease appears whiter than usual.

Packaging Description: Type I rigid liner in lined with a single PVC drum bag which directly contains the grease. The bag had an approximate 1 in. long tear possibly from solvent attack.

Absorbent Information: Oil-Dri was located on top of the single poly bag.

Physical State of Waste: Damp
Component Weight (LB): PVC bag-3.0, grease-365.5, Oil-Dri-2.0.

WIPP-WAC Compliance Information: 1. Sludge having a pH of 7. Corrosion protection was provided.

Packaging Efficiency: 85%
Volume % Combustibles: 50%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 743-11870
Content Code: 3
Container Wt (lb): 538
Original Assay (g): 0.1-Pu; 0.0-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: Organic setups
Surface Dose Rate (mR/h): <0.5
Reassay (g): 1.04-Pu; 0.03-Am
Date Packaged: 5-1-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Grease

Packaging Description: Grease is in untied poly bagging, then put in the 90-mil liner.

Absorbent Information: None

Free Liquids: No
Compressed Gases: No
Particulates: No

Quantity:
Type:
Quantity:

Contained:
Quantity:
Type:

Packaging Efficiency: 80%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 200 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-25-85
Container Condition: Exterior-minor rust, Interior-light rust
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Grease-setup of organic liquids in calcium silicate.

Packaging Description: Type I rigid liner was single lined with a PVC O-ring bag which directly contained the grease.

Absorbent Information: Oil-Dri was located on top of the PVC bag and on the bottom between the rigid liner and PVC bag. Oil-Dri was also located inside the PVC bag on top of the grease.

Physical State of Waste: Damp
Component Weight (LB): PVC bag-3.0, grease-439.9, Oil-Dri-18.6.

WIPP-WAC Compliance Information: 1. Sludge: Corrosion protection was provided.

Packaging Efficiency: 90%
Volume % Combustibles: 50%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 747-00944
Content Code: 7
Container Wt (lb): 489
Original Assay (g): Pu-0.5; Am-0.0
Packaging Location: Building 374

Container Type: Drum
Code Description: Wet Sludge-Building 374
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.44; Am-0.01
Date Packaged: 7/21/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in two plastic bags.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: Organic Weight: 14 lbs

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/10/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Bldg. 374 sludge, wetter on bottom than on top. Liquid on top of sludge & possibly on sides & bottom. Some liquids began to desorb from the sludge as it was handled.

Packaging Description: Type II liner is lined with polyethylene drum bag & PVC O-ring bag. Sludge contained in O-ring bag.

Absorbent Information: Cement between drum bags, on top of sludge, and in bottom of rigid liner. Cement between bags was solidified. Vermiculite on top of bags and on sides of outer drum bag. Portland cement-7 lb dry, 31 lbs. solidified; 1 lb. vermiculite.

Physical State of Waste: Damp
Component Weight (LB): 4.5 lbs. plastics; 348.5 lbs. sludge and Portland cement; 1.465 liters liquid.

WIPP-WAC Compliance Information: 1. Free liquids: 1465 ml; pH 12; analysis indicated water, unknown organics, sulfates and/or silicates, carbonates and/or nitrates. 2. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 80%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 747-01488
Content Code: 7
Container Wt (lb): 483
Original Assay (g): Pu-0.04; Am-0.04
Packaging Location: Building 374

Container Type: Drum
Code Description: Wet Sludge-Building-74
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-1.32; Am-<0.01
Date Packaged: 10/18/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in two plastic bags.

Absorbent Information: Portland cement-approximately 1 qt. at bottom of drum.

Free Liquids: Yes Quantity: 2 gallons Contained: See below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 40%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: (1) Liquid is located on top of the waste and along the sides of the drum inside of the packaging material.
(2) Appears to be the new type of rigid liner.
(3) Organic weight-10 lb.

WIPP-Certifiable: No-free liquids

VISUAL EXAMINATION

Examination Date: 4/10/84
Container Condition: Good
Lead Lined: No
Liner Type: Type III

Waste Form Description: Building 374 sludge. Liquids on outside of drum bags and on inside of first and second bag.

Packaging Description: Type II liner lined with polyethylene drum bag & PVC O-ring bag. Sludge contained in PVC bag.

Absorbent Information: Cement between bags at the top of the drum; solidified cement between liner and drum bags; solidified cement from between the bags and inside the O-ring bag at bottom.

Physical State of Waste: Damp
Component Weight (LB): 4.5 lbs. plastics; 286 lbs. sludge; 22.25 liters of liquid

WIPP-WAC Compliance Information: 1. Free liquids: 22,250 ml; pH 12: analysis indicated water, carbonates and/or nitrates, sulfates, and/or silicates; pH 7; unknown organic, carbonates and/or nitrates, sulfates and/or silicate water.
2. Sludge: pH 12; corrosion protection

Packaging Efficiency: 75%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 747-01492
Content Code: 7
Container Wt (lb): 451
Original Assay (g): Pu-0.04; Am-0.04
Packaging Location: Building 374

Container Type: Drum
Code Description: Wet Sludge-Building 374
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-1.04; Am-<0.01
Date Packaged: 10/18/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained inside two plastic bags.

Absorbent Information: Approximately 2 qts. of Portland cement.

Free Liquids: Yes Quantity: 2 gallons Contained: See below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 67%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: (1) Liquid is located on top of the waste.
(2) Organic weight-14 lb.

WIPP-Certifiable: No-due to free liquids

VISUAL EXAMINATION

Examination Date: 4/11/84
Container Condition: Good
Lead Lined: No
Liner Type: Type III

Waste Form Description: Building 374 sludge. Liquid in inner bag on top of sludge.

Packaging Description: Type II liner is lined with polyethylene drum bag & PVC O-ring bag. Sludge contained in PVC O-ring bag.

Absorbent Information: Dry cement located in bottom of rigid liner in between drum bags at top and bottom of drum, and hardened cement inside inner bag at bottom.

Physical State of Waste: Damp
Component Weight (LB): 4.5 lbs plastics; 242 lbs sludge; 15.5 liters of liquid.

WIPP-WAC Compliance Information: 1. Free liquid: 15,500 ml; pH 12 water, carbonates and/or nitrates. 2. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 50%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 747-01531
Content Code: 7
Container Wt (lb): 434
Original Assay (g): Pu-0.03; Am-0.03
Packaging Location: Building 374

Container Type: Drum
Code Description: Wet Sludge-Building 374
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.24; Am-<0.01
Date Packaged: 10/17/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/22/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Sludge

Packaging Description: Sludge is contained in two plastic bags.

Absorbent Information: Portland cement-approximately 1 quart.

Free Liquids: Yes Quantity: 4 gallons Contained: See below
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 60%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: (1) Liquid is located on top of the waste.

WIPP-Certifiable: No-due to free liquids

VISUAL EXAMINATION

Examination Date: 4/11/84
Container Condition: Good
Lead Lined: No
Liner Type: Type III

Waste Form Description: Building 374 sludge. Liquid inside inner bag on top of sludge.

Packaging Description: Type II liner is lined with polyethylene drum bag & PVC O-ring bag. Sludge contained in O-ring PVC bag

Absorbent Information: Cement on top between bags; between bags at bottom; in bottom of liner; and hardened cement at bottom of O-ring bag and on top of sludge.

Physical State of Waste: Damp
Component Weight (LB): 4.5 lbs. plastics; 205.5 of sludge; liquid 24.0 liters.

WIPP-WAC Compliance Information: 1. Free liquids: 24,000 ml; pH 12 analysis indicates water, unknown organic, carbonates and/or nitrates.
2. Sludge: pH 12; corrosion protection provided.

Packaging Efficiency: 50%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to free liquids

Waste Form Category: Uncemented Sludges

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-40342
Content Code: 292
Container Wt (lb): 268
Original Assay (g): Pu-67.0
Packaging Location: Building 771, Rm 149

Container Type: Drum
Code Description: Cemented Sludge
Surface Dose Rate (mR/h): 2.4
Reassay (g): Pu-74.0
Date Packaged: 3/24/83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Incinerator sludge

Packaging Description: Sludge contained in polyethylene bottles.

Absorbent Information: Not recorded

Free Liquids: Yes Quantity: 2.5 gal. Contained: Yes
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: 1/4 cup Type: Portland cement

Packaging Efficiency: 85%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information: Rigid liner lid is too small for the liner and is dented inward. Liquids contained in 3 bottles.

WIPP-Certifiable: No-due to free liquids.

VISUAL EXAMINATION

Examination Date: 9/7/83
Container Condition: Good
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Seventeen polyethylene bottles containing sludge. Total of 975 ml free liquids found: 810 ml, 58 ml, and 80 ml--each found in a bottle and the surrounding bag; 27 ml found in the bottom of the drum bag.

Packaging Description: Type II liner is lined with a polyethylene drum bag. Each polyethylene bottle is double-bagged in plastic.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Damp
Component Weight (LB): Polyethlyene and PVC bags, polyethylene bottles-31.25; sludge-141.0; vermiculite-5.5

WIPP-WAC Compliance Information: 1. Sludge: Analysis of the black sludge sample indicates a pH of 12. The major component is carbonates, silicates and/or sulfates; the minor component is water.
2. Liquids: Analysis of all four samples indicate a pH of 12 and the major component of the black liquid is water. The minor component are as follows: (1) carbonates, silicates, and/or sulfates and unidentified organic material; (2) and (3) carbonates and/or nitrates, and (4) carbonates.

Packaging Efficiency: 90%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Uncemented Sludges

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-35229
Content Code: 292
Container Wt (lb): 229
Original Assay (g): Pu-78.0
Packaging Location: Building 771, Rm 149

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Incinerator sludge.

Packaging Description: Sludge contained in polyethylene bottles. The bottles are contained in plastic bags.

Absorbent Information: Not recorded.

Free Liquids: Yes Quantity: 7 pt total Contained: Yes
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 100%
Correct Content Code? Yes New Code:
Other Information: One bottle contains approximately 3 l and the other contains approximately 500 ml. Some liquid appears to have leaked from the bottle into the plastic bag.

WIPP-Certifiable: No

Container Type: Drum
Code Description: Cemented Sludge
Surface Dose Rate (mR/h): 2.5
Reassay (g): Pu-69.0
Date Packaged: 10/8/82

VISUAL EXAMINATION

Examination Date: 9/7/83
Container Condition: Good
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Sixteen polyethylene bottles containing sludge.

Packaging Description: Type II liner is lined with a polyethylene drum bag. Each polyethylene bottle containing sludge is double-bagged in plastic.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Damp
Component Weight (LB): Polyethlyene and PVC bags, polyethylene bottles-30.25; sludge-117.25; vermiculite-5.25.

WIPP-WAC Compliance Information: 1. Liquids: Total 952 ml (14 ml in drum bag; 325 ml in bottles, 613 ml in five bags containing poly bottles). Analysis of two samples indicates a pH of 12 and major component is water, the minor component is carbonates for both samples. 2. Sludge: Analysis of a sample of the solid black sludge indicates a pH of 12 and the major component is silicates and unknown inorganics and the minor component is water.

Packaging Efficiency: 85%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information: Drum lid (interior) has surface rust.

WIPP-Certifiable: No

Waste Form Category: Uncemented Sludges

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39213
Content Code: 292
Container Wt (lb): 191
Original Assay (g): Pu-34.0
Packaging Location: Building 771, Rm 149

Container Type: Drum
Code Description: Cemented Sludge
Surface Dose Rate (mR/h): 2.4
Reassay (g): Pu-31.0
Date Packaged: 10/13/82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Incinerator sludge.

Packaging Description: Sludge contained in polyethylene bottles.

Absorbent Information: Not recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9/6/83
Container Condition: Good
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Damp, cohesive sludge particles. The drum contained a total of 14 polyethylene bottles of sludge. Twelve bottles contained very moist loose material and two bottles contained wet sludge material.

Packaging Description: Type II liner is lined with two polyethylene drum bags. The sludge is contained in polyethylene bottles. Each bottle is double-bagged in a PVC and a polyethylene bag.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Damp
Component Weight (LB): Polyethlyene and PVC bags, polyethylene bottles-26.75; sludge and cement-81.25; vermiculite-5.0.

WIPP-WAC Compliance Information: 1. Sludge: Analysis of the black sludge indicates a pH of 12. The major component is silicates and/or sulfates and the minor component is water.

Packaging Efficiency: 75%
Volume % Combustibles: 15%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39435
Content Code: 292
Container Wt (lb): 232
Original Assay (g): Pu-40.0
Packaging Location: Unknown-label illegible

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Incinerator sludge.

Packaging Description: Sludge contained in polyethylene bottles.

Absorbent Information: Not recorded.

Free Liquids: Yes Quantity: 3/4 gal Contained: Yes
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to liquids.

Container Type: Drum
Code Description: Cemented Sludge
Surface Dose Rate (mR/h): 2.1
Reassay (g): Pu-42.0
Date Packaged: 12/14/82

VISUAL EXAMINATION

Examination Date: 9/7/83
Container Condition: Good; paint condition fair due to scratches.
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Fifteen 1-gal polyethylene bottles containing sludge.

Packaging Description: Type II liner is lined with a polyethylene drum bag. Each bottle is double-bagged in plastic.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Damp
Component Weight (LB): Polyethlyene and plastic bags-20.75; sludge-125.75; vermiculite-5.25.

WIPP-WAC Compliance Information: 1. Liquids: Total of 410 ml of free liquid (330 ml in a bag, 80 ml in another bag) in the drum. Analysis of a sample of the black liquid indicates a pH of 12. The major component is water and the minor components are carbonates and/or nitrates, silicates and/or sulfates. 2. Sludge: Analysis of a sample of the black sludge indicates a pH of 12. The major components are silicates and carbonates and the minor component is water.

Packaging Efficiency: 80%
Volume % Combustibles: 25%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Uncemented Sludges

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 40-00063
Content Code: 292
Container Wt (lb): 275
Original Assay (g): Pu-57.0
Packaging Location: Building 771, Rm 149

Container Type: Drum
Code Description: Cemented Sludge
Surface Dose Rate (mR/h): 3.0
Reassay (g): Pu-62.0
Date Packaged: 8/29/80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-5-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Granulated sludge material and some Ful-Flo filters.

Packaging Description: Sludge contained in polyethylene bottles and a pint can. The filters are contained in a plastic bag near the top of the waste.

Absorbent Information: Oil-Dri, approximately 2 quarts.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: Unknown Type: Granulated sludge

Packaging Efficiency: 95%
Volume % Combustible: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-due to particulate materials.

VISUAL EXAMINATION

Examination Date: 8/15/83
Container Condition: Good
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Eighteen 1-gal polyethylene bottles containing cemented sludge and Ful-Flo filters laden with grease.

Packaging Description: Type II liner is lined with two polyethylene drum bags. Each polyethylene bottle containing sludge is double-bagged in a PVC and a polyethylene bag. The filters are in a bag.

Absorbent Information: Oil-Dri is located in the bottom of the liner.

Physical State of Waste: Damp
Component Weight (LB): Ful-Flo filters-8.0; polyethylene and PVC bags, and polyethylene bottles-29.25; incinerator sludge-148.25; Oil-Dri-10.0.

WIPP-WAC Compliance Information: 1. Liquids: Total of 135 ml free liquid found in the drum, drum bags, and bottles. First sample of black liquid has a pH of 12 with the major component being water and the minor components being carbonates and an unknown organic material. Second liquid sample has a pH of 12 with the major components being water and an unidentified oil and ester (flating on top of the water) and the minor component being carbonates.
2. Sludge: Analysis of a solid black sludge sample indicates a pH of 12 with the major component being silicates and the minor component being water.

Packaging Efficiency: 40%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No due to free liquids-135 ml.

Waste Form Category: Uncemented Sludges

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 76-01642
Content Code: 292
Container Wt (lb): 300
Original Assay (g): Pu-10.0
Packaging Location: Building 771, Rm 140

RADIOGRAPHIC EXAMINATION

Examination Date: 7-5-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Possible cemented sludge--does not meet known waste description.

Packaging Description: Waste is contained in plastic bags.

Absorbent Information: Oil-Dri, approximately 1-1/2 gal.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: Unknown Type: Unknown

Packaging Efficiency: 50%
Volume % Combustible: 10%
Correct Content Code? Unknown New Code:
Other Information: A few metal items are in the waste.

WIPP-Certifiable: No-due to particulates and unknown nature of the waste.

Container Type: Drum
Code Description: Cemented Sludge
Surface Dose Rate (mR/h): 1.0
Reassay (g): Pu-10.0
Date Packaged: 3/18/81

VISUAL EXAMINATION

Examination Date: 8/16/83
Container Condition: Good; small dent in drum.
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Incinerator sludge mixed with Portland cement; some mild steel (drum cap and bolt).

Packaging Description: Type II liner is lined with a polyethylene drum bag. The sludge and cement are packaged in single polyethylene bags. Total of seven bags in the drum.

Absorbent Information: Oil-Dri is located on top of the drum bag and in the bottom of the liner.

Physical State of Waste: Dry
Component Weight (LB): Plastic bags-5.0; mild steel (drum cap and bolt)-0.5; incinerator sludge mixed with cement-218.0; Oil-Dri-4.5.

WIPP-WAC Compliance Information: 1. Sludge: Sample not taken. 2. Particulates (sludge and cement): Analysis of the sludge and cement mixture indicates that the waste contains 1.4 wt% <212$_\mu$ particulates and 0.2 wt% <10$_\mu$ particulates.

Packaging Efficiency: 80%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Uncemented Sludges

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 76-01643
Content Code: 292
Container Wt (lb): 160
Original Assay (g): Pu-2.0
Packaging Location: Building 776, Rm 146

Container Type: Drum
Code Description: Cemented Sludge
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-2.0
Date Packaged: 3/18/81

RADIOGRAPHIC EXAMINATION

Examination Date: 7-5-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Possibly cemented sludge--does not meet known waste description.

Packaging Description: Waste is contained in plastic bags.

Absorbent Information: Approximately 1-gallon of Oil-Dri is located on top of the drum bag and 1 quart on the bottom of the liner.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: Unknown Type: Unknown

Packaging Efficiency: 25%
Volume % Combustible: 10%
Correct Content Code? Unknown New Code:
Other Information:

WIPP-Certifiable: No-due to particulates and unknown nature of the waste.

VISUAL EXAMINATION

Examination Date: 8/16/83
Container Condition: Good; small dent in drum.
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Three bags of cemented sludge, two empty cement bags, and two unused polyethylene bags.

Packaging Description: The cemented sludge is packaged in single polyethylene bags.

Absorbent Information: Oil-Dri is located at the bottom of the liner.

Physical State of Waste: Dry
Component Weight (LB): Empty cement bags--1.5; plastic bags-4.0; incinerator sludge and cement-73.25; Oil-Dri-4.5.

WIPP-WAC Compliance Information: 1. Particulates (sludge and Portland cement): Analysis of the sample indicates that the waste contains 15.7 wt% <212$_\mu$ particulates and 1.2 wt% <10$_\mu$ particulates.

Packaging Efficiency: 20%
Volume % Combustibles: 30%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Uncemented Sludges

Time Period: 3-year old waste

GENERAL INFORMATION

Container Identification: 76-01644
Content Code: 292
Container Wt (lb): 240
Original Assay (g): Pu-3.0
Packaging Location: Building 776, Rm 146

RADIOGRAPHIC EXAMINATION

Examination Date: 7-5-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Possibly cemented sludge--does not meet known waste description.

Packaging Description: Packaged in plastic bags.

Absorbent Information: Oil-Dri, see below.

Free Liquids:	No	Quantity:	Contained:	
Compressed Gases:	No	Type:	Quantity:	
Particulates:	Yes	Quantity: Unknown	Type: Unknown	

Packaging Efficiency: 45%
Volume % Combustible: 10%
Correct Content Code? Unknown New Code:
Other Information: Oil-Dri located at bottom of liner (1 qt) and on top of drum bag (2 gal).

WIPP-Certifiable: No-due to particulates and unknown nature of the waste.

Container Type: Drum
Code Description: Cemented Sludge
Surface Dose Rate (mR/h): 3.0
Reassay (g): Pu-7.0
Date Packaged: 3/18/81

VISUAL EXAMINATION

Examination Date: 8/15/83
Container Condition: Good; some slight surface rust
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Incinerator sludge mixed with Portland cement.

Packaging Description: Type II liner is lined with a PVC drum bag. The sludge and cement are packaged in a 30-gal PVC bag (five total packages in the drum).

Absorbent Information: Oil-Dri is located on top of the drum bag. Weight was not recorded.

Physical State of Waste: Dry
Component Weight (LB): PVC drum bags-5.0; incinerator sludge and cement-154.5.

WIPP-WAC Compliance Information: 1. Particulates (incinerator sludge mixed with Portland cement): Analysis of the sample indicates that the waste contains 26.6 wt% <212μ particulates and 2.3 wt% <10μ particulates.

Packaging Efficiency: 40%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No

Waste Form Category: Cemented Sludge and Solutions

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 744-3829
Content Code: 4
Container Wt (lb): 585
Original Assay (g): Pu-2.2
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Special Setups
Surface Dose Rate (mR/h): 0.1
Reassay (g): Unable to reassay
Date Packaged: 12-9-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Special setup (solid cement)

Packaging Description: Setup contained in a plastic bag.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:

Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: Unknown
Correct Content Code? Yes New Code:
Other Information: Unable to penetrate setup at center.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-7-83
Container Condition: See other information below
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Solid concrete

Packaging Description: Type II liner is lined with a polyethylene drum bag. The special setup is contained in a PVC O-ring bag.

Absorbent Information: Vermiculite is placed on top of the outer drum bag.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC bags--4.5; concrete--502; vermiculite--7.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 85%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information:
1. Container condition: Two large handling dents on upper-third of drum. Surface rust exists where the paint is scratched. Poor paint condition.
2. Small amount of rust on interior drum bottom.

WIPP-Certifiable: Yes

Waste Form Category: Cemented Sludges and Solutions

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 744-3837
Content Code: 4
Container Wt (lb): 704
Original Assay (g): Pu-2.3
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Special Setups
Surface Dose Rate (mR/h): 2.0
Reassay (g): Unable to reassay.
Date Packaged: 12-17-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Special setups (solid cement)

Packaging Description: Setups contained in poly bag.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 98%
Volume % Combustible: Unknown
Correct Content Code? Yes New Code:
Other Information: Unable to penetrate setup at the center.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-8-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Solid concrete

Packaging Description: Type II liner is lined with a polyethylene drum bag. The special setup is contained in a PVC O-ring bag.

Absorbent Information: Cement is located on the bottom of the drum. Total weight is 1/2 lb. This is not included in component weight because it is outside the liner.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PV. bags--4.5; concrete--621.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 100%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Cemented Sludges and Solutions

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 744-3841
Content Code: 4
Container Wt (lb): 561
Original Assay (g): Pu-2.0
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Special Setups
Surface Dose Rate (mR/h): 2.0
Reassay (g): Unable to reassay.
Date Packaged: 12-17-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Special setups (solid cement)

Packaging Description: Setups contained in plastic bag.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: Unknown
Correct Content Code? Yes New Code:
Other Information: Unable to penetrate special setup at center.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-8-83
Container Condition: Good, paint condition fair (scratched)
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Solid concrete

Packaging Description: Type II liner is lined with a polyethylene drum bag. The special setup is contained in a PVC O-ring bag.

Absorbent Information: No absorbent present.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC bags--4.5; concrete--492.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 100%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Cemented Sludges and Solutions

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 744-3846
Content Code: 4
Container Wt (lb): 574
Original Assay (g): Pu-5.5
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Special Setups
Surface Dose Rate (mR/h): 0.1
Reassay (g): Unable to reassay
Date Packaged: 2-7-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Special setup (solid cement).

Packaging Description: Setup contained in plastic bag.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: Unknown
Correct Content Code? Yes New Code:
Other Information: Unable to penetrate setup at center.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-8-83
Container Condition: Good; paint condition fair.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Solid concrete

Packaging Description: Type II liner is lined with a polyethylene drum bag. The special setup is contained in a PVC O-ring bag.

Absorbent Information: No absorbent present.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC bags--4.5; concrete--491.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 100%
Volume % Combustibles: 10
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Cemented Sludges and Solutions

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 744-3848
Content Code: 4
Container Wt (lb): 631
Original Assay (g): Pu-5.0
Packaging Location: Bldg 774

Container Type: Drum
Code Description: Special Setups
Surface Dose Rate (mR/h): 0.1
Reassay (g): Unable to reassay.
Date Packaged: 2-7-83

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Special setup (solid cement)

Packaging Description: Setup contained in a plastic bag.

Absorbent Information: No information recorded.

Free Liquids:	No	Quantity:	Contained:
Compressed Gases:	No	Type:	Quantity:
Particulates:	No	Quantity:	Type:

Packaging Efficiency: 75%
Volume % Combustible: Unknown
Correct Content Code? Yes New Code:
Other Information: Unable to penetrate setup at center.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-8-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Solid concrete

Packaging Description: Type II liner is lined with a polyethylene drum bag. The special setup is contained in a PVC O-ring bag.

Absorbent Information: No information recorded.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC bags--4.5; concrete--548.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 100%
Volume % Combustibles: 10
Correct Content Code? Yes . New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Cemented Sludges and Solutions

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 744-2368
Content Code: 4
Container Wt (lb): 448
Original Assay (g): 0.3-Pu; 0.0-Am
Packaging Location: Building 774

RADIOGRAPHIC EXAMINATION

Examination Date: 11-29-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Organic setup

Packaging Description: Contained in poly bags, then 90-mil liner. Appears to have layers of cement, not thoroughly mixed.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 6%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Special setups
Surface Dose Rate (mR/h): <0.5
Reassay (g): Unable to reassay
Date Packaged: 12-25-72

VISUAL EXAMINATION

Examination Date: 1-24-85
Container Condition: Exterior-moderate rust, Interior-light rust
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Solid monolith, parts of which were easily broken.

Packaging Description: Type I rigid liner was lined with a polyethylene round bottom drum bag. The setup was contained in a PVC O-ring bag.

Absorbent Information: Oil-Dri was located on top of the outer poly drum bag. Powdered Portland cement was located on top between the two bags, hardened Portland was located on top of the setup and in the bottom of the inner PVC bag.

Physical State of Waste: Dry
Component Weight (LB): PVC bag-3.0, poly bag-1.0, special setup-237.0, Portland cement absorbent-130.0, oil dry-18.6.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Cemented Sludges and Solutions

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 744-2376
Content Code: 4
Container Wt (lb): 498
Original Assay (g): 0.3-Pu; 0.0-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: Special setups
Surface Dose Rate (mR/h): <0.5
Reassay (g): Unable to reassay
Date Packaged: 1-2-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-9-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description:

Packaging Description: Packed in poly bags then in 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 6%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-29-85
Container Condition: Exterior-moderate rust, Interior-light rust
Lead Lined: No
Liner Type: Type 1, 90-mil

Waste Form Description: Solid concrete monolith.

Packaging Description: Type I rigid liner was lined with a polyethylene drum bag. The special setup was contained in a PVC O-ring bag.

Absorbent Information: Oil-Dri was located on top of the outer poly drum bag. Portland cement was located on the bottom outside of both bags, and also between the two bags. Most of the Portland cement was powdered, however some was hardened.

Physical State of Waste: Dry
Component Weight (LB): PVC bag-3.0, poly bag-1.0, special setup-386.3, Portland cement absorbent-14.1, oil dry-17.6.

WIPP-WAC Compliance Information: 1. Free liquids: approximately 20 ml of water or condensation was located outside of the rigid liner in the drum bottom. The origin of the liquid did not appear to be from the waste, but rather from residual liquid in the drum when the rigid liner was installed. Therefore, no sample was taken.

Packaging Efficiency: 90%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-free liquids (20 ml)

Waste Form Category: Cemented Sludges and Solutions

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 744-2389
Content Code: 4
Container Wt (lb): 670
Original Assay (g): 2.7-Pu; 0.0-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: Special setups
Surface Dose Rate (mR/h): <0.5
Reassay (g): Unable to reassay
Date Packaged: 1-24-73

RADIOGRAPHIC EXAMINATION

Examination Date: 2/21/85
Liner Type: 90 mil
Lead-Lined: No

Waste Form Description: Dense, special setups

Packaging Description: The special setups are contained in a poly bag, tied at the top. Approximately 1 gallon of liquid between 90 mil liner and sludge, at bottom corner.

Absorbent Information:

Free Liquids: Yes — Quantity: 1 gallon — Contained: 90-mil liner
Compressed Gases: No — Type: — Quantity:
Particulates: No — Quantity: — Type:

Packaging Efficiency: 90%
Volume % Combustible: 5%
Correct Content Code? Yes — New Code:
Other Information:

WIPP-Certifiable: No-free liquid (~1 gallon)

VISUAL EXAMINATION

Examination Date: 3-22-85
Container Condition: Exterior-light to moderate rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Solid concrete monolith.

Packaging Description: Type I rigid liner was lined with a polyethylene round bottom bag. The setup was contained in a PVC O-ring bag.

Absorbent Information: Oil-Dri was located on top of the outer poly bag. Hardened Portland cement was located on top between the two bags.

Physical State of Waste: Dry
Component Weight (LB): PVC bag-3.0, poly bag-1.0, special setup-551.6, Portland cement absorbent-37.4.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 5%
Correct Content Code? Yes — New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Cemented Sludges and Solutions

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 744-2430
Content Code: 4
Container Wt (lb): 530
Original Assay (g): 1.0-Pu; 0.0-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: Special setups
Surface Dose Rate (mR/h): 0.9
Reassay (g): Unable to reassay
Date Packaged: 4-23-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Setups

Packaging Description: Packed in poly bags then in 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: ~25%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-24-85
Container Condition: Exterior-moderate rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Solid concrete monolith with areas of unhardened sludge.

Packaging Description: Type I rigid liner was lined with a round bottom polyethylene bag. The special setup was contained in a PVC O-ring bag.

Absorbent Information: Oil-Dri was located on top of the outer poly drum bag. Portland cement was located on the bottom between the rigid liner and drum, and also between the PVC and poly drum bags on top and bottom.

Physical State of Waste: Dry
Component Weight (LB): PVC bag-3.0, poly bag-1.0, special setup-430.0, oil dry-10.0.

WIPP-WAC Compliance Information: 1. Small volume of unhardened sludge with a pH of 7.5. Corrosion protection was provided.

Packaging Efficiency: 90%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Cemented Sludges

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 744-2442
Content Code: 4
Container Wt (lb): 455
Original Assay (g): 0.5-Pu; 0.0-Am
Packaging Location: Building 774

Container Type: Drum
Code Description: Special setups
Surface Dose Rate (mR/h): <0.5
Reassay (g): Unable to reassay
Date Packaged: 4-26-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Setups

Packaging Description: Packed in poly bagging and a 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 10 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-24-85
Container Condition: Some moderate rust-interior and exterior
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Solid concrete monolith.

Packaging Description: Type I rigid liner was lined with a polyethylene bag. The setup was contained in a PVC O-ring bag.

Absorbent Information: Oil-Dri was located on top of the outer poly drum bag. Hardened Portland cement was located on top of the setup inside the inner PVC bag.

Physical State of Waste: Dry
Component Weight (LB): PVC bag-3.0, poly bag-1.0, special setup-353.0, hardened Portland cement absorbent-5.0, oil dry-10.0.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Concrete, Brick

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 02-21470
Content Code: 371
Container Wt (lb): 200
Original Assay (g): Pu-66.0
Packaging Location: Building 771, Rm. 149

Container Type: Drum
Code Description: Brick, Fire
Surface Dose Rate (mR/h): 3.0
Reassay (g): Pu-86.2, Am-0.5
Date Packaged: 9/30/82

RADIOGRAPHIC EXAMINATION

Examination Date:
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Waste consists of broken pieces of brick.

Packaging Description: The waste is contained in plastic bags inside of Fiber-Paks. There are 2 Fiber-Paks inside a plastic bag inside the rigid liner.

Absorbent Information: The drum contains approximately 20 gallons of absorbent.

Free Liquids: No
Compressed Gases: No
Particulates: Yes

Quantity:
Type:
Quantity: See below

Contained:
Quantity:
Type:

Packaging Efficiency: 50%
Volume % Combustible:
Correct Content Code? Yes New Code:
Other Information: (1) Presence of broken brick indicates some fines-quantity of fines should be within allowable limits.
(2) Organic weight-30 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/17/84
Container Condition: Fair
Lead Lined: No
Liner Type: Type I

Waste Form Description: 2 12-lb Fiber-Paks containing double-bagged fire-brick. Also contains surgeon's gloves and rock-wool or asbestos-type insulation.

Packaging Description: Type II liner is lined with poly. drum bag. Brick is contained in a double poly. bag; several bags in a PVC O-ring bag; then in fiber-pak.

Absorbent Information: Vermiculite on top of sealed drum bag-14.25 lbs.

Physical State of Waste: Dry
Component Weight (LB): 24 lbs Fiber-Paks; 6 lbs plastics; 90.8 firebrick and particulates; 4 lbs insulation.

WIPP-WAC Compliance Information: 1. Particulates: firebrick fines analysis indicates 0.11% <212 and 2.0E-3% <10.

Packaging Efficiency: 60%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Concrete, Brick

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 02-45508
Content Code: 373
Container Wt (lb): 119
Original Assay (g): Pu-47.0, Am-0.0
Packaging Location: Building 771, Room 149

Container Type: Drum
Code Description: Firebrick
Surface Dose Rate (mR/h): 1.9
Reassay (g): 20.3-Pu, 0.2-Am
Date Packaged: 12/12/84

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Firebrick

Packaging Description: Firebrick wrapped in poly bags inside Fibre-Pak containers. A few nuts and bolts with the firebrick.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3/21/85
Container Condition: Exterior-excellent, Interior no-rust.
Lead Lined: No
Liner Type: Type III, 90 mil

Waste Form Description: Firebrick

Packaging Description: Type III rigid liner was double lined with polyethylene drum bags containing 2 fiber-paks. Each Fiber-Pak was double lined with poly bags. One Fiber-Pak contained 3 package of waste single bagged in poly; the other Fiber-Pak contained 2 packages single bagged in poly. The poly drum bags had several 0.25" holes.

Absorbent Information: No absorbents were present.

Physical State of Waste: Dry
Component Weight (LB): Paper Fiber-Paks-12.0, poly bags-2.2, firebrick-30.8.

WIPP-WAC Compliance Information: 1. Particulates-54040 grams of firebrick fines wire obtained from both Fiber-Paks. Analysis of the particulate indicates the waste combined 0.529 wt % <212 micron particles and 1.3 E-3 wt % <10 micron particles.

Packaging Efficiency: 60%
Volume % Combustibles: 15%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Concrete, Brick

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08836
Content Code: 371
Container Wt (lb): 254
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location: Building 771

Container Type: Drum
Code Description: Firebrick
Surface Dose Rate (mR/h): 1.5
Reassay (g): 25.8-Pu, 0.2-Am
Date Packaged: 1-10-73

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Firebrick

Packaging Description: Firebrick are packed in plastic inside fibre-paks. Fibre-Paks are packed in plastic.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 2-23-85
Container Condition: Some light rust, interior and exterior
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Firebrick and a small amount of insulation.

Packaging Description: Type I rigid liner was single lined with a polethylene drum bag which contained 2 Fiber-Paks. Each Fiber-Pak was lined with a PVC bag. The PVC bag contained 3 packages of firebrick single bagged in poly. The poly drum liner had 2 large tears.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Paper (Fiber-Paks)-12.0, PVC-4.4, poly-4.0, firebrick-110.0, Oil-Dri-49.3.

WIPP-WAC Compliance Information: 1. Particulates: 142.57 grams of firebrick fines were collected from the Fiber-Paks. Analysis of the particulate indicates the waste contained 0.030 wt% <212 micron particles and 2..3E-4 wt% <10 micron particles.

Packaging Efficiency: 60%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Concrete, Brick

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10586
Content Code: 371
Container Wt (lb): 210
Original Assay (g): 2.0-Pu; 0.0-Am
Packaging Location: Building 771, Room 181

RADIOGRAPHIC EXAMINATION

Examination Date: 12-6-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Firebrick

Packaging Description: Firebrick is packed in poly bags inside fiber board containers packed inside poly bags, then packed in a 90-mil liner.

Absorbent Information: 2 quarts

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 60%
Volume % Combustible: ~30%
Correct Content Code? Yes New Code:
Other Information: 15 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Firebrick
Surface Dose Rate (mR/h): <0.5
Reassay (g): 10.5-Pu, 0.9-Am
Date Packaged: 2-15-73

VISUAL EXAMINATION

Examination Date: 1-31-85
Container Condition: Exterior-light rust
Interior-no rust
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Firebricks

Packaging Description: Type I rigid liner was lined with 2 polyethylene drum bags which contained 2 Fiber-Pak paper drums. The brick was contained in 2 poly bags inside of a PVC bag in each Fiber-Pak. Some foil and a thermocouple was bagged in poly and PVC (inside one Fiber-Pak).

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): 2 Fiber-Paks-12.0, PVC bags-3.2, poly bags-2.0, metal (aluminum foil and thermocouple)-1.2, firebrick-50.2, oil dry-66.4.

WIPP-WAC Compliance Information: 1. Particulates: 577.30 grams of firebrick fines were collected from the entire drum. Analysis of the particulate indicates the waste contained 0.38 wt% <212 micron particles and 1.4E-3 wt% <10 micron particles.

Packaging Efficiency: 60%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Concrete, Brick

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-11061
Content Code: 371
Container Wt (lb): 430
Original Assay (g): 3.0-Pu; 0.0-Am
Packaging Location: Building 771, Room 149

RADIOGRAPHIC EXAMINATION

Examination Date: 11-29-84
Liner Type: 90-mil
Lead-Lined: No Other Lead:

Waste Form Description: Firebrick

Packaging Description: Firebrick is in poly bags. Some poly bottles with firebrick located near the top. Then there is a 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <10%
Correct Content Code? Yes New Code:
Other Information: 15 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Firebrick
Surface Dose Rate (mR/h): <0.5
Reassay (g): *
Date Packaged: 3-15-73

VISUAL EXAMINATION

Examination Date: 1-31-85
Container Condition: Exterior-some light rust, Interior-moderate rust
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Firebrick in 29 packages. PVC bags, poly bags and bottle, batt insulation.

Packaging Description: Type I rigid liner was lined with poly drum bags containing 9 packages. The outer bags were occasionally untaped. One of the packages was 4-liter wide mouth poly bottle containing brick pieces. Outer poly drum bag had 2 small (1/4") holes in bottom. Inner bag was OK.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Firebrick-336.1, PVC-9.5, poly-7.5, insulation batt-0.1, oil dry-0.5.

WIPP-WAC Compliance Information: 1. Particulates 947.40 grams of firebrick fines were collected by sieving the entire drum contents. Analysis of the particulate indicates the waste contained 0.11 wt% <212 micron particles and 1.2E-3 wt% <10 micron particles.

Packaging Efficiency: 85%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information: *Segmented gamma scan could not be done. Na I detector, not sensitive to Am, was used.
WIPP-Certifiable: Yes

Waste Form Category: Concrete, Brick

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-11379
Content Code: 371
Container Wt (lb): 392
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil and cardboard
Lead-Lined: No Other Lead:

Waste Form Description: Firebrick

Packaging Description: Firebrick is contained in poly bags.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Firebrick
Surface Dose Rate (mR/h): <0.5
Reassay (g): 5.1-Pu, 0.0-Am
Date Packaged: 3-28-73

VISUAL EXAMINATION

Examination Date: 3-28-85
Container Condition: Exterior-moderate rust, Interior-some light rust
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Firebrick.

Packaging Description: Type I rigid liner was single lined with a polethylene drum bag. A total of 7 packages contained firebrick. The packages were bagged with a poly outer bag, then a PVC bag, then 2 inner poly bags. The drum bag had several small (<0.25") holes.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC-5.3, poly-5.7, firebrick-279.0, oil dry-9.2.

WIPP-WAC Compliance Information: 1. Particulates 6016 grams of firebrick fines were collected from all 7 packages. Analysis of the particulate indicates the waste contained 1.09 wt% <212 micron particles and 32 E-2 wt% <10 micron particles.

Packaging Efficiency: 80%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Concrete, Brick

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 02-44115
Content Code: 377
Container Wt (lb): 117
Original Assay (g): Pu-5.0, Am-0.0
Packaging Location: Building 771, Room 114

Container Type: Drum
Code Description: Firebrick Coarse
Surface Dose Rate (mR/h): 0.2
Reassay (g): 5.3-Pu, 0.1-Am
Date Packaged: 8/10/84

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Firebrick

Packaging Description: Firebrick is contained in poly bags and packed in Fiber-Paks inside the 90-mil liner. 2,Fiber-Paks in drum. 1 ring is unsnapped.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 10%
Correct Content Code? No New Code: 371
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3/22/85
Container Condition: Exterior-excellent, Interior-very light rust on lid.
Lead Lined: No
Liner Type: Type III, 90 mil

Waste Form Description: Firebrick pieces

Packaging Description: Type III rigid liner was double lined with polyethylene drum bags. Two fiber-paks contained the waste. Each Fiber-Pak was triple-bagged in poly. The inner drum bag had tears up to 1" long where the bottom fiber-pak sat.

Absorbent Information: No absorbents were present.

Physical State of Waste: Dry
Component Weight (LB): Paper Fiber-Paks-12.0, poly-4.4, firebrick-26.4.

WIPP-WAC Compliance Information: 1. Particulates-211.65 grams of particulates were obtained from the entire drum. Analysis of the particulate indicated the waste contained 0.295 wt % <212 micron particles and 8.7 E-4 wt % <10 micron particles.

Packaging Efficiency: 60%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Concrete, Brick

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08083
Content Code: Unknown (RFP-960*)
Container Wt (lb): 468
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: (see below)
Surface Dose Rate (mR/h): <0.5
Reassay (g): 8.9-Pu, 0.0-Am (Estimate only, too dense for accurate assay)
Date Packaged: 12-6-72

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90 mil
Lead-Lined: No

Waste Form Description: Firebrick

Packaging Description: Packed in bagging material, then in 90-mil liner.

Absorbent Information: None

Free Liquids: No
Compressed Gases: No
Particulates: No

Quantity:
Type:
Quantity:

Contained:
Quantity:
Type:

Packaging Efficiency: 90%
Volume % Combustible: ~30%
Correct Content Code? No New Code: 371-firebrick
Other Information: 15 lbs of organic materials

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-31-85
Container Condition: Interior and exterior-moderate rust
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: cinderblock pieces

Packaging Description: Type I rigid liner was lined with a single polyethylene drum bag. The drum bag had a number of tears 1"-2 1/2" in length.

Absorbent Information: Oil-Dri was located outside of the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Poly bag-1.0, cinderblock pieces and fines-386.4, Oil-Dri-11.5.

WIPP-WAC Compliance Information: 1. Particulates, 600.55 grams of particulate was collected by sieving the drum contents through a 600 micron sieve. Analysis of the particulate indicates the waste contained 0.067 wt% <212 micron particles and 6.6E-5 wt% <10 micron particles.

Packaging Efficiency: 80%
Volume % Combustibles: 2%
Correct Content Code? Yes* New Code: 374
Other Information: *Code 960 was replaced in 1973 with Code 374. The old code is correct. The new code is shown for reference only.
WIPP-Certifiable: Yes

Waste Form Category: Salts

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 01-05779
Content Code: 409
Container Wt (lb): 116
Original Assay (g): Pu-190.0
Packaging Location: Building 771

Container Type: Drum
Code Description: Molten Salt-30% Unpulverized
Surface Dose Rate (mR/h): 38.0
Reassay (g): Pu-208; Am-7.5
Date Packaged: 8/30/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: No

Waste Form Description: Chunks and pieces of salt.

Packaging Description: Salt is contained in a Vollrath can inside of an overpack Vollrath can. Each can is contained in a plastic bag.

Absorbent Information: Drum contains approximately 10 gallons of vermiculite.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 10%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: Organic weight-10 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/16/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Salt, in the form of cake, chunks, pieces and some fines, are contained in 6 Vollrath cans.

Packaging Description: Type II liner is lined with 2 poly. drum bags. Salt contained in 6 8801 Vollrath cans, double-bagged in plastic; overpacked into 8802 cans.

Absorbent Information: Vermiculite on top of outer sealed drum bag-9 lbs.

Physical State of Waste: Dry
Component Weight (LB): 3 lbs plastics; 10 1/2 lbs Vollrath cans; 12 3/4 lbs molten salt.

WIPP-WAC Compliance Information: 1. Particulates: salt fines; analysis indicates 0.84% <212 and 3.2E-3% <10.

Packaging Efficiency: 10%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-Exceeds 200g/55 gal. drum

Waste Form Category: Salts

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 03-02724
Content Code: 409
Container Wt (lb): 242
Original Assay (g): Pu-62.0, Am-4.0
Packaging Location: Building 776, Room 154

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Dense blocks of salt.

Packaging Description: Salts are contained in 2 Fiber-Paks. Fiber-Paks are in poly bagging. A clamp is unhooked on one Fiber-Pak.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Molten salt
Surface Dose Rate (mR/h): 0.1
Reassay (g): *
Date Packaged: 12/6/84

VISUAL EXAMINATION

Examination Date: 3/21/85
Container Condition: Exterior-excellent, Interior-minor light rust on upper side.
Lead Lined: Fiber-Paks are lead lined
Liner Type: Type III, 90 mil

Waste Form Description: Molten salt

Packaging Description: Type III rigid liner was double lined with an outer round bottom poly bag and an inner poly drum bag which contained 2 Fiber-Paks. The Fiber-Paks were lead lined and one had 8 cans, the other had 7. The salt was inside small (8801) taped stainless cans which were double bagged in PVC then placed inside of a larger (8802) taped stainless can. Outer round bottom bag had 2 small (0.25") holes.

Absorbent Information: No absorbents were present.

Physical State of Waste: Dry
Component Weight (LB): Paper Fiber-Paks-12.0, PVC-4.4, poly-1.9, stainless steel cans-26.4, molten salt-23.8, lead sheet-96.8.

WIPP-WAC Compliance Information: 1. Particulates-493.05 grams of salt fines were obtained by sieving all of the cans. Analysis of the particulate indicated the waste contained 0.066 wt % <212 micron particles and 6.0 E-4 wt % <10 micron particles.

Packaging Efficiency: 60%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information: *Unable to reassay, each can must be individually counted in the "can scan" which was down for the week between receipt of the boxcar and the drum examination.

WIPP-Certifiable: Yes

Waste Form Category: Salts

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 01-05486
Content Code: 414
Container Wt (lb): 226
Original Assay (g): Pu-189.0
Packaging Location: Building 771

Container Type: Drum
Code Description: Direct Oxide Reduction Salt
Surface Dose Rate (mR/h): 32.0
Reassay (g): Pu-111.0
Date Packaged: 12/12/82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-24-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Chunks and pieces of salt and ceramic

Packaging Description: Waste in contained in Vollrath cans and polyethylene bottles. Waste in Vollrath cans is double-contained. Four cans contain broken glass or ceramic material-one can appears to be lined with an unidentified material.

Absorbent Information: No

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: 1 quart Type: Salt

Packaging Efficiency: 75%
Volume % Combustible: 75%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9/6/83
Container Condition: Good
Lead Lined: No
Liner Type: Type II, 90 mil

Waste Form Description: Waste consists of salt and ceramic material.

Packaging Description: Type II liner is lined with two polyethylene drum bags. The waste consists of total of 30 size 8802 stainless steel Vollrath cans, each containing a double-bagged (PVC and polyethylene) produce can. The produce cans contain salt. Two Vollrath cans contain a plastic freezer container and two cans contain ceramic material without a produce can.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Damp
Component Weight (LB): Polyethylene and PVC bags-16.0; stainless steel Vollrath cans-10.175; salts-52.875; ceramics-19.5; vermiculite-6.0.

WIPP-WAC Compliance Information: 1. Particulates: Sample consists of salt and MgO sand. Analysis indicates the waste contains 2.24 wt% <212, particulates and 0.01 wt% 10 particulates.
2. Sludge: Two samples of the brown sludge indicates a pH of 12 with the major components being carbonates and phosphates and the minor components being water and an unidentified organic. The sludge is contained in a plastic freezer container.

Packaging Efficiency: 80%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information: WIPP-Certifiable: Yes

WIPP-Certifiable: Yes

Waste Form Category: Glovebox Gloves

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 19-01831
Content Code: 339
Container Wt (lb): 268
Original Assay (g): Pu-138.0
Packaging Location: Building 776, Rm. 146

Container Type: Drum
Code Description: Leaded Drybox Gloves and Other Leaded Rubber
Surface Dose Rate (mR/h): 1.5
Reassay (g): Pu-151; Am-0.3
Date Packaged: 2/21/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: Yes

Waste Form Description: Leaded glovebox gloves and aprons

Packaging Description: Waste items are contained in a plastic bag

Absorbent Information: Drum contains approximately 10 gallons of vermiculite.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 60%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: Organic weight-110 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/16/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Surgeon's gloves, rags, cloth towel rags (contained in double polyethylene bags) and leaded gloves.

Packaging Description: Type II liner is lined with poly. drum bag. Gloves placed directly into drum; the cloth rags were contained in double polyethylene bags.

Absorbent Information: Vermiculite on top of sealed drum bags-7 lbs.

Physical State of Waste: Damp
Component Weight (LB): 13 lbs rags, towels; 18 lbs neoprene sheets; 4 lbs plastics; 150 lbs leaded gloves.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glovebox Gloves

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 19-01840
Content Code: 339
Container Wt (lb): 342
Original Assay (g): Pu-11.0
Packaging Location:

Container Type: Drum
Code Description: Leaded Drybox Gloves and Other Leaded Rubber
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-5.5; Am-0
Date Packaged: 3/24/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: Yes

Waste Form Description: Leaded gloves

Packaging Description: Waste items are contained in a plastic bag.

Absorbent Information: Drum contains approximately 10 gallons of vermiculite.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 66%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/16/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Leaded gloves and neoprene rubber gaskets.

Packaging Description: Type II liner is lined with poly. drum bag. Gloves placed directly into drum bag.

Absorbent Information: Vermiculite on top of sealed drum bag (9 lbs) Oil-Dri, small amount, in bottom of round bottom drum bag (1 lb.).

Physical State of Waste: Dry
Component Weight (LB): 4 lbs rubber; 1 1/2 lbs plastics; 255 lbs leaded gloves.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 75%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glovebox Gloves

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 19-01845
Content Code: 339
Container Wt (lb): 252
Original Assay (g): Pu-44.0
Packaging Location: Building 776, Rm. 146

Container Type: Drum
Code Description: Leaded Drybox Gloves and Other Leaded Rubber
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-42.7; Am-0.2
Date Packaged: 3/24/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/25/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: Yes

Waste Form Description: Leaded glovebox gloves

Packaging Description: Gloves are contained in a plastic bag.

Absorbent Information: Drum contains approximately 10 gallons of vermiculite.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 50%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/17/84
Container Condition: Good
Lead Lined: No
Liner Type: Type II

Waste Form Description: Leaded gloves.

Packaging Description: Type II liner is lined with poly. drum bag. Gloves are placed directly into drum bag.

Absorbent Information: Vermiculite on top of sealed drum bag (12 1/2 lbs).

Physical State of Waste: Dry
Component Weight (LB): 1 1/2 lbs plastics; 164 lbs leaded gloves.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 50%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Glovebox Gloves

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 19-01884
Content Code: 339
Container Wt (lb): 370
Original Assay (g): Pu-60.0
Packaging Location: Building 776, Rm. 146

Container Type: Drum
Code Description: Leaded Drybox Gloves and Other Leaded Rubber
Surface Dose Rate (mR/h): 0.9
Reassay (g): Pu-68.9; Am-0
Date Packaged: 4/14/83

RADIOGRAPHIC EXAMINATION

Examination Date: 2/15/84
Liner Type: 90-mil
Lead-Lined: No Other Lead: Yes

Waste Form Description: Leaded glovebox gloves

Packaging Description: Gloves are contained in a plastic bag.

Absorbent Information: Small amount of vermiculite is located on top of the plastic bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 70%
Volume % Combustible: 1%
Correct Content Code? Yes New Code:
Other Information: Organic ... ght-150 lbs.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 4/17/84
Container Condition: Fair
Lead Lined: No
Liner Type: Type II

Waste Form Description: Neoprene rubber sheet and polyethylene skirting.

Packaging Description: Type II is lined with poly. drum bag. Gloves placed in drum bag.

Absorbent Information: Vermiculite on top of drum bag (4.5 lbs.).

Physical State of Waste: Damp
Component Weight (LB): 8 lbs rubber; 3 lbs plastics; 285 lbs leaded gloves.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Leaded Rubber

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 19-01472
Content Code: 339
Container Wt (lb): 208
Original Assay (g): Pu-12.0
Packaging Location: Bldg 776

Container Type: Drum
Code Description: Leaded Gloves/Leaded Rubber
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-17.0
Date Packaged: 12-17-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Leaded gloves and aprons

Packaging Description: Waste is contained in plastic bags.

Absorbent Information: Approximately 2 quarts of Oil-Dri located on top of drum bag and 2 cups in the bottom of the drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 40%
Volume % Combustible: 100
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-10-83
Container Condition: See other information.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Leaded gloves, some neoprene window gasket material, and a polyethylene bottle.

Packaging Description: Type II liner is lined with a polyethylene drum bag. All waste items are contained in the drum bag.

Absorbent Information: Oil-Dri is located on top of the drum bag and in the bottom of the liner.

Physical State of Waste: Damp
Component Wt (lb): Rubber gasket material--2.25; plastics--4.5; leaded gloves--119.25; Oil-Dri--4.5.

WIPP-WAC Compliance Information: None.

Packaging Efficiency: 60%
Volume % Combustibles: 100
Correct Content Code? Yes New Code:
Other Information:
1. Container condition is good. Two small dents on lower two-thirds of the drum. Small amount of rust on lock-chine.
2. Internal rust on drum lid and on the bottom of the drum.

WIPP-Certifiable: Yes

Waste Form Category: Glovebox, Gloves

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 22-00224
Content Code: 339
Container Wt (lb): 390
Original Assay (g): 31.0-Pu; 0.0-Am
Packaging Location:

RADIOGRAPHIC EXAMINATION

Examination Date: 11-9-84
Liner Type: 90 mil
Lead-Lined: No Other Lead: 150 lbs

Waste Form Description: Leaded Gloves

Packaging Description: Lead gloves packed in plastic bags

Absorbent Information: 2 gallons

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 120 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Leaded Rubber Gloves
Surface Dose Rate (mR/h): <0.5
Reassay (g): 17.0-Pu*
Date Packaged: 1-24-73

VISUAL EXAMINATION

Examination Date: 3-29-85
Container Condition: Minor light rust, interior and exterior. Some paint has flaked off of the lower sides.
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Leaded gloves, PVC and polyethylene bags, cloth (booties, gloveliner).

Packaging Description: Type I rigid liner was lined with an outer polyethylene drum bag and an inner PVC drum bag. The gloves were packed directly into the drum bags. The bottom length of the drum contained combustible waste. The inner PVC bag was deteriorated such that there were 1-2 foot holes. Poly bag was good.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Leaded rubber gloves-286.0, cloth-0.5, PVC-7.8, poly-1.0, oil dry-29.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 70%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information: *Too dense to assay by segmented gamma scan. Reassay performed with a Na I detector that is not sensitive to Am.
WIPP-Certifiable: Yes

Waste Form Category: Glovebox, Gloves

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 23-00435
Content Code: 339
Container Wt (lb): 315
Original Assay (g): 6.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Leaded Rubber Gloves and Aprons
Surface Dose Rate (mR/h): <0.5
Reassay (g): 3.0-Pu*
Date Packaged: 1-12-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90 mil
Lead-Lined: No Other Lead: ~100 lbs lead gloves

Waste Form Description: Leaded Gloves

Packaging Description: Lead gloves packed in poly bags put in 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-30-85
Container Condition: Exterior-some light rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90-mil

Waste Form Description: Leaded rubber drybox gloves, PVC and polyethylene bags. One glove appeared to be oil coated.

Packaging Description: Type I rigid liner was lined with a single poly drum bag. The waste was generally double bagged with a poly outer bag and a PVC inner bag. Some waste was single bagged in poly.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Leaded rubber gloves-215.0, PVC-16.5, poly-4.0, oil dry-2.4.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information: *Segmented gamma scan could not be used. Reassay with Na I detector, not sensitive to Am.
WIPP-Certifiable: Yes

Waste Form Category: Benelex, Plexiglas

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10126
Content Code: 302
Container Wt (lb): 450
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location: Building 771, Room 148

Container Type: Drum
Code Description: Benelex and plexiglas
Surface Dose Rate (mR/h): <0.5
Reassay (g): 1.0-Pu, 0.1-Am
Date Packaged: 1-21-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: Cardboard
Lead-Lined: No Other Lead:

Waste Form Description: Benelex slabs

Packaging Description: Slabs are packed in cardboard liner, no poly bagging.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-2-85
Container Condition: Light to moderate rust, interior and exterior
Lead Lined: No
Liner Type: Cardboard, PVC and poly bags

Waste Form Description: Nine pieces of benelex. The benelex appeared to be gloveport door approximately 8" x 8" x 4" thick. A 0.125-0.25." lead sheet was laminated to the benelex.

Packaging Description: A rigid 90-mil liner was not used. The drum was, triple lined with an outer PVC drum bag and 2 inner polyethylene bags. A cardboard liner was inside the inner poly bag and the benelex was directly inside the cardboard.

Absorbent Information: Oil-Dri was located outside of the drum bags, on top and in the bottom of the drum. All of the Oil-Dri was damp.

Physical State of Waste: Dry
Component Weight (LB): Cardboard drum liner-4.0, PVC-5.0, poly-2.0, benelex doors with lead sheet-377.5, oil dry-1.0.

WIPP-WAC Compliance Information: The exterior of the outer PVC drum bag was coated with a film of water. there were no free liquids however.

Packaging Efficiency: 100%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information: This drum contained 46.48 micro-curies/cubic meter of tritium.
WIPP-Certifiable: Yes

Waste Form Category: Benelex, Plexiglas

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10283
Content Code: 302
Container Wt (lb): 265
Original Assay (g): 4.0-Pu; 0.0-Am
Packaging Location: Building 771, Room 181

Container Type: Drum
Code Description: Benelex and plexiglas
Surface Dose Rate (mR/h): <0.5
Reassay (g): 3.5-Pu, 0.1-Am
Date Packaged: 1-27-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-9-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Plexiglas slabs

Packaging Description: Plexiglas is packaged in plastic bags

Absorbent Information: 1 quart

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information: 200 lbs of organic materials

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-2-85
Container Condition: Exterior-light rust, Interior-no rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Plexiglas glovebox windows, some with rubber gaskets.

Packaging Description: Type I rigid liner is single lined with a polyethylene drum bag. A total of 5 packages contained plexiglas double bagged in PVC outer and polyethylene inner bags. Poly drum bag had one small (0.5") hole.

Absorbent Information: Oil-Dri was located outside the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC bags-8.0, poly bags-6.5, plexiglas glovebox windows-161.7, oil dry-12.8.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 90%
Volume % Combustibles: 15%
Correct Content Code? Yes New Code:
Other Information: Benelex and plexiglas are not considered combustible nor organic.
WIPP-Certifiable: Yes

Waste Form Category: Benelex, Plexiglas

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10436
Content Code: 302
Container Wt (lb): 166
Original Assay (g): 2.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Benelex and plexiglas
Surface Dose Rate (mR/h): <0.5
Reassay (g): 3.3-Pu, 0.2-Am
Date Packaged: 2-4-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-29-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Slabs of plexiglas

Packaging Description: Contained in poly bags and 90-mil liner.

Absorbent Information: 2 gallons

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 65 lbs of organic materials

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-2-85
Container Condition: No rust, minor scratches, interior and exterior
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Plexiglas glovebox windows, some windows had rubber gaskets.

Packaging Description: Type I rigid liner was single lined with a PVC drum bag. A total of 3 packages contained plexiglas double-bagged in PVC inner and polyethylene outer bags.

Absorbent information: Oil-Dri was located outside the drum bag in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC bags-7.8, poly bags-2.0, plexiglas glovebox windows (0.5" thick)-60.3, oil dry-18.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 60%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information: Benelex and plexiglas are not considered combustible nor organic.
WIPP-Certifiable: Yes

Waste Form Category: Benelex, Plexiglas

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10502
Content Code: 302 (RFP-440)
Container Wt (lb): 222
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Benelex and plexiglas

Packaging Description: Packed in poly bag. A Fiber Pak with benelex is also in the poly bag. All are packed in a 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 157 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Benelex and plexiglas
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.0-Pu, 0.1-Am
Date Packaged: 2-10-73

VISUAL EXAMINATION

Examination Date: 2-20-85
Container Condition:
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Plexiglas glovebox windows and pieces.

Packaging Description: Type I rigid liner was single lined with polyethylene drum bag. Glovebox plexiglas windows were double-bagged in PVC (inner) and poly (outer). A Fiber-Pak was double-bagged in poly; the Fiber-Pak contained plexiglas pieces directly.

Absorbent Information: Oil-Dri was located mostly outside the drum bag in the bottom of the rigid liner although some was located inside the drum bag.

Physical State of Waste: Dry
Component Weight (LB): Poly drum bag-1.0, fibre pak-12.0, plexiglas-74.7, Oil-Dri-46.4.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 70%
Volume % Combustibles: 10%
Correct Content Code? No New Code: 302
Other Information: Plexiglas is not considered combustible.
WIPP-Certifiable: Yes

Waste Form Category: Benelex, Plexiglas

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08991
Content Code: 302
Container Wt (lb): 256
Original Assay (g): 6.0-Pu, 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Benelex and plexiglas
Surface Dose Rate (mR/h): <0.5
Reassay (g): 4.0-Pu, 0.1-Am
Date Packaged: 1-17-73

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Benelex and plexiglas

Packaging Description: Benelex and plexiglas are placed in drum. One piece of curled benelex in lower corner of drum.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-28-85
Container Condition: Exterior-light to moderate rust
Interior-very light rust.
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Plexiglas and glass glovebox windows.

Packaging Description: Type I rigid liner was double lined with a PVC outer drum bag and a polyethylene inner drum bag. A total of 4 packages of waste were double-bagged in an inner PVC bag and an outer poly bag.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC (bags)-14.5, poly (bags)-3.5, plexiglas-65.6, glass-73.9, Oil-Dri-47.6.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information: Benelex and plexiglas are not considered combustible nor organic.
WIPP-Certifiable: Yes

Waste Form Category: Benelex, Plexiglas

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10316
Content Code: 302
Container Wt (lb): 230
Original Assay (g): 2.0-Pu, 0.0-Am
Packaging Location: Building 771, Rm 181

Container Type: Drum
Code Description: Benelex and plexiglas
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.0-Pu, 0.1-Am
Date Packaged: 1-30-73

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Plexiglas and Benelex sheets.

Packaging Description: All waste is contained in plastic. Some plexiglas pieces are in a poly bottle. There is a curled piece at the bottom.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 85%
Volume % Combustible: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-28-85
Container Condition: Light rust, interior and exterior
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Plexiglas glovebox windows.

Packaging Description: Type I rigid liner was double lined with an outer PVC drum bag and an inner polyethylene drum bag. A total of 3 packages and 1 bottle contained plexiglas double-bagged in an inner sealed PVC bag and an outer unsealed poly bag. A 1-gallon poly bottle also contained plexiglas and was in a sealed PVC bag and an unsealed poly bag also.

Absorbent Information: Oil-Dri was located outisde of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC (bags)-7.9, poly (bags, bottle)-3.0, plexiglas-124.1, Oil-Dri-22.9.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 80%
Volume % Combustibles: 15%
Correct Content Code? Yes New Code:
Other Information: Benelex and plexiglas are not considered combustible nor organic.
WIPP-Certifiable: Yes

Waste Form Category: Benelex, Plexiglas

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08266
Content Code: 464*
Container Wt (lb): 208
Original Assay (g): 0.0-Pu; 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Benelex and plexiglas
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.0-Pu, 0.0-Am
Date Packaged: 12-13-72 or 12-18-72

RADIOGRAPHIC EXAMINATION

Examination Date: 11-9-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Slabs of plexiglas

Packaging Description: Benelex plexiglas is in poly bags, then in a 90 mil liner.

Absorbent Information: 2 gallons

Free Liquids: Yes Quantity: 1 1/2 qts Contained: Liner & drum
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-2-85
Container Condition: Exterior-moderate rust, Interior-some light rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Plexiglas windows and pieces.

Packaging Description: Type I rigid liner was lined with a PVC drum bag. Plexiglas was contained in 3 packages double-bagged with a poly inner and PVC outer bag.

Absorbent Information: Oil-Dri was located mostly outside the drum bag in the bottom of the rigid liner although some was located inside the drum bag.

Physical State of Waste: Dry
Component Weight (LB): PVC bags-14.0, poly bags-2.5, plexiglas-76.6, oil dry-50.6.

WIPP-WAC Compliance Information: 1. Free liquids 1400 ml of liquid was located outside of the rigid liner in the bottom of the drum. Analysis indicates a pH of 6 and composition of water, carbonates, sulfates, trace organics.

Packaging Efficiency: 60%
Volume % Combustibles: 15%
Correct Content Code? Yes* New Code: 302
Other Information: *Code 464 discontinued in 1973. The old code is correct. The new code, 302, is shown for reference only.
WIPP-Certifiable: No-free liquid (1.41).

Waste Form Category: Resins

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39189
Content Code: 432
Container Wt (lb): 298
Original Assay (g): Pu-10.0
Packaging Location: Bldg 771, Rm 114

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Cemented resins. One bottle near top of waste contains chunks or pieces of resin.

Packaging Description: Resins are contained in polyethylene bottles. The bottles are contained in plastic bags.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 50
Correct Content Code? Yes New Code:
Other Information: One bottle near top of waste contains chunks or pieces of resin. Estimated organic weight--80 lb.

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Resin, Cemented
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-8.0
Date Packaged: 10-13-82

VISUAL EXAMINATION

Examination Date: 9-6-83
Container Condition: Minor denting, badly scratched in drum middle.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Cemented resins

Packaging Description: Type II liner is lined with two polyethylene drum bags. The resins are contained in a total of 17 1-gal polyethylene bottles. The bottles are double-bagged in plastic bags.

Absorbent Information: Vermiculite is located on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene bags and bottles--31.5; cemented resins--186.5; and vermiculite--2.25.

WIPP-WAC Compliance Information:
1. Particulates: Analysis of an unsolidified resin and cement sample indicates that the waste contains <0.001 wt% <212μ particulates and <0.001 wt% <10μ particulates.

Packaging Efficiency: 85%
Volume % Combustibles: 12
Correct Content Code? Yes New Code:
Other Information: Two internal rust spots on drum bottom.

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39215
Content Code: 432
Container Wt (lb): 339
Original Assay (g): Pu-138.0
Packaging Location: Bldg 771, Rm 114

Container Type: Drum
Code Description: Resin, Cemented
Surface Dose Rate (mR/h): 2.5
Reassay (g): Pu-150.0
Date Packaged: 10-13-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Cemented resins

Packaging Description: Cemented resins are contained in polyethylene bottles. The bottles are contained in plastic bags.

Absorbent Information: Information not recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: 50
Correct Content Code? Yes New Code:
Other Information: Estimated organic weight--40.9 kg.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-6-83
Container Condition: Good; four small dents in lower two-thirds of drum.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Cemented resins

Packaging Description: Type II liner is lined with two polyethylene drum bags. The cemented resins are contained in 18 1-gal polyethylene bottles. The bottles are wrapped in polyethylene.

Absorbent Information: Vermiculite located on top of drum bag.

Physical State of Waste: Damp
Component Wt (lb): Polyethylene bags and bottles--35.0; cemented resin--235.0; vermiculite--1.5.

WIPP-WAC Compliance Information:
1. Liquids: Free liquid (75 ml) found outside a polyethylene bottle within the bag. Analysis of the green liquid indicates a pH of 12 with the major component being water and the minor components being carbonates and/or nitrates and an unidentified organic material.

Packaging Efficiency: 90%
Volume % Combustibles: 15
Correct Content Code? Yes New Code:
Other Information: Some small internal spots of rust on drum lid and drum bottom.

WIPP-Certifiable: No

Waste Form Category: Resins

Time Period: 6-month-old waste

GENERAL INFORMATION

Container Identification: 02-39296
Content Code: 432
Container Wt (lb): 255
Original Assay (g): Pu-22.0
Packaging Location: Bldg 771, Rm 114

Container Type: Drum
Code Description: Resin, Cemented
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-21.0
Date Packaged: 11-3-82

RADIOGRAPHIC EXAMINATION

Examination Date: 6-27-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Cemented resins

Packaging Description: Resins are contained in polyethylene bottles. The bottles are contained in plastic bags.

Absorbent Information: Vermiculite is located on top of sealed drum bag.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 50
Correct Content Code? Yes New Code:
Other Information: Estimated organic weight--78 lb.

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 9-6-83
Container Condition: See other information.
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Cemented resins. Some of the cemented resins are damp.

Packaging Description: Type II liner is lined with a polyethylene drum bag. The cemented resins are contained in 15 polyethylene bottles. The bottles are contained in polyethylene bags.

Absorbent Information: Vermiculite is located on top of drum bag.

Physical State of Waste: Damp
Component Wt (lb): Polyethylene bags and bottles--30.0; cemented resins--182.75; and vermiculite--4.5.

WIPP-WAC Compliance Information: None

Packaging Efficiency: 85%
Volume % Combustibles: 20
Correct Content Code? Yes New Code:
Other Information:
1. External drum condition--rust on lower one-third of drum where paint is scratched. Paint is scratched to the metal.

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 6-month old

GENERAL INFORMATION

Container Identification: 02-44427
Content Code: 432
Container Wt (lb): 123
Original Assay (g): Pu-1.7, Am-0.0
Packaging Location: Building 771, Room 114

Container Type: Drum
Code Description: Resin, cemented
Surface Dose Rate (mR/h): 3.0
Reassay (g): 24.3-Pu, 0.2-Am
Date Packaged: 8/20/84

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Cemented resin.

Packaging Description: Cemented resin in 5 poly bottles. Each bottle is wrapped in plastic. One bottle contains very little resin.

Absorbent Information:

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 30%
Volume % Combustible: >25%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3/21/85
Container Condition: Exterior-excellent, Interior-Lid and upper sides had light rust.
Lead Lined: No
Liner Type: Type III, 90 mil

Waste Form Description: Cemented resin in 4 polyethylene bottles. Three of the four bottles had no particulates, the fourth bottle contained approximately 1" of powder in the bottle bottom.

Packaging Description: Type III rigid liner was double-lined with 2 polyethylene round-bottom drum bags. A total of 4 wide mouth bottles contained resin. The bottles were double-bagged in individual packages of inner PVC bags and outer poly bags.

Absorbent Information: No absorbents were present.

Physical State of Waste: Dry
Component Weight (LB): PVC-2.2, poly bags and bottles-4.7, cemented resin-7.0.

WIPP-WAC Compliance
Information: 1. Particulates-216.89 grams of resin and resin fines were present in one bottle. Analysis of the particulate indicates that the waste contained 0.232 wt % <212 micron particles and 8.5 E-4 wt %<10 micron particles.

Packaging Efficiency: 20%
Volume % Combustibles: 15%
Correct Content Code? Yes New Code:
Other Information: None

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 02-34829
Content Code: 432
Container Wt (lb): 280
Original Assay (g): Pu-19.0
Packaging Location: Bldg 771, Rm 114

Container Type: Drum
Code Description: Resin, Cemented
Surface Dose Rate (mR/h): 1.7
Reassay (g): Pu-15.0
Date Packaged: 11-13-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Cemented resin

Packaging Description: Resin is packaged in polyethylene bottles.

Absorbent Information: Oil-Dri, approximately 2 quarts

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: Unknown
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-10-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Cemented resins contained in a total of 18 1-gal polyethylene bottles. Six bottles contained particulate (poorly solidified resin) and the remaining 12 bottles contained 25% particulate (including the Portland cement added as absorbent.) One bag contained dry Portland cement.

Packaging Description: Type II liner is lined with two polyethylene drum bags. Each polyethylene bottle containing the waste is double-bagged in a PVC and polyethylene bag.

Absorbent Information: Oil-Dri is located in the bottom of the liner.
Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC bags, polyethylene bottles--31.5; solid and particulate cemented resin--178.5; Oil-Dri--4.5.

WIPP-WAC Compliance Information:
1. Particulates (Portland cement and resin): Analysis of the sample indicates the waste contains 0.042 wt% <212μ particulates and 0.002 wt% <10μ particulates.

Packaging Efficiency: 90%
Volume % Combustibles: 30%
Correct Content Code? Yes New Code:
Other Information: Light internal rust on drum lid and on the sides and in the bottom of the drum.

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 02-34844
Content Code: 432
Container Wt (lb): 162
Original Assay (g): Pu-5.0
Packaging Location: Bldg 771, Rm 114

Container Type: Drum
Code Description: Resins, Cemented
Surface Dose Rate (mR/h): 0.1
Reassay (g): Pu-0.0
Date Packaged: 11-21-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Cemented resin. Some of the resin appears to be in chunk form.

Packaging Description: Resin is contained in polyethylene bottles. Bottles are contained in plastic bags.

Absorbent Information: No information recorded.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 36%
Volume % Combustible: Unknown
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-10-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Cemented resins. Some of the resin is not solidified.

Packaging Description: Type II liner is lined with two polyethylene drum bags. The cemented resin is contained in 1-gal polyethylene bottles. Each bottle is double-bagged in a PVC and a polyethylene bag. Total of seven bottles in the drum.

Absorbent Information: Oil-Dri in the bottom of the liner and on top of the drum bag.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC bags, polyethylene bottles--13.0; solid- and particulate-cemented resin--69.0; (cement is included with the resin); Oil-Dri--5.25.

WIPP-WAC Compliance Information:
1. Particulates (cement fines): Analysis of the sample indicates that the waste contains 0.095 wt% <212 and 0.001 wt% <10μ particulates.

Packaging Efficiency: 33%
Volume % Combustibles: 30
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 3-year-old waste

GENERAL INFORMATION

Container Identification: 02-34830
Content Code: 432
Container Wt (lb): 318
Original Assay (g): Pu-29.0
Packaging Location: Bldg 771, Rm 114

Container Type: Drum
Code Description: Resins, Cemented
Surface Dose Rate (mR/h): 2.0
Reassay (g): Pu-26.0
Date Packaged: 11-13-80

RADIOGRAPHIC EXAMINATION

Examination Date: 7-1-83
Liner Type: 90-mil; liner lined with a poly drum bag.
Lead-Lined: No Other Lead: No

Waste Form Description: Cemented resin

Packaging Description: Resin is contained in polyethylene bottles.

Absorbent Information: Oil-Dri, approximately 1 quart, located in folds of plastic on top of the waste.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: Unknown
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 8-10-83
Container Condition: Good
Lead-Lined: No
Liner Type: Type II 90-mil

Waste Form Description: Cemented resins. Some of the resin waste was not solidified.

Packaging Description: Type II liner is lined with two polyethylene drum bags. The cemented resin is contained in a total of 18 1-gal polyethylene bottles. Each bottle is double-bagged in a PVC and polyethylene bag.

Absorbent Information: Oil-Dri is located in the bottom of the liner.

Physical State of Waste: Dry
Component Wt (lb): Polyethylene and PVC bags, polyethylene bottles--29.75; cemented (solid) resin and fines--206.25; Oil-Dri--5.0.

WIPP-WAC Compliance Information:
1. Particulates (resin and Portland cement): Analysis indicates that the waste contains 1.09 wt% <212μ particulates and 0.011 wt% <10μ particulates.

Packaging Efficiency: 90%
Volume % Combustibles: 30
Correct Content Code? Yes New Code:
Other Information:
1. Some of the bottles have cracked due to swelling.
2. Internal rust on drum lid.

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08811
Content Code: 371 (see below)
Container Wt (lb): 311
Original Assay (g): 23.0-Pu, 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Firebrick
Surface Dose Rate (mR/h): <0.5
Reassay (g): 11.6-Pu, 0.1-Am
Date Packaged: 1-9-73

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Firebrick

Packaging Description: Firebrick pieces are contained in 1-gallon poly bottles. There is Oil-Dri between the rigid liner and the drum.

Absorbent Information: Oil-Dri-3 gallons between the liner and drum.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-23-85
Container Condition: Exterior-light to moderate rust, Interior-minor rust.
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Cemented resin in polyethylene bottles.

Packaging Description: Type I rigid liner was double lined with an outer PVC bag and an inner polyethylene drum bag. A total of 18 wide-mouth gallon bottles contained resins. Two bottles were packaged together double-bagged in a poly outer bag and a PVC inner bag.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC-6.4, poly (bags, 18 bottles)-15.3, cemented resin-168.5, oil dry-44.4.

WIPP-WAC Compliance Information: 1. Particulates 210.68 grams of resin and cement fines were collected from the top of all bottles. Analysis of the particulates indicate the waste contained 5.4E-4 wt% <212 micron particles and <2.0E-2 wt% <10 micron particles.

Packaging Efficiency: 90%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code: 432
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08956
Content Code: 432
Container Wt (lb): 296
Original Assay (g): 11.0-Pu, 0.0-Am
Packaging Location:

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Cemented resin.

Packaging Description: Packed in 1 gallon poly bottles and a paint can. Poly bags over the 16 containers in a 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 95%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 24 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Resin, leached and cemented
Surface Dose Rate (mR/h): <0.5
Reassay (g): 8.1-Pu, 0.0-Am
Date Packaged: 1-16-73

VISUAL EXAMINATION

Examination Date: 3-2-85
Container Condition: Exterior-light to moderate rust, Interior-light rust.
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Cemented resin in polyethylene bottles.

Packaging Description: Type I rigid liner was lined with a PVC outer drum bag and a poly inner drum bag. A total of 20 wide-mouth gallon bottles and a gallon paint can contained resin. Generally, two bottles and paint can were single bagged in PVC bags.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC-8.5, poly (bags, 18 bottles)-14.2, cement-7.7, resin-183.0, oil dry-19.8.

WIPP-WAC Compliance Information: 1. Particulates 289.30 grams of resin cement fines were collected from a single bottle which was entirely particulate. Analysis of the particulate indicates that the waste contained 2.024 wt% <212 micron particles and 2.8E-5 wt% <10 micron particles.

Packaging Efficiency: 90%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10070
Content Code: 432
Container Wt (lb): 302
Original Assay (g): 5.0-Pu, 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Resin, leached and cemented
Surface Dose Rate (mR/h): <0.5
Reassay (g): 2.4-Pu, 0.0-Am
Date Packaged: 1-19-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-4-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Cemented resin

Packaging Description: Packed in poly bottles, poly bags, then 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 24 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-2-85
Container Condition: Exterior-light to moderate rust, Interior-heavy rust on bottom.
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Cemented resin in polyethylene bottles.

Packaging Description: Type I rigid liner was single lined with a PVC drum bag. A total of 18 wide mouth gallon bottles contained resin. The bottles were paired in a 9 packages of PVC inner bags and poly outer bags.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC-7.0, poly bags and bottles-12.9, cemented resin-178.1, oil dry-39.6.

WIPP-WAC Compliance Information: 1. Particulates 114.98 grams of resin and cement fines were obtained by sieving all the resin bottles. Analysis of the particulate indicates that the waste contained 0.015 wt% <212 micron particles and 5.6E-5 wt% <10 micron particles.

Packaging Efficiency: 80%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10195
Content Code: 432
Container Wt (lb): 318
Original Assay (g): 44.0-Pu, 0.0-Am
Packaging Location: Building 771, Room 181

RADIOGRAPHIC EXAMINATION

Examination Date: 2/20/85
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Cemented resin.

Packaging Description: 18 1-gallon poly bottles of cemented resins.

Absorbent Information: 1-gallon of Oil-Dri was located inside the rigid liner at the bottom.

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 90%
Volume % Combustible: 15%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Resin, cemented
Surface Dose Rate (mR/h): <0.5
Reassay (g): 38.1-Pu, 0.2-Am
Date Packaged: 1-24-73

VISUAL EXAMINATION

Examination Date: 3-23-85
Container Condition: Exterior-some light rust, Interior-some moderate rust
Lead Lined: No
Liner Type: Type I, 90 mil

Waste Form Description: Cemented resin in polyethylene bottles.

Packaging Description: Type I rigid liner was double lined with an outer PVC bag and an inner polyethylene bag. A total of 72 wide-mouth gallon bottles contained resin. Generally, a single bottle was double bagged in a poly outer bag and an inner PVC bag.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC-8.6, poly (bags and 22 bottles)-15.6, cemented resins-194.1, oil dry-6.4.

WIPP-WAC Compliance Information: 1. Free liquids-approximately 50 ml of liquid was in the bag surrounding the gallon jug. A sample of this material could not be collected. 2. Particulates 435.26 grams of resin and cement fines were collected from the top of most of the bottles. Analysis indicates they contained 5.8E-4 wt% <212 micron particles and <4.1E-5 wt% <10 micron particles.

Packaging Efficiency: 90%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10286
Content Code: 432
Container Wt (lb): 312
Original Assay (g): 48.0-Pu, 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Resin, leached and cemented
Surface Dose Rate (mR/h): <0.5
Reassay (g): 32.0-Pu, 0.0-Am
Date Packaged: 1-28-73

RADIOGRAPHIC EXAMINATION

Examination Date: 11-29-84
Liner Type: 90 mil
Lead-Lined: No Other Lead:

Waste Form Description: Cemented resin

Packaging Description: Contained in poly bottles, then put in poly bags in a 90-mil liner.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 14 lbs of organic material

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 3-2-85
Container Condition: Light localized rust, interior and exterior
Lead Lined: No
Liner Type: Type 1, 90 mil

Waste Form Description: Cemented resins in polyethylene bottles.

Packaging Description: Type 1 rigid liner was triple lined with a PVC drum bag-outer, then a poly drum bag, then a PVC drum bag-inner. A total of 21 wide mouth gallon bottles contained resin. The bottles were packed directly inside the inner PVC drum bag.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC-7.3, poly bag and bottles-14.9, cemented resin-197.7, oil dry-7.5.

WIPP-WAC Compliance Information: 1. Particulates 49.35 grams of resin and cement fines were obtained by sieving 3 bottles which contain some fines. Analysis of the particulate indicates that the waste contains 1.3E-3 wt% <212 micron particles and 4.8E-6 wt% <10 micron particles.

Packaging Efficiency: 80%
Volume % Combustibles: 10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Resins

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 02-10288
Content Code: 432
Container Wt (lb): 270
Original Assay (g): 26.0-Pu, 0.0-Am
Packaging Location: Building 771, Room 181

RADIOGRAPHIC EXAMINATION

Examination Date: 11-9-84
Liner Type:
Lead-Lined: No Other Lead:

Waste Form Description: Resin

Packaging Description: Resin packed in poly bottles then put in bags

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: 12 gallons Type: Resin

Packaging Efficiency:
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 20 lbs of organic material

WIPP-Certifiable: Yes

Container Type: Drum
Code Description: Resin, leached and cemented
Surface Dose Rate (mR/h): <0.5
Reassay (g): 19.0-Pu, 0.1-Am
Date Packaged: 1-28-73

VISUAL EXAMINATION

Examination Date: 3-1-85
Container Condition: Exterior-some light rust, Interior-some moderate rust
Lead Lined: No
Liner Type: Type 1, 90 mil

Waste Form Description: Cemented resin in 17 poly bottles. White powder in a gallon paint can.

Packaging Description: Type 1 rigid liner was lined with a PVC outer bag and a polethylene inner drum bag. A total of 17 wide mouth gallon bottles contained resin. The bottles were paired in packages of PVC and poly. A one-gallon paint can contained a partially solidified white powder.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): PVC-7.5, poly bags and bottles-14.2, gallon paint can and solidified material-4.8, cemented resins-157.3, oil dry-4.0.

WIPP-WAC Compliance Information: 1. Free liquids-520 ml liquid was found in the inner drum bag. analysis indicates a pH of 7 and composition of water and sodium nitrate. 2. Particulates 249.71 grams of particulate (probably MgO fire suppressant sand) was located in a gallon paint can. analysis indicates the waste contained 0.037 wt% <212 micron particles and 4.0E-4 wt% <10 micron particles.

Packaging Efficiency: 80%
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No free liquids (<20 ml)

Waste Form Category: Mixed Waste-Paper, Metal, Glass, etc.

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 01-08068
Content Code: Unknown (RFP-241)**
Container Wt (lb): 370
Original Assay (g): 0.0-Pu, 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Americium waste
Surface Dose Rate (mR/h): 38.0
Reassay (g): 1.2-Pu, 3.5-Am*
Date Packaged: 12-5-72

RADIOGRAPHIC EXAMINATION

Examination Date:
Liner Type:
Lead-Lined: Yes ~100 lbs Other Lead:

Waste Form Description:

Packaging Description:

Absorbent Information: None

Free Liquids: Quantity: Contained:
Compressed Gases: Type: Quantity:
Particulates: Quantity: Type:

Packaging Efficiency:
Volume % Combustible:
Correct Content Code? New Code:
Other Information:

WIPP-Certifiable: No-unable to penetrate sufficient to confirm contents.

VISUAL EXAMINATION

Examination Date: 3-3-85
Container Condition: Interior-moderate to heavy rust, Exterior-light rust
Lead Lined: Yes
Liner Type: Type I, 90 mil

Waste Form Description: Miscellaneous waste including 2 packages of metal (steel pipe, flange) 3 packages of plastic (sheet PVC, poly), 1 package of HEPA filter, 1 package of ful-flow filter, and 8-1 gal wide mouth bottles with liquid on package).

Packaging Description: Type I rigid liner was lined with lead, then 2 poly drum bags. The lead lid was outside the rigid liner on top, however, the waste items were double bagged in PVC inner and poly outer bags.

Absorbent Information: Oil dry was located outside of the drum bags in the bottom of the rigid liner.

Physical State of Waste: Dry
Component Weight (LB): Ful-flow filters-2.2, PVC, poly sheet and bottles-37.5, iron pipe, flange-16.3, lead sheeting 56.5, HEPA filter-4.0, liquids-54.0, oil dry-5.0.

WIPP-WAC Compliance Information: 1. Free liquids approximately 22,700 ml of liquid was located in 8-1 gal containers located in the waste. Due to the high dose rate encountered with this waste (to 1 R/hr), no sample was taken).

Packaging Efficiency: 90%
Volume % Combustibles: 30%
Correct Content Code? Yes** New Code: 330
Other Information: *Too dense, due to lead lining, for a reliable gamma scan. This is an estimate only.
**241 is an old code. Waste is now segregated. The old code is correct. The new code is shown for reference only.
WIPP-Certifiable: No-free liquids (22.7 liters)

Waste Form Category: Mixed Waste-Paper, Metal, Glass, etc

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 1371-586
Content Code: 950
Container Wt (lb): 2748
Original Assay (g): 0.2-Pu, 0.0 A
Packaging Location: Building 771, Room 152

RADIOGRAPHIC EXAMINATION

Examination Date: 11-7-84
Liner Type: Box liner
Lead-Lined: No Other Lead:

Waste Form Description: Metal items. Sheet of wood or small board.

Packaging Description: Waste is packed in poly bagging material, then placed inside box liner. Metal items on top. Bottom portion contains sheet of wood or small board.

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: 80%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Container Type: Box
Code Description: LSA metal, glass, etc.
Surface Dose Rate (mR/h): 0.5
Reassay (g): Not performed
Date Packaged: 3-1-73

VISUAL EXAMINATION

Examination Date: 12-21-84
Container Condition: Box and fiberglass condition was very good.
Lead Lined: No
Liner Type: PVC/cardboard

Waste Form Description: Miscellaneous waste including paper (cardboard, box liner), plastic (cord, bags), plexiglass (1" steel) aluminum, lead (tape, gloveport covers) steel (light fixtures, pipe, nuts, bolts, I-beam electrical junction box, trash can, furnace, conduit, drum track, tools, door) leaded gloves, leaded glass, wood, sheetrock, section of glovebox front.

Packaging Description: The box was lined with a PVC liner, then a cardboard liner. Waste items were loose-packed, wrapped in tape, single or double-bagged. Most of the waste, except sheetrock, was taped to prevent sharp corners and double bagged in poly.

Absorbent Information: No absorbents were present.

Physical State of Waste: Dry
Component Weight (LB): Paper-29.0, plastic-7.4, plexiglass-61.6, aluminum-2.0, lead-113.1, steel-882.6, leaded glass-367.0, wood-103.4, sheetrock-481.8.

WIPP-WAC Compliance Information: 1.Particulates.- 101.70 grams of sheetrock fines were collected. Analysis of the particulate indicated the waste contained 1.8 E-3 wt % <212 micron particles and 3.2 E-6 wt % <10 micron particles.

Packaging Efficiency: 100%
Volume % Combustibles: 3%
Correct Content Code? Yes* New Code: 480
Other Information: *950 is an old code for Low Specific Activity metal, glass, etc. used until 1974 This waste is now segregated into the proper codes. The old code is correct; the new code is shown for reference only.

WIPP-Certifiable: Yes

Waste Form Category: Filters

Time Period: 12-year

GENERAL INFORMATION

Container Identification: 89-03509
Content Code: 360 (RFP-338)
Container Wt (lb): 115
Original Assay (g): 0.0-Pu, 0.0-Am
Packaging Location:

Container Type: Drum
Code Description: Insulation
Surface Dose Rate (mR/h): <0.5
Reassay (g): 0.3-Pu, 0.2-Am
Date Packaged: 1-19-73

RADIOGRAPHIC EXAMINATION

Examination Date: 12-7-84
Liner Type: Poly and cardboard
Lead-Lined: No Other Lead:

Waste Form Description: Insulation. Cement added to bags

Packaging Description: Packed in poly and cardboard liner (no 90-mil liner). Cement added to bags

Absorbent Information: None

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Yes Quantity: 1 gallon Type: Cement

Packaging Efficiency: 90%
Volume % Combustible: <25%
Correct Content Code? Yes New Code:
Other Information: 24 lbs of organic materials

WIPP-Certifiable: No-particulates (1 gallon of cement)

VISUAL EXAMINATION

Examination Date: 3-3-85
Container Condition: Exterior-light to moderate rust, Interior-some light rust
Lead Lined: No
Liner Type: Polyethylene drum bags

Waste Form Description: Insulation for 1 inch pipe.

Packaging Description: A rigid 90-mil liner was not used. The drum was double-lined with polyethylene drum bags. Two packages of insulation were inside the drum, each package was single bagged in poly drum bags.

Absorbent Information: Oil-Dri was located outside of the drum bags in the bottom of the drum. A very small amount of Portland cement was located inside the drum liner.

Physical State of Waste: Dry
Component Weight (LB): 4 ea. poly drum bags-4.0, insulation-48.0, Oil-Dri-2.4.

WIPP-WAC Compliance Information: 1. Particulates-134.17 grams of insulation fines were collected from the entire drum. Analysis of the particulate indicates that the waste contained 0.11 wt% <212 micron particles and 1.0E-3 wt% <10 micron particles.

Packaging Efficiency: 100%
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VOLUME I

APPENDIX C

LAND Content Code Description

APPENDIX C

LOS ALAMOS NATIONAL LABORATORY
VALID WASTE CODES

Code	Waste Material Description
A 10	Graphite
A 14	Combustible room decon waste
A 15	Mixed cellulosics
A 16	Plastic materials
A 17	Rubber materials
A 18	Mixed paper, plastic, rubber, etc.
A 19	Mixed Combustible/ Noncombustible trash
A 20	Hydrocarbon oils
A 21	Silicon base oils
A 25	Leached process residues
A 26	Evaporator bottoms (salts)
A 27	Nitrate salts
A 28	Chloride salts
A 29	Hydroxide cake
A 30	PN equipment
A 31	Non-PN equipment
A 32	PN size reduced equipment (SRF only)
A 33	Non-PN size reduced equipment (SRF only)
A 35	Combustible building debris
A 36	Noncombustible building debris
A 40	Combustible hot-cell waste
A 41	Noncombustible hot-cell waste
A 45	Uranium chips and/or turnings
A 46	Skull and oxide
A 47	Slag and porcelain crucibles
A 50	Metal crucibles, scrap, dies
A 51	Precious metals
A 52	Other scrap metals
A 55	Filter media
A 56	Filter media residues
A 60	Other combustibles
A 61	Other noncombustibles
A 65	Animal tissue
A 70	Chemical waste
A 71	Be
A 72	Hg
A 73	Counting vials and solution
A 74	Ion exchange resin
A 75	Chemical treatment sludge
A 76	Cement paste
A 77	Vermiculite
A 80	Sources
A 85	Firing point residues
A 90	Contaminated soil
A 95	Glass
A 99	Unidentified material

VOLUME I

APPENDIX D

LANL Radiographic and Visual
Examination Results

APPENDIX D

TABLE OF CONTENTS

Combustibles (LANL-^{238}Pu) D-3

Metal (LANL-^{238}Pu) D-7

Mixed Waste (LANL-^{238}Pu) D-13

Combustibles (LANL-^{239}Pu) D-21

Metal (LANL-^{239}Pu) D-27

Cemented Sludges (LANL-^{239}Pu) D-28

Mixed Waste (LANL-^{239}Pu) D-32

Particulate Wastes (LANL-^{239}Pu) D-34

Waste Form Category: Other Combustibles

Time Period: 36-months

GENERAL INFORMATION

Container Identification: BFB-14
Content Code: A-60
Container Wt (Kg): 27.3
Original Assay (g): 1.3
Packaging Location: CMB-11, TA-55
Radionuclide: ^{238}Pu

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Smaller containers inside bags
All low density.

Packaging Description: Bagged, low-density trash.

Absorbent Information: None

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: Approximately 1/2 full.
Volume % Combustible: 95%
Correct Content Code? Perhaps New Code:A-14
Other Information:

WIPP-Certifiable: Yes

Container Type: 30-gal drum
Code Description: Other Combustibles
Surface Dose Rate (mR/h): 2 mr
Reassay (g): 0.17
Date Packaged: 7-23-80

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Exterior very good, interior bright and shiny.
Lead Lined: No
Liner Type: None

Waste Form Description: Empty alcohol bottle, HF bottle, gloves, rags, cheesecloth.

Packaging Description: Double-bagged trash from room cleanup.

Absorbent Information: None

Physical State of Waste: Dry & clean. Not deteriorated.

Component Weight (Kg): 9.9

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume: 94%

Packaging Efficiency: 50%
Volume % Combustibles: 95%
Correct Content Code? Ok New Code: A-14 would be more specific
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Other Combustibles

Time Period: 36-months

GENERAL INFORMATION

Container Identification: BFB-20
Content Code: A-60
Container Wt (Kg): 24.1
Original Assay (g): 2.2
Packaging Location: CMB-11, TA-55
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Other Combustibles
Surface Dose Rate (mR/h): ≤ Background
Reassay (g): 0.0
Date Packaged: 7-29-80

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Nothing specifically identified.

Packaging Description: Plastic bag, smaller more dense areas inside. Several smaller bags?

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: About 1/2 full
Volume % Combustible: Probably 100%
Correct Content Code? Ok New Code: A-16 would be more specific.
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Exterior, very good, interior, clean and dry.
Lead Lined: No
Liner Type: None

Waste Form Description: Two bagout bags, each filled with plastic sleeves.

Packaging Description: Plastic bags in 30-gal drum.

Absorbent Information: None

Physical State of Waste: Dry and clean.

Component Weight (Kg): 14

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume: 80.6%

Packaging Efficiency: 50%
Volume % Combustibles: 100%
Correct Content Code? Acceptable New Code: A-16 would be more specific
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 8-months

GENERAL INFORMATION

Container Identification: BFB-191
Content Code: A-18
Container Wt (Kg): 24.5
Original Assay (g): 11.6
Packaging Location: MST-DO, TA-55
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed paper, plastic, rubber, etc.
Surface Dose Rate (mR/h): 15 mr
Reassay (g): 12.1
Date Packaged: 1-12-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Not possible to discern contents.

Packaging Description: 5 or 6 plastic or thin steel containers; one horizontal lying on top of vertical ones on bottom.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: Probably 90% filled.
Volume % Combustible: Probably 50%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good Internal, Slight rust-colored film.
Lead Lined: No
Liner Type: Double plastic bag, but no liner per se.

Waste Form Description: Plastic Ziplocks, sample vials, gaskets, cheesecloth, sandpaper.

Packaging Description: Metal cans holding inner bagged-out metal cans.

Absorbent Information: None

Physical State of Waste: Dry, slight rust-colored film.

Component Weight (Kg): 10.2

WIPP-WAC Compliance Information: Appears to be in compliance.*

Computed Void Volume: 93.9%

Packaging Efficiency: 8% void
Volume % Combustibles: 80%
Correct Content Code? Yes New Code
Other Information:

WIPP-Certifiable: Yes

* A sample of [illegible] taken from one of the bags, but there [illegible]

Waste Form Category: Other combustibles

Time Period: 35-months

GENERAL INFORMATION

Container Identification: BFB-27
Content Code: A-60
Container Wt (Kg): 25.1
Original Assay (g): 1.18
Packaging Location: CMB-11, TA-55
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Other combustibles
Surface Dose Rate (mR/h): ≤ Background
Reassay (g): 0.47
Date Packaged: 9-12-80

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Appeared to be several plastic bags inside one larger plastic bag. Small circular dense spot near bottom, one dense object.

Packaging Description: Plastic bag inside drum.

Absorbent Information: None

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: About 2/3 full.
Volume % Combustible: 100% of contents.
Correct Content Code? Ok New Code: A-18 is more specific
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Exterior, very good. Interior, clean and dry.
Lead Lined: No
Liner Type: None

Waste Form Description: A single plastic bag of paper, surgeon's gloves, cheese cloth, plastic. No dust, no liquid, no deterioration.

Packaging Description: A single plastic bag of waste.

Absorbent Information: None

Physical State of Waste: Dry, in good condition.

Component Weight (Kg): 14.7

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume: 91.7%

Packaging Efficiency: 30% void
Volume % Combustibles: 100%
Correct Content Code? Acceptable New Code: A-18 would be better.
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Other Non-combustibles

Time Period: 37-months

GENERAL INFORMATION

Container Identification: BFB-19
Content Code: A-61
Container Wt (Kg): 31.8
Original Assay (g): 5.6
Packaging Location: CMB-11, TA-55
Radionuclide: ^{238}Pu

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Appeared to be glassware in bagged cylindrical containers. Some small, dense objects.

Packaging Description: Bagged cylindrical containers.

Absorbent Information: No

Free Liquids: No Quantity: Contained:

Compressed Gases: No Type: Quantity:
Particulates: None detected. Quantity: Type:

Packaging Efficiency: ~80% filled.
Volume % Combustible: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Container Type: 30-gal drum
Code Description: Other non-combustibles
Surface Dose Rate (mR/h): 15 mr
Reassay (g): 0.52
Date Packaged: 7-29-80

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Exterior very good, interior clean and dry
Lead Lined: No
Liner Type: None

Waste Form Description: Inside can, bagged metal can containing alundum. 2nd can, gasket 3rd can, hot pressing dies. 4th can, glassware. Some red dust in this can, but not enough to collect.

Packaging Description: Bagged metal cans

Absorbent Information: None

Physical State of Waste: Clean and dry.

Component Weight (Kg): 14.9

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume:

Packaging Efficiency: 15% void
Volume % Combustibles: 5%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 9 years, 3 months

GENERAL INFORMATION

Container Identification: BFB-235
Content Code: A-18
Container Wt (Kg): 22.7
Original Assay (g): 1.9
Packaging Location: CMB-11, TA-21
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed paper, plastic, rubber, etc.
Surface Dose Rate (mR/h): 9 mr
Reassay (g): 2.1
Date Packaged: 10-29-74

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Some plastic.

Packaging Description: Some small 2R containers; several short, one longer, larger cylindrical container at bottom.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: About 1/2 full.
Volume % Combustible:
Correct Content Code? Doubtful New Code: Probably A-61
Other Information:

WIPP-Certifiable: Yes, after code change.

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good, a little rust on one side of lid. Internal, clean and dry, trace of rust film.
Lead Lined: No
Liner Type: None

Waste Form Description: 28 rusty cans, crushed. 26 crushed one-gallon cans. Some aluminum foil. Two, 2" pipe nipples, capped on both ends. A one-gallon can filled with empty cans.

Packaging Description: A leverpak inside the drum.

Absorbent Information: None

Physical State of Waste: Clean and dry.

Component Weight (Kg): 29.5

WIPP-WAC Compliance Information: In compliance after change in waste code.

Computed Void Volume:

Packaging Efficiency: 50% in leverpak.
Volume % Combustibles: 10%
Correct Content Code? No New Code: A-61
Other Information.

WIPP-Certifiable: Yes

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 9 years 3 months

GENERAL INFORMATION

Container Identification: 8FB-237
Content Code: A-18
Container Wt (Kg): 54.5
Original Assay (g): 4.2
Packaging Location: CMB-11, 1A-21
Radionuclide: ^{238}Pu

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Some cylindrical objects.

Packaging Description: Several pieces of dense apparatus in an array indicating several bags.

Absorbent Information: None

Free Liquids: No Quantity: Contained:

Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: About 3/4 full.
Volume % Combustible: Could not tell.
Correct Content Code? No New Code: A-61
Other Information:

WIPP-Certifiable: Probably

Container Type: 30-gal drum
Code Description: Mixed paper, plastic, rubber, etc.
Surface Dose Rate (mR/h): 9 mr
Reassay (g): 3.5
Date Packaged: 10-29-74

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good. Some rust on lid. Internal, very little rust film.
Lead Lined: No
Liner Type: None

Waste Form Description: Rusty vises, sieves, pipe, rods, cans, hand tools, garden hose, hammers, screwdrivers. No loose rust.

Packaging Description: Plastic-wrapped leverpak inside drum.

Absorbent Information: None

Physical State of Waste: Dry. No free rust available.

Component Weight (Kg): 38.6

WIPP-WAC Compliance Information: Appears to be in compliance with new waste code.

Computed Void Volume:

Packaging Efficiency: 20% Void.
Volume % Combustibles: 10%
Correct Content Code? No New Code: A-61
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 9 years, 3 months

GENERAL INFORMATION

Container Identification: BFB-238
Content Code: A-18
Container Wt (Kg): 45.5
Original Assay (g): 0.5
Packaging Location: CMB-11, TA-21
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed paper, plastic, rubber, etc.
Surface Dose Rate (mR/h): 3.5 mr
Reassay (g): 0.0
Date Packaged: 10-29-74

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Appears to be tubing and apparatus.

Packaging Description: Cylindrical container, appears to be nearly full.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: About 90% full.
Volume % Combustible: Could not tell.
Correct Content Code? Doubtful New Code: A-61
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, some rust on lid and drum, but still good. Internal, rusty inside both drum and leverpak.
Lead Lined: No
Liner Type: None

Waste Form Description: 10 rusty containers, 5 pressure vessels, stainless door frame and gasket, 2 halves of a plastic window port, empty plastic bagout stubs, 8 transfer cans, miscellaneous pieces of metal all rusty except stainless. After much shaking and banging, 0.98 g of rust was collected. Only 4% was smaller than 200 microns, so it would meet WIPP-WAC criteria.

Packaging Description: Leverpak inside a plastic bagout.

Absorbent Information: None

Physical State of Waste: Dry, very rusty.

Component Weight (Kg): 29.5

WIPP-WAC Compliance Information: In compliance after change in waste code.

Computed Void Volume:

Packaging Efficiency: 30% void in leverpak
Volume % Combustibles: 10%
Correct Content Code? No New Code: A-61
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 9 years, 3 months

GENERAL INFORMATION

Container Identification: BFB-239
Content Code: A-18
Container Wt (Kg): 61.8
Original Assay (g): 1.4
Packaging Location: CMB-11, A-21
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed paper, plastic, rubber, etc.
Surface Dose Rate (mR/h): 6 mr
Reassay (g): 0.65
Date Packaged: 10-29-74

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: 2R containers? Small drill press vise? Larger cylindrical containers.

Packaging Description: Plastic-bagged containers of more dense materials.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: About 3/4 full.
Volume % Combustible: Appears to be low 10%
Correct Content Code? No New Code: A-61
Other Information:

WIPP-Certifiable: Yes, with change in content code

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good. Internal, clean and dry.
Lead Lined: No
Liner Type: None

Waste Form Description: Plastics, metals, and glass tubes, metal tubes, scrap metals, desiccator, heat lamp, glass bottles, broken glass, metal tools.

Packaging Description: Plastic-wrapped metal cans containing a variety of wastes.

Absorbent Information: None

Physical State of Waste: Clean and dry.

Component Weight (Kg): 45.9

WIPP-WAC Compliance Information: In compliance after change of waste code.

Computed Void Volume:

Packaging Efficiency: 5% Void.
Volume % Combustibles: 10%
Correct Content Code? No New Code: A-61
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 9 years, 3 months

GENERAL INFORMATION

Container Identification: BFB-240
Content Code: A-18
Container Wt (Kg): 50
Original Assay (g): 1.7
Packaging Location: CMB-11, TA-21
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed paper, plastic, rubber, etc.
Surface Dose Rate (mR/h): 13 mr
Reassay (g): 1.1
Date Packaged: 10-29-74

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Appears to be tools and laboratory apparatus.

Packaging Description: Plastic bags in drum.

Absorbent Information: No

Free Liquids: None seen Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: 2/3 filled.
Volume % Combustible: Could not tell.
Correct Content Code? No New Code: A-61
Other Information:

WIPP-Certifiable: Probably--could not tell.

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Exterior, lid rust water standing on lid when cask opened. Drum structurally sound. Interior, rusty.
Lead Lined: No
Liner Type: None

Waste Form Description: Die, desiccator, empty glass containers, power huse for furnace, rusty cans and metal objects.

Packaging Description: Double-bagged leverpak. Approximately 150 ml H_2O between bags. Leverpak saturated.

Absorbent Information: None

Physical State of Waste: Wet and rusty.

Component Weight (kg): 29.5

WIPP-WAC Compliance Information: Non-compliance due to free liquid.

Computed Void Volume:

Packaging Efficiency: 30% Void.
Volume % Combustibles: Maybe 10%
Correct Content Code? No New Code: A-61
Other Information:

WIPP-Certifiable: No. Free liquids (150 ml H_2O).

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 7 months

GENERAL INFORMATION

Container Identification: 8FB-92
Content Code: A-18
Container Wt (Kg): 23.6
Original Assay (g): 7.7
Packaging Location: MST-DO, TA-55
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed paper, plastic, rubber, etc.
Surface Dose Rate (mR/h): 7 mr
Reassay (g): 4.4
Date Packaged: 1-24-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: No clue as to specific contents.

Packaging Description: Cylindrical containers in drum. Low, uniform density.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Observed. Quantity: Type:

Packaging Efficiency: About 1/2 full.
Volume % Combustible: Could not estimate.
Correct Content Code? No New Code: A-19
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Very good externally, clean inside with some rust color.
Lead Lined: No
Liner Type: None

Waste Form Description: Inside one ice cream carton Al_2O_3. Others contained cheesecloth, lead-wrapped vials, graphite solids.

Packaging Description: Ice cream carton within a metal can within a metal can. Carton in plastic bagout.

Absorbent Information: None

Physical State of Waste: Dry, clean, some rust color.

Component Weight (Kg): 7.7

WIPP-WAC Compliance Information: Appears to be in compliance with new waste code assigned.

Computed Void Volume:

Packaging Efficiency: 40% Void.
Volume % Combustibles: 25%
Correct Content Code? No New Code: A-19
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Mixed combustible-noncombustible

Time Period: 8 months

GENERAL INFORMATION

Container Identification: BFB-96
Content Code: A-19
Container Wt (Kg): 32.2
Original Assay (g): 10.2
Packaging Location: MST-DO, TA-55
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed combustible-noncombustible
Surface Dose Rate (mR/h): 13 mr
Reassay (g): 10.1
Date Packaged: 1-03-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Several cylinders in bottom, probably in low density overpack. Some circular dense spots.

Packaging Description: Top bag contains more dense material in cylindrical container.

Absorbent Information: None

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: 3/5 full.
Volume % Combustible: Perhaps 50%.
Correct Content Code? Yes New Code: A-19
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good. Internal, clean and dry.
Lead Lined: No
Liner Type: None

Waste Form Description: Lead-lined gloves, cheesecloth, plastic bagouts.

Packaging Description: A bucket and 3 metal containers, all in plastic bags.

Absorbent Information: None

Physical State of Waste: Dry, clean.

Component Weight (Kg): 16.9

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume:

Packaging Efficiency: 20% Void.
Volume % Combustibles: 50%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Mixed combustible-noncombustible

Time Period: 8 months

GENERAL INFORMATION

Container Identification: BFB-97
Content Code: A-19
Container Wt (Kg): 51.5
Original Assay (g): 9.4
Packaging Location: MST-DO, TA-55
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed combustible-noncombustible
Surface Dose Rate (mR/h): 15 mr
Reassay (g): No record
Date Packaged: 1-03-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Cylindrical dark blobs--probably metallic vials or canisters--all in a larger, less dense container.

Packaging Description: Several containers; one lying on its side on top.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: 90% full.
Volume % Combustible: Probably 50%.
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Very good exterior--some handling scratches around one rolling hoop. Some rust-colored stains inside.
Lead Lined: No
Liner Type: None

Waste Form Description: Wire and plastic bottles (empty). Inside bagged-out cans, deteriorated cheesecloth, Ziplock containers, aluminum foil, rusty cans, hacksaw blade, small pressure vessel, paintbrushes, pliers.

Packaging Description: Metal containers holding bagged-out metal containers.

Absorbent Information: None

Physical State of Waste: Dry, rust colored.

Component Weight (Kg): 20.07

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume:

Packaging Efficiency: 5% Void.
Volume % Combustibles: 35%
Correct Content Code? Yes New Code
Other Information:

WIPP-Certifiable: Ye

Waste Form Category: Mixed combustible-noncombustible trash

Time Period: 7 months

GENERAL INFORMATION

Container Identification: BFB-102
Content Code: A-19
Container Wt (Kg): 32
Original Assay (g): 3.4
Packaging Location: MST-DO, TA-55
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed combustible-noncombustible trash
Surface Dose Rate (mR/h): 7 mr
Reassay (g): 2.4
Date Packaged: 1-27-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Appeared to be hydraulic jack, several plastic containers, and a Boston round bottle.

Packaging Description: Plastic bags in drum.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: 3/4 filled.
Volume % Combustible: Could not tell; maybe 30%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good. Internal, Clean, dry and shiny.
Lead Lined: No
Liner Type: None

Waste Form Description: Punctured WD-40 can, another empty can, cheesecloth, pieces of metal, crushed aluminum foil.

Packaging Description: Double plastic-wrapped metal cans containing bagged-out metal cans.

Absorbent Information: None

Physical State of Waste: Dry, clean and shiny.

Component Weight (Kg): 14.9

WIPP-WAC Compliance Formation: Appears to be in compliance.

Computed Void Volume: 92.7%

Packaging Efficiency: 15% Void.
Volume % Combustibles: 20%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Mixed combustible-noncombustible trash

Time Period: 7 months

GENERAL INFORMATION

Container Identification: BFB-103
Content Code: A-19
Container Wt (Kg): 29
Original Assay (g): 6.8
Packaging Location: MST-DO, TA-55
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed combustible-noncombustible trash
Surface Dose Rate (mR/h): 5 mr
Reassay (g): 6.5
Date Packaged: 1-26-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: One small one (4 x 4) on bottom. No indication of contents.

Packaging Description: Cans in plastic bags--one horizontal on top, 4 vertical on bottom.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: 2/3 full.
Volume % Combustible: Could not tell.
Correct Content Code? Probably New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good. Internal, clean and dry.
Lead Lined: No
Liner Type: None

Waste Form Description: Bagged-out cans containing vials and glass jars, cheesecloth, Ziplock bags. Inside cans were corroded on their insides.

Packaging Description: Double plastic-wrapped metal containers.

Absorbent Information: None

Physical State of Waste: Dry, not deteriorated.

Component Weight (Kg): 12.3

WIPP-WAC Compliance Information: Appears to be in compliance.*

Computed Void Volume:

Packaging Efficiency: 30% Void.
Volume % Combustibles: Probably 50%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

* A sample of partially decomposed cheesecloth was taken from one of the bags, but there appeared to be no reason to analyze it

Waste Form Category: Other Combustibles

Time Period: 35 months

GENERAL INFORMATION

Container Identification: BFB-26
Content Code: A-60
Container Wt (Kg): 25.4
Original Assay (g): 1.05
Packaging Location: CMB-11, TA-55
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Other Combustibles
Surface Dose Rate (mR/h): 0.2 mr
Reassay (g): 0.0
Date Packaged: 9-16-80

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Forceps, wide-mouth bottle, 2-liter acid bottle, less dense material near bottom.

Packaging Description: Bagged trash inside drum.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: 2/3 full.
Volume % Combustible: Probably 50%
Correct Content Code? No New Code: A-19
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Exterior, very good. Interior, clean and dry, tinge of rust color.
Lead Lined: No
Liner Type: None

Waste Form Description: Empty nitric acid and HF bottles, aluminum foil, gloves, plastics, empty gallon jar, cheesecloth.

Packaging Description: Plastic bagged trash.

Absorbent Information: None

Physical State of Waste: Dry, slightly decomposed.

Component Weight (Kg): 14.8

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume: 90.9%

Packaging Efficiency: 35% Void.
Volume % Combustibles: 50%
Correct Content Code? No New Code: A-19
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Other Combustibles

Time Period: 39 months

GENERAL INFORMATION

Container Identification: 8FB-12
Content Code: A-60
Container Wt (Kg): 18.6
Original Assay (g): 6.6
Packaging Location: CMB-11, TA-55
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Other Combustibles
Surface Dose Rate (mR/h): 80 mr
Reassay (g): 4.85
Date Packaged: 5-30-80

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Large cylindrical container at angle on top, more dense objects, probably tools, near bottom.

Packaging Description: Several plastic bags inside drum. Can inside top bag.

Absorbent Information:

Free Liquids: No Quantity: Contained:

Compressed Gases: No Type:
Particulates: No Quantity: Quantity:
Type:

Packaging Efficiency: 3/4 full.
Volume % Combustible:
Correct Content Code? Perhaps New Code: A-19 might be better.
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Good. Slight rust film but not enough to collect particulate.
Lead Lined: No
Liner Type: None

Waste Form Description: There were zones where the rust had penetrated the can and created pinholes. Cheesecloth and filter paper contents of can were partially burned. 2nd plastic bag contained rags, cheesecloth, drill bits, crescent wrenches, paper, gloves, broken glass. No deterioration in this bag.

Packaging Description: Double plastic bagged metal can.

Absorbent Information: No

Physical State of Waste: Dry.

Component Weight (Kg): 6.5

WIPP-WAC Compliance Information: Appears to be in compliance.*

Computed Void Volume:

Packaging Efficiency: 15% Void.
Volume % Combustibles: 50-60%
Correct Content Code? Doubtful New Code: A-19
Other Information: more appropriate

WIPP-Certifiable: Yes

* Portions of partially charred cheesecloth and filter paper were removed as a sample from one of the container bags, but there appeared to be no reason to analyze it.

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 9 years, 3 months

GENERAL INFORMATION

Container Identification: BFB-234
Content Code: A-18
Container Wt (Kg): 22.7
Original Assay (g): 18.2
Packaging Location: CMB-11, TA-21
Radionuclide: ^{238}Pu

Container Type: 30-gal drum
Code Description: Mixed paper, plastic, rubber, etc.
Surface Dose Rate (mR/h): 120 mr
Reassay (g): 13.0
Date Packaged: 10-29-74

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Some more dense areas. Might be discarded equipment.

Packaging Description: Drum appeared more dense than some of the others. 2 cylindrical objects. Not clear.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: 2/3 full.
Volume % Combustible: Could not tell.
Correct Content Code? Not sure New Code:
Other Information:

WIPP-Certifiable: Probably, but could not tell for sure.

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Exterior, very good. Interior, drum rusty on bottom.
Lead Lined: No
Liner Type: None

Waste Form Description: Bagout full of small sealed cans. Can of wet material which reacted out of can and involved the other two cans. Was a ^{238}Pu material with a pH of 3.

Packaging Description: 4 plastic-bagged metal containers.

Absorbent Information: None

Physical State of Waste: 3 containers dry, one wet.

Component Weight (Kg): 6.6

WIPP-WAC Compliance Information: Non-compliance. The wet material will have to be rendered non-corrosive.

Computed Void Volume:

Packaging Efficiency: 8% Void.
Volume % Combustibles: 10%
Correct Content Code? No New Code: A-19
Other Information:

WIPP-Certifiable: Not until corrosive material has been neutralized.

Waste Form Category: Combustible Room Decon Waste

Time Period: 11 months

GENERAL INFORMATION

Container Identification: 010761
Content Code: A-14
Container Wt (Kg): 49
Original Assay (g): 0.47
Packaging Location: MST-DO, TA-55
Radionuclide: ^{239}Pu

Container Type: 55-gal drum
Code Description: Combustible Room Decon Waste
Surface Dose Rate (mR/h): 1 mr
Reassay (g): 0.0
Date Packaged: 1-26-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: .005" plastic.
Lead-Lined: No

Waste Form Description: Bags of low density trash, tubes, articles of lab glassware, more dense bundle on bottom of drum.

Packaging Description: Bagged trash.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: Probably 95% filled.
Volume % Combustible: Probably 80%.
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Good. Clean and dry with no serious dents or rust.
Lead Lined: No
Liner Type: .005" plastic.

Waste Form Description: Plastic bucket with cleaning materials, plastic floor covering, coveralls, gloves, wood scrap, plastic hand lotion bottle containing 2 oz. hand lotion, glass jars in plastic bag.

Packaging Description: Partially bagged, partially loose in liner.

Absorbent Information: None

Physical State of Waste: Dry except for damp coveralls and hand lotion.

Component Weight (Kg): 20.3

WIPP-WAC Compliance Information: Not in compliance with free liquid.

Computed Void Volume:

Packaging Efficiency: No significant void space.
Volume % Combustibles: 90%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: No-free liquid (2 oz).

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 11 months

GENERAL INFORMATION

Container Identification: 010605
Content Code: A-18
Container Wt (Kg): 64.7
Original Assay (g): 122
Packaging Location: MST-DO, TA-55
Radionuclide: ^{239}Pu

Container Type: 55-gal drum
Code Description: Mixed paper, plastic, rubber, etc.
Surface Dose Rate (mR/h): 15 mr
Reassay (g): 111
Date Packaged: 1-25-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: .005" plastic.
Lead-Lined: No

Waste Form Description:

Packaging Description: No record of radiograph.

Absorbent Information:

Free Liquids: Quantity: Contained:

Compressed Gases: Type: Quantity:
Particulates: Quantity: Type:

Packaging Efficiency:
Volume % Combustible:
Correct Content Code? New Code:
Other Information:

WIPP-Certifiable:

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good. Internal, clean and dry.
Lead Lined: No
Liner Type: .005" plastic.

Waste Form Description: Rags in four cylindrical metal containers, packed in 30-gal drum.

Packaging Description: Bagged-out 30-gal drum inside 55-gal drum.

Absorbent Information: None

Physical State of Waste: Clean and dry.

Component Weight (Kg): 7.9

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume: 97.1%

Packaging Efficiency: 80% Void in 30-gal drum
Volume % Combustibles: 100% of contents
Correct Content Code? Ok New Code: Could be A-15
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Plastic materials

Time Period: 11 months

GENERAL INFORMATION

Container Identification: 010753
Content Code: A-16
Container Wt (Kg): 70
Original Assay (g): 46
Packaging Location: MST-DO, TA-55
Radionuclide: ^{239}Pu

Container Type: 55-gal drum
Code Description: Plastic Materials.
Surface Dose Rate (mR/h): 12 mr
Reassay (g): 43
Date Packaged: 1-26-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: .005" plastic, taped to drum.
Lead-Lined: No

Waste Form Description: 30-gal drum containing separate bags of low-density material. Some cylindrical containers. One area in bottom more dense.

Packaging Description: Bagged-out 30 gal drum inside 55.

Absorbent Information: No

Free Liquids: None
Compressed Gases: None
Particulates: None

Quantity:
Type:
Quantity:

Contained:
Quantity:
Type:

Packaging Efficiency: 4/5 filled.
Volume % Combustible: Probably 100%
Correct Content Code? Yes
New Code: Could be A-18
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good. Internal, clean and dry.
Lead Lined: No
Liner Type: .005" plastic

Waste Form Description: Plastic bag of empty plastic bottles, bag of paper filters. Approximately 1 liter of loose, fine, brown dust loose in 30-gal drum.

Packaging Description: Bagged-out 30-gal drum inside 55-gal drum.

Absorbent Information: None

Physical State of Waste: Dry. 36 g of the brown powder is less than 200 microns, but this is only 0.6% of the total; waste is in compliance.

Component Weight (Kg): 6.3

WIPP-WAC Compliance Information: Waste is in compliance.

Computed Void Volume: 96.7%

Packaging Efficiency: 25% Void.
Volume % Combustibles: 100%
Correct Content Code? Ok
New Code: Could be A-18
Other Information:

WIPP-Certifiable Yes

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 11 months

GENERAL INFORMATION

Container Identification: 007060
Content Code: A-18
Container Wt (Kg): 47.2
Original Assay (g): 3.3
Packaging Location: CHM-1, SM-29
Radionuclide: ^{239}Pu, MFP, ^{241}Am

Container Type: 55-gal drum
Code Description: Mixed paper, plastic, rubber, etc.
Surface Dose Rate (mR/h): 1 mr
Reassay (g): 3.56
Date Packaged: 2-14-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description:

Packaging Description: This drum was not radiographed.

Absorbent Information:

Free Liquids: Quantity: Contained:
Compressed Gases: Type: Quantity:
Particulates: Quantity: Type:

Packaging Efficiency:
Volume % Combustible:
Correct Content Code? New Code:
Other Information:

WIPP-Certifiable:

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good. Internal, clean and dry, no dents, no dust.
Lead Lined: No
Liner Type: None

Waste Form Description: Gloves, rags, empty plastic vials shoe covers, empty ice cream containers, organic room trash.

Packaging Description: Large 5-mil plastic bag contained the waste inside the drum.

Absorbent Information: None

Physical State of Waste: Dry and clean.

Component Weight (Kg): 19.7

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume: 91.1%

Packaging Efficiency: 5% Void.
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Mixed paper, plastic, rubber, etc.

Time Period: 11 months

GENERAL INFORMATION

Container Identification: 007226
Content Code: A-18
Container Wt (Kg): 48.1
Original Assay (g): 0.4
Packaging Location: CHM-1, SM-29
Radionuclide: ^{239}Pu, ^{241}Am

Container Type: 55-gal drum
Code Description: Mixed paper, plastic, rubber, et .
Surface Dose Rate (mR/h): 2 mr
Reassay (g): 0.43
Date Packaged: 2-14-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: None
Lead-Lined: No

Waste Form Description: Organic trash, plus pipes or tubes, about 30 inches long.

Packaging Description: Variable density suggesting multiple bags of trash.

Absorbent Information: No

Free Liquids: None Quantity: Contained:

Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: Appeared almost full.
Volume % Combustible: Probably 80%.
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good. Internal, clean and dry.
Lead Lined: No
Liner Type: None

Waste Form Description: Empty ice cream cartons, glass vials, squeeze bottles, paper and rubber, bagged out in several separate plastic bags.

Packaging Description: Plastic bagged drybox trash.

Absorbent Information: None

Physical State of Waste: Dry.

Component Weight (Kg): 21.9

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume: 92.6%

Packaging Efficiency: 5% void space.
Volume % Combustibles: 100%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Other Combustibles

Time Period: 30 months

GENERAL INFORMATION

Container Identification: 010775
Content Code: A-60
Container Wt (Kg): 55.7
Original Assay (g): 27.9
Packaging Location: CMB-11, TA-55
Radionuclide: ^{239}Pu

Container Type: 55-gal drum
Code Description: Other Combustibles.
Surface Dose Rate (mR/h): 1 mr
Reassay (g): 42.4
Date Packaged: 6-02-81

RADIOGRAPHIC EXAMINATION

Examination Date: No record of radiograph.
Liner Type:
Lead-Lined:

Waste Form Description:

Packaging Description:

Absorbent Information:

Free Liquids: Quantity: Contained:
Compressed Gases: Type: Quantity:
Particulates: Quantity: Type:

Packaging Efficiency:
Volume % Combustible:
Correct Content Code? New Code:
Other Information:

WIPP-Certifiable:

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Good, both outside and inside. Inner drum very dirty, but structurally sound.
Lead Lined: No
Liner Type: .005" Plastic.

Waste Form Description: 9 separate bagout sleeves containing glass and metal parts, gloves, paper, plastic, tape, rags, scrap, plastic tubing. Also loose fine brown dust in inner drum.

Packaging Description: Inside of 55 was a 30-gal drum bagged out in .012" plastic.

Absorbent Information: None

Physical State of Waste: Dry. Damp rags inside of one bagout sleeve, but no free liquid.

Component Weight (Kg): 15.8

Type:

WIPP-WAC Compliance Information: In compliance. Quantity of brown dust was insignificant.

Computed Void Volume:

Packaging Efficiency: 10% Void.
Volume % Combustibles: 90%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Other Scrap Metals

Time Period: 12 months

GENERAL INFORMATION

Container Identification: 010435
Content Code: A-52
Container Wt (Kg): 84.9
Original Assay (g): 38
Packaging Location: MST-DO, TA-55
Radionuclide: ^{239}Pu

Container Type: 55-gal drum
Code Description: Other Scrap Metals
Surface Dose Rate (mR/h): 26 mr
Reassay (g): 39
Date Packaged: 1-20-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: Two .005" plastic bags.
Lead-Lined: No

Waste Form Description: Bag of dense material near top. 6 or 8 tubes in a cylindrical container. Large mashed can on bottom.

Packaging Description: Multiple bags and cans.

Absorbent Information: No

Free Liquids: None Quantity: Contained:
Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: About 4/5 filled.
Volume % Combustible: Quite low
Correct Content Code? Probably New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good. Internal, clean and dry.
Lead Lined: No
Liner Type: Double plastic bags.

Waste Form Description: Smashed, rusty cans, 2 pieces of pipe, moist filter cake (no free liquid). Fine filtering aid.

Packaging Description: Multiple bags in drum.

Absorbent Information: None

Physical State of Waste: Dry. The filtering aid was 35.4% of the total weight, and was all <70 microns.

Component Weight (Kg): 72.4

WIPP-WAC Compliance Information: Does not comply.

Computed Void Volume:

Packaging Efficiency: 15% Void.
Volume % Combustibles: 5% or less.
Correct Content Code? Partially New Code: Should be A-52, A-55, A-61
Other Information:

WIPP-Certifiable: No. Fines in filtering aid will have to be stabilized.

Waste Form Category: Chemical Treatment Sludge

Time Period: Approximately 1 year

GENERAL INFORMATION

Container Identification: 012124
Content Code: A-75
Container Wt (Kg): 201.9
Original Assay (g): 0.017, 0.17, 0.35
Packaging Location: TA-50
Radionuclide: ^{238}Pu, ^{239}Pu, ^{241}Am.

Container Type: 55-gal drum
Code Description: Chemical Treatment Sludge
Surface Dose Rate (mR/h): 5 mr
Reassay (g): 0.016-^{238}Pu, 0.015-^{239}Pu, 0.23-^{241}Am
Date Packaged: 01-26-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: 90-mil
Lead-Lined: No

Waste Form Description: Sludge.

Packaging Description: 90-mil HDPE liner.

Absorbent Information: Portland cement.

Free Liquids: No Quantity: Contained
Compressed Gases: No Type: Quantity:
Particulates: Meets criteria. Quantity: Type:

Packaging Efficiency: Full
Volume % Combustible: None
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Very good.
Lead Lined: No
Liner Type: 90-mil high density polyethylene

Waste Form Description: Sludge

Packaging Description: Sludge in above containers.

Absorbent Information: Portland cement.

Physical State of Waste: Solid. No free liquid.

Component Weight (Kg): 174.6

WIPP-WAC Compliance Information: Should be possible to certify.

Computed Void Volume:

Packaging Efficiency: 90-95%.
Volume % Combustibles: None
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Chemical Treatment Sludge

Time Period: Approximately 1 year

GENERAL INFORMATION

Container Identification: 012307
Content Code: A-75
Container Wt (Kg): 201.9
Original Assay (g): 0.017, 0.17, 0.36
Packaging Location: TA-50
Radionuclide: ^{238}Pu, ^{239}Pu, ^{241}Am.

Container Type: 55-gal drum
Code Description: Chemical Treatment Sludge
Surface Dose Rate (mR/h): 6 mr
Reassay (g): 0.027-^{238}Pu, 0.016-^{239}Pu, 0.24-^{241}Am
Date Packaged: 01-24-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: 90-mil
Lead-Lined: No

Waste Form Description: Sludge.

Packaging Description: 90-mil HDPE liner.

Absorbent Information: No

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Meets criteria. Quantity: Type:

Packaging Efficiency: Full
Volume % Combustible: None
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Very good.
Lead Lined: No
Liner Type: 90-mil high density polyethylene

Waste Form Description: Sludge

Packaging Description: Sludge in above containers.

Absorbent Information: None.

Physical State of Waste: Solid. No free liquid.

Component Weight (Kg): 179.2

WIPP-WAC Compliance Information: Should be possible to certify.

Computed Void Volume:

Packaging Efficiency: 95%
Volume % Combustibles: None
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Chemical Treatment Sludge

Time Period: Approximately 1 year

GENERAL INFORMATION

Container Identification: 012327
Content Code: A-75
Container Wt (Kg): 201.9
Original Assay (g): 0.017, 0.17, 0.36
Packaging Location: TA-50
Radionuclide: ^{238}Pu, ^{239}Pu, ^{241}Am.

Container Type: 55-gal drum
Code Description: Chemical Treatment Sludge
Surface Dose Rate (mR/h): 6 mr
Reassay (g): 0.015-^{238}Pu, 0.017-^{239}Pu, 0.24-^{241}Am
Date Packaged: 01-27-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: 90-mil
Lead-Lined: No

Waste Form Description: Sludge.

Packaging Description: 90-mil HDPE liner. ,

Absorbent Information: No

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Meets criteria. Quantity: Type:

Packaging Efficiency: Full
Volume % Combustible: None
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Very good.
Lead Lined: No
Liner Type: 90-mil high density polyethylene

Waste Form Description: Sludge

Packaging Description: Sludge in above containers.

Absorbent Information: None.

Physical State of Waste: Solid. No free liquid.

Component Weight (Kg): 179.2

WIPP-WAC Compliance Information: Should be possible to certify.

Computed Void Volume:

Packaging Efficiency: 95%
Volume % Combustibles: None
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Chemical Treatment Sludge

Time Period: Approximately 1 year

GENERAL INFORMATION

Container Identification: 012535
Content Code: A-75
Container Wt (Kg): 201.9
Original Assay (g): 0.017, 0.17, 0.36
Packaging Location: TA-50
Radionuclide: ^{238}Pu, ^{239}Pu, ^{241}Am.

Container Type: 55-gal drum
Code Description: Chemical Treatment Sludge
Surface Dose Rate (mR/h): 5 mr
Reassay (g): 0.006-^{238}Pu, 0.022-^{239}Pu, 0.29-^{241}Am
Date Packaged: 01-26-83

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: 90-mil
Lead-Lined: No

Waste Form Description: Sludge.

Packaging Description: 90-mil HDPE liner.

Absorbent Information: Portland cement

Free Liquids: No Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: Meets criteria. Quantity: Type:

Packaging Efficiency: Full
Volume % Combustible: None
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Very good.
Lead Lined: No
Liner Type: 90-mil high density polyethylene

Waste Form Description: Sludge

Packaging Description: Sludge in above containers.

Absorbent Information: Portland cement.

Physical State of Waste: Solid. No free liquid.

Component Weight (Kg): 179.2

WIPP-WAC Compliance Information: Should be possible to certify.

Computed Void Volume:

Packaging Efficiency: 95%
Volume % Combustibles: None
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Mixed Combustible-Noncombustible Trash

Time Period: 11 months

GENERAL INFORMATION

Container Identification: 010773
Content Code: A-19
Container Wt (Kg): 50.4
Original Assay (g): 0.1
Packaging Location: MST-DO, TA-55
Radionuclide: ^{239}Pu

Container Type: 55-gal drum
Code Description: Mixed Combustible-Noncombustible Trash
Surface Dose Rate (mR/h): 5 mr
Reassay (g): Apparently not done
Date Packaged: 1-26-83

RADIOGRAPHIC EXAMINATION

Examination Date: No record of radiograph.
Liner Type:
Lead-Lined:

Waste Form Description:

Packaging Description:

Absorbent Information:

Free Liquids: Quantity. Contained
Compressed Gases: Type: Quantity:
Particulates: Quantity: Type:

Packaging Efficiency:
Volume % Combustible:
Correct Content Code? New Code:
Other Information:

WIPP-Certifiable:

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Outside, very good. Inside, rust colored, damp.
Lead Lined: No
Liner Type: .005" Plastic

Waste Form Description: 5-30" pipe sections, taped. Included valves, also taped. Wet paper, rags, gloves, coveralls, but no free liquid.

Packaging Description: Partially bagged in plastic, partially loose in liner.

Absorbent Information: None

Physical State of Waste: Wet, but no free liquid.

Component Weight (Kg): 31.8

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume:

Packaging Efficiency: 20% Void..
Volume % Combustibles: 65%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Other Combustibles

Time Period: 30 months

GENERAL INFORMATION

Container Identification: 010756
Content Code: A-60
Container Wt (Kg): 40.5
Original Assay (g): 0.0
Packaging Location: CMB-11, TA-55
Radionuclide: Am-44, CF-48, BK-249

Container Type: 55-gal drum
Code Description: Other combustibles
Surface Dose Rate (mR/h): 5 mr
Reassay (g): 0.0
Date Packaged: 6-15-81

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: .005" plastic
Lead-Lined: No

Waste Form Description: Dense ring in bottom of 15.

Packaging Description: Smaller drum (15-gal?) inside 55.

Absorbent Information: No

Free Liquids: None Quantity: Contained:
Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: 15-gal drum about 1/3 filled.
Volume % Combustible: Probably at least 50%.
Correct Content Code? Possibly New Code: A-19 better.
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Good, externally. Some scraped paint. Internally, clean and dry.
Lead Lined: No
Liner Type: .005" plastic

Waste Form Description: Fluorescent bulb, roll of masking tape, empty vials, paper, metal and plastic scrap, foil, copper rings.

Packaging Description: 19-gal steel drum bagged out inside 55. Numerous quart and pint ice-cream cartons inside 19.

Absorbent Information: None

Physical State of Waste: Dry and clean.

Component Weight (Kg): 15.24

WIPP-WAC Compliance Information: In compliance with change of content code.

Computed Void Volume:

Packaging Efficiency: 65% Void.
Volume % Combustibles: 50%
Correct Content Code? No New Code: A-19
Other Information:

WIPP-Certifiable: Yes

Waste Form Category: Leached Process Residues

Time Period: 25 months

GENERAL INFORMATION

Container Identification: 010108
Content Code: A-25
Container Wt (Kg): 56.8
Original Assay (g): 80 (239) 0.3 (238)
Packaging Location: CMB-11, TA-55
Radionuclide: Mixed as shown

Container Type: 55-gal drum
Code Description: Leached process residues
Surface Dose Rate (mR/h): 13 mr
Reassay (g): 53 (239) 0.0 (238)
Date Packaged: 7-02-81

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: Double lined with 0.005" plastic, and taped.
Lead-Lined: No

Waste Form Description: Probably process solids.

Packaging Description: Numerous cylindrical containers within containers. Dense material.

Absorbent Information: No

Free Liquids: None Quantity: Contained:
Compressed Gases: None Type: Quantity:
Particulates: None Quantity: Type:

Packaging Efficiency: Probably 4/5 filled.
Volume % Combustible: Low--perhaps 5%.
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: External, very good; internal, clean and dry.
Lead Lined: No
Liner Type: Double .005" plastic, taped.

Waste Form Description: Solids such as $CaCl_2$, hydroxide cake, ceramic chips, 1 double-bagged "damp" dark powder.

Packaging Description: 14 units. Either can in bag in can, or can in can in can, or double plastic bagged.

Absorbent Information: None

Physical State of Waste: Dry except for damp powder mentioned above. No free liquid.

Component Weight (Kg): 33.44

WIPP-WAC Compliance Information: Appears to be in compliance.

Computed Void Volume:

Packaging Efficiency: 25% Void.
Volume % Combustibles: 5-10%
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Possibly

Waste Form Category: Leached Process Residues

Time Period: 30 months

GENERAL INFORMATION

Container Identification: 010925
Content Code: A-25
Container Wt (Kg): 227.3
Original Assay (g): 32.4
Packaging Location: CMB-11, TA-55
Radionuclide: ^{239}Pu

Container Type: 55-gal drum
Code Description: Leached process residues
Surface Dose Rate (mR/h): 2 mr
Reassay (g): Not done. Too heavy for equipment.
Date Packaged: 6-24-81

RADIOGRAPHIC EXAMINATION

Examination Date: 9-83
Liner Type: Lead
Lead-Lined: Yes

Waste Form Description: Process solids, probably in 1/2 gal cans.

Packaging Description: Multiple containers of process solids

Absorbent Information: None

Free Liquids: None apparent Quantity: Contained:
Compressed Gases: No Type: Quantity:
Particulates: No Quantity: Type:

Packaging Efficiency: Appeared to be almost full.
Volume % Combustible: None except plastic bagging.
Correct Content Code? Yes New Code:
Other Information:

WIPP-Certifiable: Apparently yes

VISUAL EXAMINATION

Examination Date: 1-84
Container Condition: Good, wet inside, some rust.
Lead Lined: Yes
Liner Type: Lead

Waste Form Description:

Packaging Description: Multiple 1/2 gal cans of wet red sludge, contained in plastic bag.

Absorbent Information: None

Physical State of Waste: Wet. There were varying amounts of free standing liquid on top of each can, and since some of the cans were upside down, some of the liquid was leaking.

Component Weight (Kg): 218

WIPP-WAC Compliance Information: Not in compliance.

Computed Void Volume:

Packaging Efficiency: 1% Voids.
Volume % Combustibles: None
Correct Content Code? Yes New Code:
Other Information: The liquid smelled strongly of NH_3, so there was no danger of acid corrosion.

WIPP-Certifiable: Not certifiable until the free liquid in each can has been stabilized.

ATTACHMENT O

TRU WASTE SAMPLING PROGRAM: VOLUME II

EGG-WM-6503
September 1985

TRU WASTE SAMPLING PROGRAM:

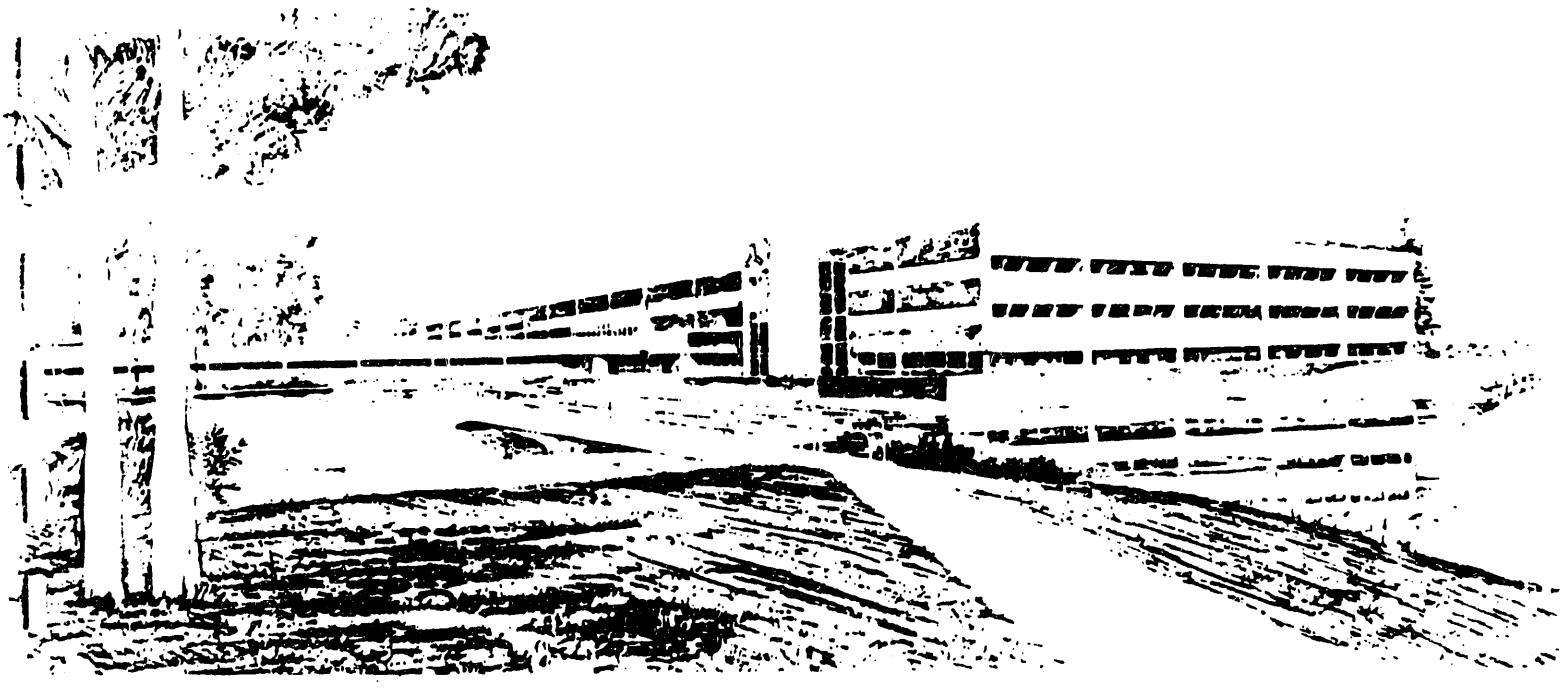
VOLUME II--GAS GENERATION STUDIES

PATENT CLEARED

Thomas L. Clements, Jr.
Donald E. Kudera

Idaho National Engineering Laboratory
Operated by the U.S. Department of Energy

Informal Report



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TRU WASTE SAMPLING PROGRAM: VOLUME II-GAS GENERATION STUDIES

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- Gas Generation Results of Venting for Transuranic Waste Drums, RFP-3739, April 1985.

The work conducted by J. L. Warren and A. Zerwekh of the Los Alamos National Laboratory in completing the ^{239}Pu and ^{238}Pu waste characterizations is also appreciated. This data is contained in Los Alamos report:

- Gas Generation and Migration Studies Involving Recently Generated ^{238}Pu-Contaminated Waste for the TRU Waste Sampling Program, July 1985.

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	R. J. Roberts
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Sandia National Laboratory	M. A. Molecke

ABSTRACT

Volume II of the TRU Waste Sampling Program report contains the data generated from evaluating the adequacy of venting/filtering devices for maintaining safe hydrogen levels in plutonium contaminated waste drums. Additional studies reported in this volume include gas generation rates, selected waste form monitoring, and evaluation of hydrogen migration from sealed 90-mil rigid polyethylene drum liners containing ^{238}Pu-contaminated wastes. All wastes used in the studies were newly-generated, and the waste drums were setup under controlled, experimental conditions.

Studies using ^{239}Pu-contaminated wastes were conducted at the Rocky Flats Plant. Studies using ^{238}Pu-contaminated wastes were conducted at the Los Alamos National Laboratory.

SUMMARY

Volume II of the TRU Waste Sampling Program final report contains the data generated from: (1) evaluating the effectiveness of the carbon composite filter, Hanford vent clip, and semi-permeable styrene-butadiene gasket for maintaining internal drum pressure at or near atmospheric pressure, maintaining hydrogen concentrations within safe limits, and calculating gas generation rates for 16 newly-generated ^{239}Pu waste drums; (2) evaluating the effectiveness of the carbon composite filter on seven 12-year-old waste drums that were vented, purged, and transported from the INEL to the RFP; (3) evaluation of the carbon composite filter and the calculation of gas generation rates for six newly-generated high-activity ^{238}Pu contaminated waste drums; and (4) gas migration from sealed 90-mil rigid polyethylene drum liners.

It should be noted that it was not the intent of the TRU Waste Sampling Program to make policy decisions concerning the management and certification of stored transuranic wastes. However, this report does contain information useful for making such site specific policy decisions.

^{239}Pu Studies

For all 16 drums tested, the carbon composite filter, Hanford vent clip, and the semi-permeable styrene-butadiene gasket performed well in maintaining internal drum pressures at or near atmospheric pressure, and maintaining hydrogen concentrations within safe limits for the three-month test period. The styrene-butadiene gasket did not maintain the internal drum pressure as close to atmospheric pressure as did the carbon composite filter or the Hanford vent clip. However, the slight pressure differential measured (up to 6 torr) for these drums appears to be negligible. The maximum hydrogen concentration observed in any of the vented test drums was 1.9%.

After completion of the venting study, the 16 ^{239}Pu waste drums were sealed and, under controlled experimental conditions, monitored for a three-month period to determine radiolytic gas generation values for these drums. The calculated gas generation values were then compared with values previously obtained in laboratory experiments. The waste forms evaluated included sludges, wet and dry combustibles, plastics, and leaded rubber.

The calculated values, with few exceptions, are in reasonable agreement with previously obtained gas generation values. Care should be exercised when comparing the values for experimentally controlled waste drums with data from actual waste drums. Actual waste drums are generally not controlled in the same manner done for these experiments. Many factors, such as bacterial action, corrosion, and radionuclide distribution, influence gas generation values. Much higher-than-expected G(total gas) values were obtained for drums containing solidified organic wastes. Resampling these drums for radiochemical assay still resulted in G(total gas) values of 15.1-22.5. Other reactions, such as corrosion of the mild steel drum, may be responsible.

Seven 12-year-old retrieved waste drums were monitored weekly for two months to ensure the carbon composite filter maintained internal drum pressures at or near atmospheric pressure and maintained hydrogen concentrations within safe limits. The drums were vented, purged and retrofitted with a carbon composite filter after retrieval. The selected drums contained known gas-generating waste forms having the highest measured concentrations of hydrogen. Originally, the drums were to be shipped from the INEL to the RFP in the vented state. However, due to delays in obtaining the required approvals to ship vented drums in ATMX railcars, the drums were resealed prior to shipment. Upon receipt at the RFP, the drums were resampled for gas composition and then allowed to vent through the carbon composite filter for the test period. Even after being resealed for approximately 5 weeks, the maximum hydrogen level observed during transportation was 1.05%. For the test period, the carbon composite filter

performed well in maintaining internal drum pressures at or near atmospheric pressure. Hydrogen concentrations did not exceed 1.1%. The purge cycle for the INEL prototype drum venting system performed well in removing high hydrogen concentrations from 12-year-old sealed waste containers.

^{238}Pu Studies

Six ^{238}Pu waste drums were evaluated under controlled experimental conditions to determine the effectiveness of the carbon composite filter and to determine gas generation values. Two additional drums were used to also evaluate gas migration from drums containing fully sealed 90-mil polyethylene rigid liners.

For ^{238}Pu waste drums, the carbon composite filter appears adequate to maintain internal drum pressures at or near atmospheric pressure and maintain hydrogen levels within safe limits in all but the highest activity drums. For vented drums using the carbon composite filter with sealed 90-mil rigid liners, up to 30 alpha curies could be present in the drum without hydrogen levels exceeding 4% provided the $G(H_2)$ value does not exceed 1.0. For an unsealed liner and a $G(H_2)$ value of 1.0, this limit would be increased to approximately 42 alpha curies. Since these limits were derived from a small number of data points, additional tests are recommended.

The G(total gas) values obtained for six experimentally controlled ^{238}Pu waste drums were in good agreement with previously obtained laboratory values. In particular, the results for drums containing leaded rubber were very consistent between drums.

The gas migration studies indicate a sealed 90-mil rigid liner inhibits hydrogen diffusion out of the liner. Over time, the gases will migrate through the liner, but at a slower rate.

CONTENTS

ACKNOWLEDGMENTS ii

ABSTRACT iv

SUMMARY v

^{239}Pu Studies v

^{238}Pu Studies vii

1. INTRODUCTION 1

1.1 Background 1

1.2 Objectives 1

1.3 Purpose 2

1.4 Quality Assurance and Quality Control 2

2. ^{239}PU GAS GENERATION STUDIES 5

2.1 Gas Generation Study Overview 5

2.2 Task Descriptions 6

2.2.1 Carbon Composite Filter Study (Task 5) 6
2.2.2 Vent Clip/Gasket Study (Task 7) 7

2.3 Filtering/Venting Study Experimental Procedure 8

2.3.1 Drum Selection 8
2.3.2 Drum Assay 8
2.3.3 Drum Setup 9
2.3.4 Void Volume Determination 9
2.3.5 Drum Sealing 11
2.3.6 Gas Sample Analysis 11

2.4 Phase I Results 16

2.4.1 Drum Pressures 16
2.4.2 Hydrogen Levels 17

2.5 Phase II Results 17

2.5.1 Gas Yield Evaluation 18
2.5.2 Waste Form Gas Yield Comparison 21

3. MONITORING SELECTED CELL 5 WASTE 25

3.1 Experimental Procedure 25

3.2 Results 27

3.2.1 Drum Internal Pressure 27
3.2.2 Hydrogen Levels 27

4. ^{238}PU GAS GENERATION STUDIES 30

4.1 ^{238}Pu Gas Generation Study Overview 30

4.1.1 Task Description 30

4.2 Experimental Procedure 32

4.2.1 Waste Selection 32
4.2.2 Waste Assay 32
4.2.3 Experimental Drum Preparation 32
4.2.4 Pressure Testing 34
4.2.5 Void Volume Determination 34
4.2.6 Gas Sampling Analysis 35
4.2.7 Test Procedure-Carbon Composite Filter Venting Study 38
4.2.8 Test Procedure-Gas Migration Study 38

4.3 Results 39

4.3.1 Carbon Composite Filter Venting Capability 39
4.3.2 Gas Migration Study 40
4.3.3 Gas Generation Rate Study 42
4.3.4 Summary Analysis 45

5. REFERENCES 49

Appendix A--RESULTS OF PHASE I, VENTED, TESTS OF TASKS 5 AND 7 FOR THE TRU WASTE SAMPLING PROGRAM A-1

Appendix B--RESULTS OF PHASE II, GAS GENERATION, TESTS OF TASKS 5 AND 7 FOR THE TRU WASTE SAMPLING PROGRAM B-1

Appendix C--RESULTS OF TASK 8 FOR THE TRU WASTE SAMPLING PROGRAM C-1

Appendix D--RESULTS OF TASK 10 FOR THE TRU WASTE SAMPLING PROGRAM D-1

TABLES

1. RFP Gas Standard Analysis-Phase I 13

2. RFP Gas Standard Analysis-Phase II 14

3. Phase I, Drum Identification 15
4. Gas Generation Data 19
5. Phase II Gas Yields 20
6. Laboratory Obtained G(Total Gas) Values 22
7. RFP Gas Standard Analysis (Task 8) 26
8. Select Cell 5 Waste for Task 8 (12 year old drums) 29
9. LANL Experimental Waste Drum Data 33
10. LANL ^{238}Pu Waste Drum Void Volumes 36
11. LANL Gas Standard Analysis 37
12. LANL Gas Generation Data 44
13. LANL ^{238}Pu Waste Drum G Values 46

FIGURES

1. Hydrogen Concentration in Drum vs. Rate of Generation 47

TRU WASTE SAMPLING PROGRAM: VOLUME II-GAS GENERATION STUDIES

1. INTRODUCTION

1.1 Background

The TRU Waste Sampling Program was established to evaluate various types of wastes contaminated with transuranic (TRU) isotopes. The sampling program was conducted at the Idaho National Engineering Laboratory (INEL) and the Los Alamos National Laboratory (LANL). The Rocky Flats Plant (RFP) provided support for work associated with evaluation of ^{239}Pu waste stored at the INEL. LANL conducted all work associated with evaluating ^{238}Pu-contaminated wastes. EG&G Idaho was responsible for the overall program management, quality assurance, and final reporting of the national effort under the direction of the Joint Integration Office (JIO). Tasks conducted by INEL, RFP, and LANL were delineated in the Implementation Plan for the TRU Waste Sampling Program, EG&G-WM-6324, July 1983. Appropriate task descriptions are repeated to provide the reader with background information.

1.2 Objectives

The primary objectives of the overall TRU Waste Sampling Program were:

1. To provide information on gas generation in newly generated and stored TRU wastes

2. To evaluate the adequacy of venting/filtering devices (carbon composite filter, Hanford vent clip, and the styrene butadiene gasket) for maintaining safe hydrogen levels in sealed waste drums

3. To determine the adequacy of the INEL real-time radiography system as a nondestructive certification technique

4. To examine wastes for compliance with the Waste Isolation Pilot Plant-Waste Acceptance Criteria (WIPP-WAC).[1]

1.3 Purpose

The TRU Waste Sampling Program report consists of two volumes. Volume I, Waste Characterization, consists of data obtained from sampling, opening and examining various aged transuranic wastes stored at INEL and LANL (objectives 1, 3, and 4 above).

The purpose of Volume II is to present the results obtained from gas generation rate studies, evaluation of the effectiveness of filtering/venting devices for maintaining safe hydrogen levels in waste drums, monitoring selected 12-year-old retrieved INEL waste drums to ensure they remain in a safe condition after being vented, purged, and retrofitted with a carbon composite filter, and results from studying hydrogen migration from sealed 90-mil rigid polyethylene drum liners (objective 2 above). In some cases, this data may be applicable to other Department of Energy (DOE) sites. In other cases, the data may be site specific.

This data is subdivided into two sections concerning ^{239}Pu-contaminated waste studies (INEL/RFP data) and a section concerning ^{238}Pu-contaminated waste (LANL) studies.

1.4 Quality Assurance and Quality Control

Quality assurance of the data generated by the TRU Waste Sampling Program was provided by management and internal and external review. External peer reviews were conducted by the JIO, RFP, LANL, Rockwell Hanford, Savannah River Plant, and the Sandia National Laboratory.

To ensure that gas sampling and analytical methods were consistent among the participating laboratories, the following special quality control measures were used in addition to established site laboratory procedures and standard practices:

1. Gas Bottles--Bottles or cylinders used to collect gas samples were initially cleaned by evacuating them to less than 2.0×10^{-2} torr (mm/Hg) at 100°C for 2 hours.

2. Measuring Instruments--Instruments (gauges, transducers) used for measuring pressures (subatmosphere and above-atmosphere) were calibrated, as specified by each participating laboratory's quality control program, and were accurate to a minimum of 0.2% of full scale. Pressure measurements will be reported in torr (mm Hg).

3. Drum Sealing--Drums required to be completely sealed were considered sealed if pressurized to 155 torr above atmospheric pressure for 3 hours with a pressure loss of no more than 5 torr.

4. Gas Sampling Pressure--The gas sampling manifold and gas sampling bottle were evacuated to less than 2.0×10^{-2} torr before a gas sample was drawn from the drum. After this pressure has been obtained, the valve to the pump was closed and the pressure observed to ensure that the sampling manifold was properly sealed to the drum lid. The seal was adequate if a pressure rise of less than 1.0×10^{-2} torr was observed for 1 minute.

5. Gas Analysis--Mass spectrometry or gas chromatography was used for analyzing gas samples. In either case, the lower limit of detection was 0.1 vol% for each gas. Sensitivity or response factors were established for each type of gas analyzed. At the beginning of each day, before any gas samples were analyzed, instruments were checked by using one of the gases as an analytical standard for comparison with the established sensitivity or response factor. Results of this test were required to be within $\pm$2% of the established sensitivity or response factor.

6. Gas Standards--A certified gas standard was supplied to each participating laboratory for use when analyzing gas samples. The gas mixture and composition used was the same for each laboratory to allow comparison of analytical results.

   After sensitivity or response factors were established for the analytical instrument, a certified gas sample was analyzed before any gas samples were analyzed. The results of this analysis were reported, by phone, to EG&G Idaho before any further analyses were conducted. A sample of the certified gas was then analyzed for approximately every eight field gas samples analyzed.

7. Other Analyses--Other types of analyses, such as those conducted for particulates and unknown materials were conducted on an as needed basis. For an unknown material, 90% of the total was required to be identified.

8. Documentation--Each participating laboratory was required to keep appropriate documentation such as: (a) analytical instrument output (spectra or chromatogram) used for establishing sensitivity or response factors; (b) environmental conditions when drums were sampled; (c) all analytical results, including daily instrument checks, variance from established factors, tolerances, certified gas standard results, and (d) appropriate internal analytical and quality control standards and procedures.

2. ^{239}Pu GAS GENERATION STUDIES

This section contains the task descriptions and data obtained from evaluating the effectiveness of venting/filtering devices (carbon composite filter, Hanford vent clip, and the semi-permeable styrene butadiene gasket) to maintain hydrogen concentrations at safe levels, maintain drum pressures at or near atmospheric pressure, and conduct gas-generation rate studies on experimentally controlled drums containing ^{239}Pu contaminated wastes. These studies were conducted at the Rocky Flats Plant. The data from these studies are contained in Rocky Flats report RFP-3739, Gas Generation Results and Venting for Transuranic Waste Drums, April 1985.

2.1 Gas Generation Study Overview

A total of 16 newly-generated ^{239}Pu waste drums were evaluated in two phases over a 6-month period. In Phase I, the drums were vented for three months using one of three venting/filtering devices to determine if venting was adequate to maintain hydrogen concentrations at safe levels and maintain drum pressure at or near atmospheric pressure. In Phase II, the drums were sealed for a second three-month period for determination of gas generation rates. These rates were then compared to rates previously determined in controlled laboratory experiments.[1-5]

Twelve newly-generated waste drums were fitted the carbon composite filter (Task 5 of the TRU Waste Sampling Program implementation plan[6]). The carbon composite filter, which was developed at the Rocky Flats Plant, is a nuclear-grade filter. Two newly-generated waste drums were fitted with the Hanford vent clip and two drums were fitted with the semi-permeable styrene-butadiene gasket (Task 7 of the TRU Waste Sampling Program implementation plan[6]). All venting/filtering devices meet Type A packaging requirements for radioactive wastes.[7]

2.2 Task Descriptions

2.2.1 Carbon Composite Filter Study (Task 5)

Twelve drums of newly-generated ^{239}Pu wastes, representing six content codes (2 drums/code), were evaluated. The following content codes, which represent known gas generating waste forms, were selected: (a) Content Code 1-combined sludge, (b) Content Code 3-organic setups, (c) Content Code 330-dry combustibles, (d) Content Code 336-wet combustibles, (e) Content Code 337-plastics, and (f) Content Code 339-leaded rubber (gloves). The following requirements were used:

1. Only newly generated waste was studied

2. High-activity waste (contaminated with americium), if available, was used to increase the probability of significant gas generation

3. Waste was assayed carefully as individual packages or by radiochemical analysis to determine total alpha activity

4. The level of packaging was recorded

5. Drums were full (to reduce the void volume)

6. Waste was contained in drums retrofitted with a carbon composite filter and a separate sampling port that extended inside the drum lid

7. A 100% seal of the drum lid was to be ensured

8. Drums were conditioned at least 24 hours for temperature stabilization before they were tested for void volume

9. Sludges were analyzed for water and nitrate content.