Y-12

Y/TS-1486

OAK RIDGE Y-12 PLANT

LOCKHEED MARTIN

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CLOSURE SUMMARY FOR THE URANIUM TREATMENT UNIT

May 1996

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Environmental Management Department

Health, Safety, Environment, and
Accountability Organization

Enriched Uranium Operations
Organization

MASTER

Prepared by
Oak Ridge Y-12 Plant
Oak Ridge, Tennessee 37831

Managed by
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the

U.S. DEPARTMENT OF ENERGY
UNDER CONTRACT DE0AC05-84OR21400

MANAGED BY
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

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Date Published--May 1996

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1.0 INTRODUCTION

This closure summary has been prepared for the Uranium Treatment Unit (UTU) located at the Y-12 Plant in Oak Ridge, Tennessee (Environmental Protection Agency [EPA] Identification TN 389-009-0001). The actions required to achieve closure of the UTU area are outlined in the Closure Plan, Y/TS-1253, March 1995, submitted to and approved by the Tennessee Department of Environment and Conservation staff on March 14, 1995, and November 7, 1995, respectively (see Appendix A). See Table 1 (Closure Schedule) for details.

The UTU was used to store and treat waste materials that are regulated by the Resource Conservation and Recovery Act (RCRA). This closure summary details all steps that were performed to close the UTU in accordance with the approved plan.

1.1 UNIT DESCRIPTION

The UTU, associated equipment, and diked area were located east of Building 9206 within the boundaries of the Y-12 Plant. The UTU consisted of two 300-gal polytanks and associated structural support stands, two electrically driven agitators, and approximately 400 sq ft of ten-mil polyvinyl chloride liners. Also included in this closure are twelve 55-gal drums filled with Raschig rings which were used to collect the RCRA solutions prior to treatment at the UTU. The design treatment capacity of the UTU was 500 gal/day, and the design storage capacity was 990 gal or 18 drums (55-gal capacity each). A diagram of the UTU is shown in Figure 1. Photographs of the area are shown in Appendix C.

The site arrangement shown in Figure 1 represents the configuration following completion of operations on August 18, 1992. Figure 1, page 2, of the Closure Plan (Appendix B) represents the maximum number of 55-gal drums (18) allowed due to the physical arrangement. Also note that the twelfth 55-gal drum, referenced in the Closure Plan, is located in the adjacent 90-day RCRA area. This drum had been previously inspected and determined to be RCRA "empty" as is evident by the "empty" label visible in the photograph in Appendix C-2. The top surface and side wall of the loading dock adjacent to the rear of the closure site are not part of the closure.

The UTU treated organic solutions containing enriched uranium. Before these solutions can be transferred from a nuclear safe container, they must be below 400 parts per million (ppm) uranium concentration. The treatment process takes waste organic solutions containing characteristically hazardous and F001- and F002-listed (Freon 113) waste, with a uranium concentration less than 400 ppm; mixes these solutions with depleted uranyl nitrate to create a solution in which the uranium-235 concentration is less than 1 percent of the total uranium present; and then adjusts the pH of this solution with the addition of caustic. The resulting solutions are then removed for treatment to the West End Treatment Facility.

FIGURE 1. URANIUM TREATMENT UNIT

2.0 CLOSURE PLAN CONTENTS

Because the UTU is part of the Y-12-Plant, which is a federal facility, no closure cost estimate, financial assurance mechanism, or liability insurance were required. This exemption from certain financial requirements is found in Title 40, Code of Federal Regulations (CFR), Part 265.140(c), and Tennessee Rule 1200-1-11-.05(8)(a).

3.0 CLOSURE PERFORMANCE STANDARD

Closure of the UTU minimizes the need for further maintenance, prevents the release of hazardous constituents from the unit, protects human health and the environment, and complies with all applicable closure requirements. The applicable requirements for the site are found in 40 CFR, Part 265.197, and Tennessee Rule 1200-1-11-.05(10).

Closure has been accomplished through the removal of all RCRA hazardous wastes stored in polytanks and containers at the site. The RCRA liquid wastes were transferred to the West End Treatment Facility for treatment and solid RCRA wastes (e.g., sandbags, dirt, absorbants, PPE) are in permanent storage at the Container Waste Storage Area (CWSA). To minimize residual contamination on site, the treatment area barrels, tanks, tank supports, agitators, liners, and subsurface concrete/asphalt surface were cleaned by high-pressure wash until satisfactorily decontaminated and sampled according to the sampling and analysis plan contained in the Closure Plan. Table 4 of the Closure Plan represents the required maximum contamination level of the final rinsewater from each item.

3.1 CLOSURE PROCEDURES

Before closure activities began, the unit was surveyed by the Y-12 Radiological Control Department personnel; and a safety plan was prepared based on the site conditions. The radiological survey results, radiological work permit, and Industrial Hygiene Department recommendations for worker protection are shown in Appendix D. The closure Site-Specific Health and Safety Plan is shown in Appendix E. Closure activities were conducted in accordance with these documents.

3.2 PARTIAL CLOSURE AND FINAL CLOSURE ACTIVITIES

This was a final closure of the UTU, associated equipment, diking, and subsurface; there will be no partial closure activities. Final closure activities proceeded as described below.

4.0 CLOSURE ACTIVITIES

The items decontaminated during closure operations included the following: two 300-gal polytanks (plus lids); two stainless-steel, electrically driven agitators used to mix solutions in the 300-gal polytanks; structural supports and catch pans for the polytanks; twelve 55-gal stainless steel drums; 90 cu ft of Raschig rings (7 cases per drum, 144 rings per case) used as a nuclear poison in the 55-gal drums; several layers of liner material which covered the site; and the underlying subsurface which was primarily concrete with asphalt edges.

In general, the above items (subsurface excluded) were individually removed from the UTU to a preexisting decontamination facility located about 100 ft north. Modifications to this facility included installation of a curbed liner (30 mil); three rinse sinks; an acid bath tank; and assorted support equipment (e.g., high-pressure sprayer, hoses, pumps). (Reference Appendix C for photographs.) This area was formally configured and designated a 90-day RCRA area. Procedures were generated for handling of the uranium-contaminated wastes, personnel were trained, and walk-through exercises were conducted prior to actual commencement of decontamination operations. The sequence of closure was removal of waste followed by decontamination of agitators, polytanks, and lids; tank supports and catch pans; 55-gal drums; liners; Raschig rings; and site subsurface of concrete/asphalt. The final rinseate was collected and analyzed in accordance with Table 4 of the Closure Plan (see Appendix B). All rinseate items met Closure Plan requirements and are shown in Table 2 of this report. The 55-gal drums were pressure washed and determined to be "empty" in accordance with RCRA regulations. All wash/rinse water (except samples) was collected in polytanks, sampled for disposal, and sent to the West End Treatment Facility. Waste disposal and analysis records are maintained by the Enriched Uranium Operations (EUO) Environmental Officer.

1. Removal of Waste Inventory

Liquid wastes were stored in individual RCRA satellite areas on the north side of the UTU. (Reference Appendix C-1 and C-2, photographs.) The remainder of the 55-gal barrels contained contaminated Raschig rings. The polytanks and twelfth 55-gal barrel (in the 90-day RCRA area to the south of the UTU) were empty. Waste solutions were sampled for uranium content and decanted to waste disposal polytanks or drums following confirmation of compliance to uranium handling/transfer requirements. Each barrel had been uniquely identified as Coolant 2B, 2C, 2E; Extractant 1B; Oil 5A, 5B, 5C; Distillate 6A, 6B; Freon 4A, 4B; and one empty barrel. (Reference Appendix F, Raschig Ring Decontamination Tracking Logsheet.) The waste solutions were shipped to the West End Treatment Facility for disposal. (Reference Appendix G-4.)

2. Decontamination of Stainless Steel Agitators

The agitators were individually decontaminated using first a high-pressure detergent (reference Appendix G-5 for the Material Safety Data Sheet) wash followed by a two-step hot water rinse. For cleaning, the agitators were placed on the liner in the decontamination area; and wash/rinse water was collected at the low corner of the area. The final rinse water was collected for sampling and analysis for the constituents shown in Table 4 of the Closure Plan. The actual

results of this analysis are shown in Table 2 of this report. Analysis was conducted according to Appendix A of the Closure Plan. The agitators were then wrapped in clean plastic and stored in the UTU until analysis showed that the closure requirements were met. Following confirmation that the final rinseate met closure requirements, the agitators were moved to the EUO Radioactive Material Storage Area for further radiological analysis and processing. (Reference Appendix G-4.)

3. Decontamination of 300-Gal Polytanks and Supports

The polytanks and lids were individually moved to the decontamination facility for cleaning using first a high-pressure detergent wash followed by a two-step hot water rinse. The items were placed on the liner, and wash/rinse water was collected at the low corner of the area. The final rinse water was collected for sampling and analysis as described above. The results are shown in Table 2. The polytanks and lids were wrapped in clean plastic and stored in the UTU until analysis showed that the closure requirements were met, at which time they were moved to the EUO Radioactive Material Storage Area.

The polytank supports and catch pans were similarly decontaminated as above, and the final rinseate was collected for analysis. The results are shown in Table 2. These items were then wrapped in clear plastic and stored in the UTU until analysis showed that the closure requirements were met, at which time they were also moved to the EUO Radioactive Material Storage Area.

4. Decontamination of the 55-Gal Stainless Steel Drums

The drums containing RCRA hazardous waste were first drained as described in 1 above. Individual drums were then moved to the decontamination facility where the Raschig rings were transferred to regular 55-gal barrels lined with plastic. The identification of the rings with the drum of origin was maintained throughout decontamination and sampling of the final rinseate. As each drum was emptied of rings, it was cleaned with a high-pressure wash and inspected in accordance with 40 CFR, Part 261.7 (i.e., drums will be considered empty when all wastes have been removed that can be removed using practices commonly employed [e.g., pouring or pumping], and no more than 1 in. of residue remains on the bottom or no more than 3 percent by weight at the total capacity of the container remains in the container). All eleven drums in the UTU were cleaned of all visible residue, declared "empty," and moved to the EUO Radioactive Material Storage Area. The wash water was collected, along with any residue from the barrels and disposed of as RCRA waste at the West End Treatment Facility. The twelfth drum had already been determined to be RCRA "empty," did not receive any further decontamination, and was moved to the EUO Radioactive Material Storage Area. (Reference Appendix G-1 and G-4.)

5. Decontamination of Liners

Examination of the liner layers revealed two or three layers of heavy (~30 mil) gray-colored liners overlaying the entire site. Below these layers were two yellow-colored tarps laid side-by-side but sufficiently long to be doubled back on themselves, creating two layers. The overlapping seam between the two tarps ran north-south in orientation. Two additional white-colored tarps, similarly configured as the yellow tarps, represented the last layers of liner material. The white

tarps were of such poor condition (i.e., numerous holes, rips, and tears) that they could not be decontaminated and were disposed of as mixed waste and placed in permitted storage at the CWSA.

It was planned that the liner layers would be carefully inspected for holes prior to being removed. If a layer did not contain holes, then decontamination of the underlying subsurface would not be necessary. This was in accordance with the Closure Plan, Appendix A, "Sampling and Analysis Plan," page A-7. However, the top gray-colored liners were inadvertently removed before any inspection could be made, and workers were unable to state if there were two or three layers. Consequently, the decision was made to proceed with decontamination of the liner material (in manageable sections--three batches) in the same process as previously used for the agitators, polytanks, etc. The results of the final rinsewater analysis are shown in Table 2 (reference Customer Sample Numbers 011, 012, and 013). The decontaminated liner material was subsequently packaged and moved to the EUO Radioactive Material Storage Area.

6: Decontamination of Raschig Rings

The Raschig rings were removed from the temporary storage barrels and placed in wire baskets. The identification of each batch of rings to the drum at origin was maintained throughout decontamination and final rinsewater sampling. A total of 26 batches of rings were processed (reference Table 2.) Each basket of rings was inspected and identified as very dirty, somewhat dirty, or fairly clean (reference Appendix G-3.) This identification was required by the Closure Plan but did not have any practical use for actual decontamination. Each basket was then cleaned with a detergent, high-pressure wash; rinsed; allowed to soak in a 30-percent nitric acid solution; detergent washed a second time; and rinsed twice. Typically, 2-3 baskets of rings were cleaned in a single batch process. The final rinsewater was collected for sample/analysis in accordance with Table 4 of the Closure Plan. The results of the analysis are shown in Table 2 of this report.

Each batch of rings was then placed in a plastic bag (with drum of origin identification) and temporarily stored in a clean 55-gal barrel in the decontamination area. Following confirmation that the final rinsewater met the Closure Plan Table 4 requirements, the rings were moved to the EUO Radioactive Material Storage Area. Rings were typically very clean with no visible residue as evident in Appendix C-10 photograph, and all rinsewater analyses met closure requirements. The batch of rings identified as Customer Sample Number 039, Sample Return Rings, consisted of rings (12 from each drum) previously selected for uranium analysis.

7. Decontamination of Surface

Examination of the site surface following removal of all layers of liner material revealed that the majority of the area consisted of a concrete surface with asphalt only at the edges. (Reference Appendix C-4 and C-6 photographs.)

The surface was vacuumed to remove any loose material, which was disposed of as mixed waste. Any broken sandbags or loose sand previously inside the liner area were also disposed of as mixed waste. The surface was then cleaned with a high-pressure detergent wash using a wet-vacuum system similar to that used on commercial or residential building carpets. This system prevented

any runoff of wash or rinse water from the site. Following the detergent wash, the site was cleaned with a hot water rinse. Then a second hot water rinse was performed that was collected, sampled, and analyzed. The rinseate analysis results are shown in Table 2 (reference Customer Sample Number 40). Appendix C-4, C-11, and C-6 photographs show the site surface before, during, and after decontamination, respectively.

A second wash and rinse operation was performed several days later but 4 days before the closure schedule date of May 5, 1996. The concern was that if the first sample exceeded the requirements of the Closure Plan Table 4, there would be insufficient time for a second rinse, sample, and analyze of the surface before May 5 and, thereby, meet the closure schedule. The analysis of this sample was subsequently canceled when the first sample was shown to comply with Closure Plan Table 4 requirements.

5.0 VERIFICATION OF DECONTAMINATION

Rinse water samples were collected by Compliance Monitoring Services technicians who are trained and certified in regulatory-mandated methods of sample collection and handling, chain-of-custody, and EPA Test Methods for Evaluating Solid Waste SW-846. Sample analysis was also performed using SW-846 criteria. Specifically, sampling protocols were from or consistent with the "Environmental Surveillance Procedures Quality Control Program," ES/ESH/INT-14. The field notebook and chain-of-custody forms were completed in accordance with ESP-503, "Field Logs and Data Forms," August 1994, and ESP-501/500, "Chain-of-Custody," January 1990. Sample collection and analysis were conducted as required by the Closure Plan.

Final rinseate analysis of all items decontaminated (55-gal drums excepted) are shown in Table 2 of this report. Customer Sample Numbers 1, 2, 3, and 4 represent, respectively, source water, water and detergent, rinseate from the three sinks and decontamination area liner rinseate. These data represent "background" prior to conducting any closure-directed decontamination. The Customer Sample Number and description are shown at the top of Table 2 and in Appendix G.

Additional sampling was conducted other than that shown in Table 2. Duplicate samples were taken for Customer Sample Numbers 9, 17, 21, 26, 30, 35, and 38. A total of 19 samples of source water were analyzed to ensure no contamination was present. A total of 20 trip blanks were analyzed. Duplicate sample analyses were essentially identical to the original sample, and source water samples and trip blanks showed no constituents of concern. The laboratory analysis number (ELIMS) for all sampling is shown in Appendix F; however, actual results for duplicate, source water, and trip blanks are not included in this report, but are available in project or laboratory files.

All rinse water was collected by decontamination personnel, labeled for identification of source item (e.g., agitator, polytank, ring), sealed, and stored in a locked cabinet. Compliance Monitoring Services technicians made up samples for analysis from the collected rinse water, completed the necessary chain-of-custody and analysis request forms, and transported the samples

to the laboratory. Analysis was conducted using SW-846 procedures by Analytical Services Organization personnel, and results were provided to the project team. The reported data were transcribed to the Table 2 format and double checked by two project personnel for accuracy. All analytical data reported by the laboratory staff were available, in original form, for review by the independent professional engineer; maintained in the project file in hard copy and computer disk form; and maintained in the permanent laboratory computer files.

6.0 CERTIFICATION OF CLOSURE

The Department of Energy/Lockheed Martin Energy Systems and independent registered professional engineer certifications of closure are included separately from this document.

Additional certification or notices are not required for this area.

7.0 MAXIMUM WASTE INVENTORY

The maximum treatment capacity of the UTU was 500 gal/day, and the maximum waste inventory of the drum storage area was 990 gal or 18 drums.

The UTU and container storage area received and treated only wastes that were characteristically hazardous or F001- and F002-listed (Freon 113) wastes. The wastes originated from processes located in either Building 9206 or Building 9212. Reference Appendix G-6 for UTU waste inventory.

8.0 SCHEDULE FOR CLOSURE

Closure activities were completed within 180 days of the Closure Plan being approved by TDEC personnel, as required by the Closure Plan. Table 1, Closure Schedule, of the Closure Plan as initially approved by TDEC staff reflected a 180-day duration for closure activity *and* preparation of closure certification documentation. A revised schedule was submitted to TDEC personnel on February 7, 1996, and approved on February 15, 1996. The revised schedule modified interim closure activity dates, authorized 60 days of documentation preparation (beyond the 180 days of closure activity) (reference 40 CFR, Part 260.115), and clarified that interim closure activities need not be executed in any specific order. Interim schedule dates were further clarified to be goals and not compliance requirements. The revised schedule showing actual completion dates is shown in Table 1 of this closure summary. Note that the April 16, 1996, date was met for all items except the Raschig rings. (Reference Appendix A for correspondence.)

9.0 POST-CLOSURE CARE

Remediation activities of this closure plan removed any RCRA hazardous contaminants that may have resulted from storage or treatment operations associated with the UTU. Upon acceptance of the closure certification by the TDEC Commissioner, the UTU area will not be subject to any further requirements under 40 CFR, Part 265, Subpart G, or Tennessee Rule 1200-1-11-.05(7); and the area will be released for general use.

TABLE 1
CLOSURE SCHEDULE FOR THE URANIUM TREATMENT UNIT

ACTION	EXPECTED COMPLETION² (DAYS)	APPROVED SCHEDULE	REVISED SCHEDULE (Days:Date)	ACTUAL SCHEDULE (Days:Date)
Notify Tennessee Department of Health and Environment staff of intent to initiate	180			
Receive final volumes of waste; initiate closure	0	11/7/95 ³	0:11/7/95	0:11/7/95
Remove inventory, load, and transfer (Step 1)	45	12/22/95	150:4/5/96	148:4/3/96
Decontaminate equipment (Steps 2-5)	110	2/25/96	159:4/16/96	166:4/23/96 ⁴
Decontaminate structures and diked area (Step 6)	115	3/1/96	170:4/25/96	157:4/12/96
Analyze samples and results	150	4/5/96	178:5/3/96	178:5/3/96
Prepare documentation for certification by an independent Professional Engineer	175	4/30/96	209:6/3/96	209:6/3/96
Receive closure certification by DOE staff	180	5/5/96	239:7/2/96	≤239:7/2/96
or				
Repeat decontamination and sample analysis ¹	**			N/A
Receive independent Professional Engineer and DOE staff closure certification				

Footnotes

¹ If decontamination must be repeated or if closure activities cannot be completed within the allotted time, extension of the closure schedule beyond the maximum of 180 days will be requested.

² Number of days following initiation of closure.

³ TDEC Closure Plan approval date.

⁴ Steps 2-4 completed by required date of April 16, 1996. Only Step 5 completed on April 23, 1996.

Table 2

Uranium Treatment Unit Closure TCLP Final Rinseate Levels (mg/L)	Required By Closure	Item Description and Customer			
	Plan	Sample Number			
		Source water	Wash water	Sink Rinse	Decon Pad
ANALYTE	Level (mg/L)	1	2	3	4
Arsenic	5.00	<4	<4	<4	<4
Barium	100.00	0.02	0.03	0.03	0.09
Cadmium	1.00	<0.2	<0.2	<0.2	<0.2
Chromium	5.00	<0.2	<0.2	<0.2	<0.2
Lead	5.00	<0.5	<0.5	<0.5	<0.5
Mercury	0.20	<0.02	<0.02	<0.02	<0.02
Selenium	1.00	<0.5	<0.5	<0.5	<0.5
Silver	5.00	<0.3	<0.3	<0.3	<0.3
o-Cresol (or 2-methylphenol)	200.00	0.01u	0.01u	0.01u	0.01u
m-Cresol	200.00	NA	NA	NA	NA
p-Cresol (Lab reports m and p total)	200.00	0.01u	0.01u	0.01u	0.01u
Cresol (Total of o, m, and p-cresol)	200.00	0.02u	0.02u	0.02u	0.02u
1,4 Dichlorobenzene	7.50	.01u	0.01u	0.01u	0.01u
2,4 Dinitrotoluene	0.13	0.01u	0.01u	0.01u	0.01u
Hexachlorobutadiene	0.50	0.01u	0.01u	0.01u	0.01u
Hexachloroethane	3.00	0.01u	0.01u	0.01u	0.01u
Nitrobenzene	2.00	0.01u	0.01u	0.01u	0.01u
Pentachlorophenol	100.00	0.01u	0.01u	0.01u	0.01u
Pyridine	5.00	0.01u	0.01u	0.01u	0.01u
2,4,5 Trichlorophenol	400.00	0.01u	0.01u	0.01u	0.01u
2,4,6 Trichlorophenol	2.00	0.01u	0.01u	0.01u	0.012
Hexachlorobenzene	0.13	0.01u	0.01u	0.01u	0.01u
Benzene	0.50	0.01u	0.01u	0.01u	0.01u
Carbon Tetrachloride	0.50	0.01u	0.01u	0.01u	0.01u
Chlorobenzene	100.00	0.01u	0.01u	0.01u	0.01u
Chloroform	6.00	0.019	0.016	0.01u	0.008j
1,2 Dichloroethane	0.50	0.01u	0.01u	0.01u	0.01u
1,1 Dichloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Methyl ethyl ketone (or 2-Butanone)	200.00	0.01u	0.01u	0.006j	0.01u
Tetrachloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Trichloroethylene (or -ethene)	0.50	0.01u	0.01u	0.01u	0.01u
Vinyl chloride	0.20	0.01u	0.01u	0.01u	0.01u
Methylene Chloride	0.02	0.01u	0.01u	0.01u	0.01u
1,1,1-Trichloroethane	0.02	0.01u	0.01u	0.01u	0.01u
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02	0.01u	0.01u	0.01u	0.01u
Trichloromonofluoromethane	0.02	0.01u	0.01u	0.01u	0.01u
Note: u-not present at reporting detection limit.					
j-present at an estimated value below the reporting detection limit.					

Table 2

Uranium Treatment Unit Closure TCLP Final Rinseate Levels (mg/L)	Required By Closure	Item Description and Customer			
	Plan	Sample Number			
ANALYTE	Level (mg/L)	Agitator A 5	Agitator B 6	Poly Tank A 7	Poly Tank B 8
Arsenic	5.00	<4	<4	<4	<4
Barium	100.00	0.05	0.04	0.05	<0.03
Cadmium	1.00	<0.2	<0.2	<0.2	<0.2
Chromium	5.00	<0.2	<0.2	<0.2	<0.2
Lead	5.00	<0.5	<0.5	<0.5	<0.5
Mercury	0.20	<0.02	<0.02	<0.02	<0.02
Selenium	1.00	<0.5	<0.5	<0.5	<0.5
Silver	5.00	<0.3	<0.3	<0.3	<0.3
o-Cresol (or 2-methylphenol)	200.00	0.01u	0.01u	0.01u	0.01u
m-Cresol	200.00	NA	NA	NA	NA
p-Cresol (Lab reports m and p total)	200.00	0.01u	0.01u	0.01u	0.01u
Cresol (Total of o, m, and p-cresol)	200.00	0.02u	0.02u	0.02u	0.02u
1,4 Dichlorobenzene	7.50	0.01u	0.01u	0.01u	0.01u
2,4 Dinitrotoluene	0.13	0.01u	0.01u	0.01u	0.01u
Hexachlorobutadiene	0.50	0.01u	0.01u	0.01u	0.01u
Hexachloroethane	3.00	0.01u	0.01u	0.01u	0.01u
Nitrobenzene	2.00	0.01u	0.01u	0.01u	0.01u
Pentachlorophenol	100.00	0.01u	0.01u	0.01u	0.01u
Pyridine	5.00	0.01u	0.01u	0.01u	0.01u
2,4,5 Trichlorophenol	400.00	0.01u	0.01u	0.01u	0.01u
2,4,6 Trichlorophenol	2.00	0.01u	0.01u	0.01u	0.01u
Hexachlorobenzene	0.13	0.01u	0.01u	0.01u	0.01u
Benzene	0.50	0.01u	0.01u	0.01u	0.01u
Carbon Tetrachloride	0.50	0.01u	0.01u	0.01u	0.01u
Chlorobenzene	100.00	0.01u	0.01u	0.01u	0.01u
Chloroform	6.00	0.01u	0.01u	0.01u	0.01u
1,2 Dichloroethane	0.50	0.01u	0.01u	0.01u	0.01u
1,1 Dichloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Methyl ethyl ketone (or 2-Butanone)	200.00	0.01u	0.01u	0.01u	0.005j
Tetrachloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Trichloroethylene (or -ethene)	0.50	0.01u	0.01u	0.01u	0.01u
Vinyl chloride	0.20	0.01u	0.01u	0.01u	0.01u
Methylene Chloride	0.02	0.01u	0.01u	0.01u	0.01u
1,1,1-Trichloroethane	0.02	0.01u	0.01u	0.01u	0.01u
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02	0.01u	0.01u	0.01u	0.01u
Trichloromonofluoromethane	0.02	0.01u	0.01u	0.01u	0.01u
Note: u-not present at reporting detection limit.					
j-present at an estimated value below the reporting detection limit.					

Table 2

Uranium Treatment Unit Closure	Required	Item Description and Customer			
TCLP Final Rinseate Levels (mg/L)	By Closure	Sample Number			
	Plan	Support B	Support A	Liner 1	Liner 2
ANALYTE	Level (mg/L)	9	10	11	12
Arsenic	5.00	<4	<4	<4	<4
Barium	100.00	0.06	0.04	0.06	0.04
Cadmium	1.00	<0.2	<0.2	<0.2	<0.2
Chromium	5.00	<0.2	<0.2	<0.2	<0.2
Lead	5.00	<0.5	<0.5	<0.5	<0.5
Mercury	0.20	<0.02	<0.02	<0.02	<0.02
Selenium	1.00	<0.5	<0.5	<0.5	<0.5
Silver	5.00	<0.3	<0.3	<0.3	<0.3
o-Cresol (or 2-methylphenol)	200.00	0.03u	0.03u	0.01u	0.03u
m-Cresol	200.00	NA	NA	NA	NA
p-Cresol (Lab reports m and p total)	200.00	0.03u	0.03u	0.01u	0.03u
Cresol (Total of o, m, and p-cresol)	200.00	0.06u	0.06u	0.02u	0.06u
1,4 Dichlorobenzene	7.50	0.03u	0.03u	0.01u	0.03u
2,4 Dinitrotoluene	0.13	0.03u	0.03u	0.01u	0.03u
Hexachlorobutadiene	0.50	0.03u	0.03u	0.01u	0.03u
Hexachloroethane	3.00	0.03u	0.03u	0.01u	0.03u
Nitrobenzene	2.00	0.03u	0.03u	0.01u	0.03u
Pentachlorophenol	100.00	0.03u	0.03u	0.01u	0.03u
Pyridine	5.00	0.03u	0.03u	0.01u	0.03u
2,4,5 Trichlorophenol	400.00	0.03u	0.03u	0.01u	0.03u
2,4,6 Trichlorophenol	2.00	0.03u	0.03u	0.01u	0.03u
Hexachlorobenzene	0.13	0.03u	0.03u	0.01u	0.03u
Benzene	0.50	0.01u	0.01u	0.01u	0.01u
Carbon Tetrachloride	0.50	0.01u	0.01u	0.01u	0.01u
Chlorobenzene	100.00	0.01u	0.01u	0.01u	0.01u
Chloroform	6.00	0.01u	0.01u	0.01u	0.005j
1,2 Dichloroethane	0.50	0.01u	0.01u	0.01u	0.01u
1,1 Dichloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Methyl ethyl ketone (or 2-Butanone)	200.00	0.01u	0.01u	0.01u	0.01u
Tetrachloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Trichloroethylene (or -ethene)	0.50	0.01u	0.01u	0.01u	0.01u
Vinyl chloride	0.20	0.01u	0.01u	0.01u	0.01u
Methylene Chloride	0.02	0.01u	0.01u	0.01u	0.01u
1,1,1-Trichloroethane	0.02	0.01u	0.01u	0.01u	0.01u
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02	0.01u	0.01u	0.01u	0.01u
Trichloromonofluoromethane	0.02	0.01u	0.01u	0.01u	0.01u
Note: u-not present at reporting detection limit.					
j-present at an estimated value below					
the reporting detection limit.					

Table 2

Uranium Treatment Unit Closure TCLP Final Rinseate Levels (mg/L)	Required By Closure	Item Description and Customer Sample Number. * 14-39 =Raschig Rings			
	Plan	Liner 3	Freon 4B*	Freon 4B	Freon 4A
ANALYTE	Level (mg/L)	13	14	15	16
Arsenic	5.00	<4	<4	<4	<4
Barium	100.00	0.03	0.23	0.28	0.27
Cadmium	1.00	<0.2	<0.2	<0.2	<0.2
Chromium	5.00	<0.2	<0.2	<0.2	<0.2
Lead	5.00	<0.5	<0.5	<0.5	<0.5
Mercury	0.20	<0.02	<0.02	<0.02	<0.02
Selenium	1.00	<0.5	<0.5	<0.5	<0.5
Silver	5.00	<0.3	<0.3	<0.3	<0.3
o-Cresol (or 2-methylphenol)	200.00	0.03u	0.03u	0.05u	0.03u
m-Cresol	200.00	NA	NA	NA	NA
p-Cresol (Lab reports m and p total)	200.00	0.03u	0.03u	0.05u	0.03u
Cresol (Total of o, m, and p-cresol)	200.00	0.06u	0.06u	0.1	0.06
1,4 Dichlorobenzene	7.50	0.03u	0.03u	0.05u	0.03u
2,4 Dinitrotoluene	0.13	0.03u	0.03u	0.05u	0.03u
Hexachlorobutadiene	0.50	0.03u	0.03u	0.05u	0.03u
Hexachloroethane	3.00	0.03u	0.03u	0.05u	0.03u
Nitrobenzene	2.00	0.03u	0.03u	0.05u	0.03u
Pentachlorophenol	100.00	0.03u	0.03u	0.05u	0.03u
Pyridine	5.00	0.03u	0.03u	0.05u	0.03u
2,4,5 Trichlorophenol	400.00	0.03u	0.03u	0.05u	0.03u
2,4,6 Trichlorophenol	2.00	0.03u	0.03u	0.05u	0.03u
Hexachlorobenzene	0.13	0.03u	0.03u	0.05u	0.03u
Benzene	0.50	0.01u	0.01u	0.01u	0.01u
Carbon Tetrachloride	0.50	0.01u	0.01u	0.01u	0.01u
Chlorobenzene	100.00	0.01u	0.01u	0.01u	0.01u
Chloroform	6.00	0.01u	0.01u	0.01u	0.01u
1,2 Dichloroethane	0.50	0.01u	0.01u	0.01u	0.01u
1,1 Dichloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Methyl ethyl ketone (or 2-Butanone)	200.00	0.006j	0.01u	0.007j	0.005j
Tetrachloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Trichloroethylene (or -ethene)	0.50	0.01u	0.01u	0.01u	0.01u
Vinyl chloride	0.20	0.01u	0.01u	0.01u	0.01u
Methylene Chloride	0.02	0.01u	0.01u	0.01u	0.01u
1,1,1-Trichloroethane	0.02	0.01u	0.01u	0.01u	0.01u
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02	0.01u	0.01u	0.01u	0.01u
Trichloromonofluoromethane	0.02	0.01u	0.01u	0.01u	0.01u
Note: u-not present at reporting detection limit.		Sample Numbers 14-39 represent Raschig			
j-present at an estimated value below		Rings from barrels containing freon, oil,			
the reporting detection limit.		distillate, collant, or extract.			

Table 2

Uranium Treatment Unit Closure	Required	Item Description and Customer			
TCLP Final Rinseate Levels (mg/L)	By Closure	Sample Number. * 14-39 =Raschig Rings			
	Plan	Freon 4A	Dist. 6A	Dist. 6A	Dist. 6B
ANALYTE	Level (mg/L)	17	18	19	20
Arsenic	5.00	<4	<4	<4	<4
Barium	100.00	0.06	0.16	0.06	0.1
Cadmium	1.00	<0.2	<0.2	<0.2	<0.2
Chromium	5.00	<0.2	<0.2	<0.2	<0.2
Lead	5.00	<0.5	<0.5	<0.5	<0.5
Mercury	0.20	<0.02	<0.02	<0.02	<0.02
Selenium	1.00	<0.5	<0.5	<0.5	<0.5
Silver	5.00	<0.3	<0.3	<0.3	<0.3
o-Cresol (or 2-methylphenol)	200.00	0.03u	0.05u	0.05u	0.02u
m-Cresol	200.00	NA	NA	NA	NA
p-Cresol (Lab reports m and p total)	200.00	0.03u	0.05u	0.05u	0.02u
Cresol (Total of o, m, and p-cresol)	200.00	0.06u	0.1u	0.1	0.04u
1,4 Dichlorobenzene	7.50	0.03u	0.05u	0.05u	0.02u
2,4 Dinitrotoluene	0.13	0.03u	0.05u	0.05u	0.02u
Hexachlorobutadiene	0.50	0.03u	0.05u	0.05u	0.02u
Hexachloroethane	3.00	0.03u	0.05u	0.05u	0.02u
Nitrobenzene	2.00	0.03u	0.05u	0.05u	0.02u
Pentachlorophenol	100.00	0.03u	0.05u	0.05u	0.02u
Pyridine	5.00	0.03u	0.05u	0.05u	0.02u
2,4,5 Trichlorophenol	400.00	0.03u	0.05u	0.05u	0.02u
2,4,6 Trichlorophenol	2.00	0.03u	0.05u	0.05u	0.02u
Hexachlorobenzene	0.13	0.03u	0.05u	0.05u	0.02u
Benzene	0.50	0.01u	0.01u	0.01u	0.01u
Carbon Tetrachloride	0.50	0.01u	0.01u	0.01u	0.01u
Chlorobenzene	100.00	0.01u	0.01u	0.01u	0.01u
Chloroform	6.00	0.01u	0.01u	0.01u	0.01u
1,2 Dichloroethane	0.50	0.01u	0.01u	0.01u	0.01u
1,1 Dichloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Methyl ethyl ketone (or 2-Butanone)	200.00	0.01u	0.007j	0.006j	0.01u
Tetrachloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Trichloroethylene (or -ethene)	0.50	0.01u	0.01u	0.01u	0.01u
Vinyl chloride	0.20	0.01u	0.01u	0.01u	0.01u
Methylene Chloride	0.02	0.01u	0.01u	0.01u	0.01u
1,1,1-Trichloroethane	0.02	0.01u	0.01u	0.01u	0.01u
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02	0.01u	0.01u	0.01u	0.01u
Trichloromonofluoromethane	0.02	0.01u	0.01u	0.01u	0.01u
Note: u-not present at reporting detection limit.		Sample Numbers 14-39 represent Raschig			
j-present at an estimated value below		Rings from barrels containing freon, oil,			
the reporting detection limit.		distillate, collant, or extract.			

Table 2

Uranium Treatment Unit Closure TCLP Final Rinseate Levels (mg/L)	Required By Closure	Item Description and Customer			
	Plan	Sample Number. * 14-39 = Raschig Rings			
ANALYTE	Level (mg/L)	Dist. 6B 21	Dist. 6B 22	Oil 5A,B,C 23	Cool. 2B 24
Arsenic	5.00	<4	<4	<4	<4
Barium	100.00	0.06	0.05	0.19	0.25
Cadmium	1.00	<0.2	<0.2	<0.2	<0.2
Chromium	5.00	0.2	<0.2	<0.2	0.1
Lead	5.00	<0.5	<0.5	<0.5	<0.5
Mercury	0.20	<0.02	<0.02	<0.02	<0.02
Selenium	1.00	<0.5	<0.5	<0.5	<0.5
Silver	5.00	<0.3	<0.3	<0.3	<0.3
o-Cresol (or 2-methylphenol)	200.00	0.02u	0.02u	0.02u	0.02u
m-Cresol	200.00	NA	NA	NA	NA
p-Cresol (Lab reports m and p total)	200.00	0.02u	0.02u	0.003DJ	0.02u
Cresol (Total of o, m, and p-cresol)	200.00	0.04u	0.04u	0.023DJ	0.4u
1,4 Dichlorobenzene	7.50	0.02u	0.02u	0.02u	0.02u
2,4 Dinitrotoluene	0.13	0.02u	0.02u	0.02u	0.02u
Hexachlorobutadiene	0.50	0.02u	0.02u	0.02u	0.02u
Hexachloroethane	3.00	0.02u	0.02u	0.02u	0.02u
Nitrobenzene	2.00	0.02u	0.02u	0.02u	0.02u
Pentachlorophenol	100.00	0.02u	0.02u	0.02u	0.02u
Pyridine	5.00	0.02u	0.02u	0.02u	0.02u
2,4,5 Trichlorophenol	400.00	0.02u	0.02u	0.02u	0.02u
2,4,6 Trichlorophenol	2.00	0.02u	0.02u	0.02u	0.02u
Hexachlorobenzene	0.13	0.02u	0.02u	0.02u	0.02u
Benzene	0.50	0.01u	0.01u	0.01u	0.01u
Carbon Tetrachloride	0.50	0.01u	0.01u	0.01u	0.01u
Chlorobenzene	100.00	0.01u	0.01u	0.01u	0.01u
Chloroform	6.00	0.01u	0.01u	0.01u	0.01u
1,2 Dichloroethane	0.50	0.01u	0.01u	0.01u	0.01u
1,1 Dichloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Methyl ethyl ketone (or 2-Butanone)	200.00	0.008j	0.006j	0.01u	0.01u
Tetrachloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Trichloroethylene (or -ethene)	0.50	0.01u	0.01u	0.01u	0.01u
Vinyl chloride	0.20	0.01u	0.01u	0.01u	0.01u
Methylene Chloride	0.02	0.01u	0.01u	0.01u	0.01u
1,1,1-Trichloroethane	0.02	0.01u	0.01u	0.01u	0.01u
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02	0.01u	0.01u	0.01u	0.01u
Trichloromonofluoromethane	0.02	0.01u	0.01u	0.01u	0.01u
Note: u-not present at reporting detection limit.		Sample Numbers 14-39 represent Raschig			
j-present at an estimated value below		Rings from barrels containing freon, oil,			
the reporting detection limit.		distillate, collant, or extract.			

Table 2

Uranium Treatment Unit Closure TCLP Final Rinseate Levels (mg/L)	Required By Closure	Item Description and Customer Sample Number. * 14-39 =Raschig Rings			
	Plan	Cool. 2B	Cool. 2B	Cool. 2C	Cool. 2C
ANALYTE	Level (mg/L)	25	26	27	28
Arsenic	5.00	<4	<4	<4	<4
Barium	100.00	0.04	0.06	0.05	0.22
Cadmium	1.00	<0.2	<0.2	<0.2	<0.2
Chromium	5.00	<0.2	<0.2	<0.2	<0.2
Lead	5.00	<0.5	<0.5	<0.5	<0.5
Mercury	0.20	<0.02	<0.02	<0.02	<0.02
Selenium	1.00	<0.5	<0.5	<0.5	<0.5
Silver	5.00	<0.3	<0.3	<0.3	<0.3
o-Cresol (or 2-methylphenol)	200.00	0.01u	0.01u	0.02u	0.02u
m-Cresol	200.00	NA	NA	NA	NA
p-Cresol (Lab reports m and p total)	200.00	0.01u	0.01u	0.02u	0.02u
Cresol (Total of o, m, and p-cresol)	200.00	0.02u	0.02u	0.04u	0.04u
1,4 Dichlorobenzene	7.50	0.01u	0.01u	0.02u	0.02u
2,4 Dinitrotoluene	0.13	0.01u	0.01u	0.02u	0.02u
Hexachlorobutadiene	0.50	0.01u	0.01u	0.02u	0.02u
Hexachloroethane	3.00	0.01u	0.01u	0.02u	0.02u
Nitrobenzene	2.00	0.01u	0.01u	0.02u	0.02u
Pentachlorophenol	100.00	0.01u	0.01u	0.02u	0.02u
Pyridine	5.00	0.01u	0.01u	0.02u	0.02u
2,4,5 Trichlorophenol	400.00	0.01u	0.01u	0.02u	0.02u
2,4,6 Trichlorophenol	2.00	0.01u	0.01u	0.02u	0.02u
Hexachlorobenzene	0.13	0.01u	0.01u	0.02u	0.02u
Benzene	0.50	0.01u	0.01u	0.01u	0.01u
Carbon Tetrachloride	0.50	0.01u	0.01u	0.01u	0.01u
Chlorobenzene	100.00	0.01u	0.01u	0.01u	0.01u
Chloroform	6.00	0.01u	0.01u	0.01u	0.01u
1,2 Dichloroethane	0.50	0.01u	0.01u	0.01u	0.01u
1,1 Dichloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Methyl ethyl ketone (or 2-Butanone)	200.00	0.01u	0.01u	0.006j	0.005j
Tetrachloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Trichloroethylene (or -ethene)	0.50	0.01u	0.01u	0.01u	0.01u
Vinyl chloride	0.20	0.01u	0.01u	0.01u	0.01u
Methylene Chloride	0.02	0.01u	0.01u	0.01u	0.01u
1,1,1-Trichloroethane	0.02	0.01u	0.01u	0.01u	0.01u
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02	0.01u	0.01u	0.01u	0.01u
Trichloromonofluoromethane	0.02	0.01u	0.01u	0.01u	0.01u
Note: u-not present at reporting detection limit.		Sample Numbers 14-39 represent Raschig			
j-present at an estimated value below		Rings from barrels containing freon, oil,			
the reporting detection limit.		distillate, collant, or extract.			

Table 2

Uranium Treatment Unit Closure TCLP Final Rinseate Levels (mg/L)	Required By Closure	Item Description and Customer Sample Number. * 14-39 =Raschig Rings			
	Plan	Cool. 2E	Cool. 2E	Oil 5C	Oil 5C
ANALYTE	Level (mg/L)	29	30	31	32
Arsenic	5.00	<4	<4	<4	<4
Barium	100.00	0.26	0.6	0.12	0.11
Cadmium	1.00	<0.2	<0.2	<0.2	<0.2
Chromium	5.00	<0.2	<0.2	<0.2	<0.2
Lead	5.00	<0.5	<0.5	<0.5	<0.5
Mercury	0.20	<0.02	<0.02	<0.02	<0.02
Selenium	1.00	<0.5	<0.5	<0.5	<0.5
Silver	5.00	<0.3	<0.3	<0.3	<0.3
o-Cresol (or 2-methylphenol)	200.00	0.03u	0.02u	0.02u	0.02u
m-Cresol	200.00	NA	NA	NA	NA
p-Cresol (Lab reports m and p total)	200.00	0.03u	0.02u	0.02u	0.02u
Cresol (Total of o, m, and p-cresol)	200.00	0.06u	0.04u	0.04u	0.04u
1,4 Dichlorobenzene	7.50	0.03u	0.02u	0.02u	0.02u
2,4 Dinitrotoluene	0.13	0.03u	0.02u	0.02u	0.02u
Hexachlorobutadiene	0.50	0.03u	0.02u	0.02u	0.02u
Hexachloroethane	3.00	0.03u	0.02u	0.02u	0.02u
Nitrobenzene	2.00	0.03u	0.02u	0.02u	0.02u
Pentachlorophenol	100.00	0.03u	0.02u	0.02u	0.02u
Pyridine	5.00	0.03u	0.02u	0.02u	0.02u
2,4,5 Trichlorophenol	400.00	0.03u	0.02u	0.02u	0.02u
2,4,6 Trichlorophenol	2.00	0.03u	0.02u	0.02u	0.02u
Hexachlorobenzene	0.13	0.03u	0.02u	0.02u	0.02u
Benzene	0.50	0.01u	0.01u	0.01u	0.01u
Carbon Tetrachloride	0.50	0.01u	0.01u	0.01u	0.01u
Chlorobenzene	100.00	0.01u	0.01u	0.01u	0.01u
Chloroform	6.00	0.01u	0.01u	0.01u	0.01u
1,2 Dichloroethane	0.50	0.01u	0.01u	0.01u	0.01u
1,1 Dichloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Methyl ethyl ketone (or 2-Butanone)	200.00	0.005j	0.007j	0.007j	0.01
Tetrachloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Trichloroethylene (or -ethene)	0.50	0.01u	0.01u	0.01u	0.01u
Vinyl chloride	0.20	0.01u	0.01u	0.01u	0.01u
Methylene Chloride	0.02	0.01u	0.01u	0.01u	0.01u
1,1,1-Trichloroethane	0.02	0.01u	0.01u	0.01u	0.01u
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02	0.01u	0.01u	0.01u	0.01u
Trichloromonofluoromethane	0.02	0.01u	0.01u	0.01u	0.01u
Note: u-not present at reporting detection limit.		Sample Numbers 14-39 represent Raschig			
j-present at an estimated value below the reporting detection limit.		Rings from barrels containing freon, oil, distillate, collant, or extract.			

Table 2

Uranium Treatment Unit Closure	Required	Item Description and Customer			
TCLP Final Rinseate Levels (mg/L)	By Closure	Sample Number. * 14-39 =Raschig Rings			
	Plan	Ext. 1B	Ext. 1B	Oil 5A	Oil 5A
ANALYTE	Level (mg/L)	33	34	35	36
Arsenic	5.00	<4	<4	<4	<4
Barium	100.00	0.13	0.18	0.05	0.38
Cadmium	1.00	<0.2	<0.2	<0.2	<0.2
Chromium	5.00	<0.2	<0.2	<0.2	<0.2
Lead	5.00	0.5	0.9	<0.5	<0.5
Mercury	0.20	<0.02	<0.2	<0.02	<0.02
Selenium	1.00	<0.5	<0.5	<0.5	<0.5
Silver	5.00	<0.3	<0.3	<0.3	<0.3
o-Cresol (or 2-methylphenol)	200.00	0.03u	0.03u	0.02u	0.01u
m-Cresol	200.00	NA	NA	NA	NA
p-Cresol (Lab reports m and p total)	200.00	0.03u	0.03u	0.02u	0.01u
Cresol (Total of o, m, and p-cresol)	200.00	0.06u	0.06u	0.04u	0.02u
1,4 Dichlorobenzene	7.50	0.03u	0.03u	0.02u	0.01u
2,4 Dinitrotoluene	0.13	0.03u	0.03u	0.02u	0.01u
Hexachlorobutadiene	0.50	0.03u	0.03u	0.02u	0.01u
Hexachloroethane	3.00	0.03u	0.03u	0.02u	0.01u
Nitrobenzene	2.00	0.03u	0.03u	0.02u	0.01u
Pentachlorophenol	100.00	0.03u	0.03u	0.02u	0.01u
Pyridine	5.00	0.03u	0.03u	0.02u	0.01u
2,4,5 Trichlorophenol	400.00	0.03u	0.03u	0.02u	0.01u
2,4,6 Trichlorophenol	2.00	0.03u	0.03u	0.02u	0.01u
Hexachlorobenzene	0.13	0.03u	0.03u	0.02u	0.01u
Benzene	0.50	0.01u	0.01u	0.01u	0.01u
Carbon Tetrachloride	0.50	0.01u	0.01u	0.01u	0.01u
Chlorobenzene	100.00	0.01u	0.01u	0.01u	0.01u
Chloroform	6.00	0.01u	0.01u	0.01u	0.01u
1,2 Dichloroethane	0.50	0.01u	0.01u	0.01u	0.01u
1,1 Dichloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Methyl ethyl ketone (or 2-Butanone)	200.00	0.018	0.009j	0.006j	0.007j
Tetrachloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Trichloroethylene (or -ethene)	0.50	0.01u	0.01u	0.01u	0.01u
Vinyl chloride	0.20	0.01u	0.01u	0.01u	0.01u
Methylene Chloride	0.02	0.01u	0.01u	0.01u	0.01u
1,1,1-Trichloroethane	0.02	0.01u	0.01u	0.01u	0.01u
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02	0.01u	0.01u	0.01u	0.01u
Trichloromonofluoromethane	0.02	0.01u	0.01u	0.01u	0.01u
Note: u-not present at reporting detection limit.		Sample Numbers 14-39 represent Raschig			
j-present at an estimated value below		Rings from barrels containing freon, oil,			
the reporting detection limit.		distillate, collant, or extract.			

Table 2

Uranium Treatment Unit Closure TCLP Final Rinseate Levels (mg/L)	Required By Closure	Item Description and Customer Sample Number. * 14-39 =Raschig Rings			
	Plan	Oil 5B	Oil 5B	Returns	Surface
ANALYTE	Level (mg/L)	37	38	39	40
Arsenic	5.00	<4	<4	<4	<4
Barium	100.00	1.03	0.41	0.12	0.27
Cadmium	1.00	<0.2	<0.2	<0.2	0.2
Chromium	5.00	0.1	<0.2	<0.2	0.1
Lead	5.00	0.6	<0.5	<0.5	<0.5
Mercury	0.20	<0.02	<0.02	<0.02	<0.02
Selenium	1.00	<0.5	<0.5	<0.5	<0.5
Silver	5.00	<0.3	<0.3	<0.3	<0.3
o-Cresol (or 2-methylphenol)	200.00	0.02u	0.02u	0.02u	0.1u
m-Cresol	200.00	NA	NA	NA	NA
p-Cresol (Lab reports m and p total)	200.00	0.02u	0.02u	0.02u	0.1u
Cresol (Total of o, m, and p-cresol)	200.00	0.04u	0.04u	0.04u	0.2u
1,4 Dichlorobenzene	7.50	0.02u	0.02u	0.02u	0.1u
2,4 Dinitrotoluene	0.13	0.02u	0.02u	0.02u	0.1u
Hexachlorobutadiene	0.50	0.02u	0.02u	0.02u	0.1u
Hexachloroethane	3.00	0.02u	0.02u	0.02u	0.1u
Nitrobenzene	2.00	0.02u	0.02u	0.02u	0.1u
Pentachlorophenol	100.00	0.02u	0.02u	0.02u	0.1u
Pyridine	5.00	0.02u	0.02u	0.02u	0.1u
2,4,5 Trichlorophenol	400.00	0.02u	0.02u	0.02u	0.1u
2,4,6 Trichlorophenol	2.00	0.02u	0.02u	0.02u	0.1u
Hexachlorobenzene	0.13	0.02u	0.02u	0.02u	0.1u
Benzene	0.50	0.01u	0.01u	0.01u	0.01u
Carbon Tetrachloride	0.50	0.01u	0.01u	0.01u	0.01u
Chlorobenzene	100.00	0.01u	0.01u	0.01u	0.01u
Chloroform	6.00	0.01u	0.01u	0.01u	0.01u
1,2 Dichloroethane	0.50	0.01u	0.01u	0.01u	0.01u
1,1 Dichloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Methyl ethyl ketone (or 2-Butanone)	200.00	0.011	0.008j	0.01u	0.006j
Tetrachloroethylene (or -ethene)	0.70	0.01u	0.01u	0.01u	0.01u
Trichloroethylene (or -ethene)	0.50	0.01u	0.01u	0.01u	0.01u
Vinyl chloride	0.20	0.01u	0.01u	0.01u	0.01u
Methylene Chloride	0.02	0.01u	0.01u	0.01u	0.01u
1,1,1-Trichloroethane	0.02	0.01u	0.01u	0.01u	0.01u
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02	0.01u	0.01u	0.01u	0.01u
Trichloromonofluoromethane	0.02	0.01u	0.01u	0.01u	0.01u
Note: u-not present at reporting detection limit.		Sample Numbers 14-39 represent Raschig			
j-present at an estimated value below		Rings from barrels containing freon, oil,			
the reporting detection limit.		distillate, collant, or extract.			

APPENDIX A

BUILDING 9706 URANIUM TREATMENT UNIT - CORRESPONDENCE LIST

Letter Date	Originator to Receiver	Subject
04/04/95	Butz to Spence	Closure Plan submittal to DOE
04/14/95	Spence to Tiesler	Closure Plan submittal to TDEC
08/25/95	Tiesler to Spence	TDEC notification of plan for public comment and request for 3 additional copies
09/13/95	Spence to Tiesler	Extra copies of Closure Plan submitted
11/07/95	Tiesler to Spence	TDEC approval of Closure Plan
11/21/95	Spence to Gustavson	TDEC approval of Closure Plan
12/08/95	Hill to Jessen	Environmental Directive--Proceed with Closure
01/17/96	Butz to Spence	Schedule Change Request to DOE
02/07/96	Spence to Tiesler	Schedule Change Request to TDEC
02/15/96	Moran to Spence	TDEC approval of Schedule Change
02/16/96	Butz to Spence	Schedule Deviation Notice

- T. R. Butz, Plant Manager, Y-12 Plant, Lockheed Martin Energy Systems, Inc. (LMES)
- F. P. Gustavson, Vice President, Defense and Manufacturing, LMES
- C. C. Hill, Y-12 Environmental Coordinator, LMES
- N. C. Jessen Jr., Manager, EUO, LMES
- D. Moran, DOE Coordinator, DSWM, TDEC
- R. J. Spence, Y-12 Site Manager, Oak Ridge Operations Office, Department of Energy (DOE)
- T. Tiesler, Director, Division of Solid Waste Management (DSWM), Tennessee Department of Environment and Conservation (TDEC)

 

MARTIN MARIETTA ENERGY SYSTEMS, INC.

POST OFFICE BOX 2009
OAK RIDGE, TENNESSEE 37831

April 4, 1995

Mr. R. J. Spence
Department of Energy, Oak Ridge Operations
Post Office Box 2001
Oak Ridge, Tennessee 37831

Dear Mr. Spence:

**Resource Conservation and Recovery Act (RCRA)
Closure Plan for the Uranium Treatment Unit**

Enclosed is a document entitled "Resource Conservation and Recovery Act (RCRA) Closure Plan for the Uranium Treatment Unit," Document Number Y/TS-1253. Submittal of this plan is required to fulfill the requirements of Title 40, Code of Federal Regulations (CFR), Part 265, Subpart G, and Tennessee Rule 1200-1-11-.05(7).

Upon your review and approval of the enclosure, please submit this closure plan to Mr. Tom Tiesler of the Tennessee Department of Environment and Conservation. The \$2,000 fee required for review of the closure plan is also enclosed.

I certify that this document and all enclosures were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

If you have any questions, contact S. E. Rathke at 574-9394.

Very truly yours,

T. R. Butz
Y-12 Plant Manager

TRB:rft

Enclosures: As Stated

Mr. R. J. Spence, DOE-ORO

Page 2

April 4, 1995

cc/encs: M. S. Burris
C. H. Fritts
J. A. Kreykes
W. G. McMillan, DOE-ORO
S. E. Rathke
L. M. Sparks, DOE-ORO
B. E. Walton
Y-12 Central Files
File-EMD-RC

cc: D. J. Bostock
T. R. Butz
C. D. Goins Jr.
J. S. Guilford
C. C. Hill
R. M. Keyser/J. E. Powell
M. E. Mitchell/T. P. A. Perry
M. K. Morrow
R. K. Roosa/N. C. Jessen

Enclosure
Letter, Butz to Spence
Dated: April 4, 1995

LETTER TITLE

Resource Conservation and Recovery Act (RCRA)
Closure Plan for the Uranium Treatment Unit

Y-12 Site Office

Department of Energy

Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831-8555

April 14, 1995

4/19/95 JEP

cc: CML
SR
(P)

Certified Mail
P 621 944 187

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Environment
and Conservation
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535

Dear Mr. Tiesler:

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CLOSURE PLAN FOR THE URANIUM TREATMENT UNIT

Enclosed is a document entitled "Resource Conservation and Recovery Act (RCRA) Closure Plan for the Uranium Treatment Unit," Document Number Y/TS-1253. This plan is being submitted for your approval to fulfill the requirements of Title 40, Code of Federal Regulations, Part 265, Subpart G, and Tennessee Rule 1200-1-11-.55(7). The \$2,000 fee required for review of the closure plan is also enclosed.

If you have any questions or require additional information, please feel free to contact Larry Sparks of my staff at (615) 576-2659.

Sincerely,

Robert J. Spence
DOE Y-12 Site Manager

DP-813:Sparks

Enclosures

cc w/enclosure:
E. Lemming, TDEC, Oak Ridge
P. Gross, SE-31, ORO

cc w/o enclosure:
J. Powell, 9116, MS 8098, Y-12

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243 - 1535

August 25, 1995

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL

of pages = 2

Mr. Robert Spence
Y-12 Site Manager
U.S. Department of Energy
Oak Ridge Reservation
Oak Ridge Operations Office
Post Office Box 2001
Oak Ridge, Tennessee 37831-8541

To	Cheryl Labadie	From	Larry Sparks
Dept/Agency	EMD	Phone #	62659
Fax #	49041	Fax #	68010
NSN 7540-01-317-7368		5099-101 GENERAL SERVICES ADMINISTRATION	

Re: Resource Conservation and Recovery Act (RCRA) Closure Plan for Building
9212 E-Wing Area

Resource Conservation and Recovery Act (RCRA) Closure Plan for the Uranium
Treatment Unit

Dear Mr. Spence:

This letter is to inform you that we have completed our review of the stated plans. Based on this review, which is authorized pursuant to 40 CFR 265 Subpart G, incorporated by reference at Tennessee Rule 1200-1-11-.05 (7) (a) 1, your plans have been determined to be complete and the DSWM will be issuing a public notice. After receiving any public comments, the plans will either be approved, approved with modification, or disapproved.

The plans, as presented, will be on display at the Oak Ridge Public Library, TDEC-DOE Oversight office, and the DSWM Knoxville Field Office during the public comment period. Please supply this office with three (3) additional copies of the subject plans for distribution. September 5, 1995 Mr. Ed Casey, Public Information, DSWM, will be handling the specifics of the newspaper notice and distribution of copies. He may be reached in the DSWM Central Office at telephone number (615) 532-0840.

Y-12 SITE OFFICE

LOG NO. D-26019

FILE CODE

Mr. Robert J. Spence

(2)

If you have any questions, please contact David Moran of my staff at 615) 532-0875.

Sincerely,

Tom Tiesler, Director
Division of Solid Waste Management

c: Mr. Wayne Gregory, Manager TSS

Y-12 Site Office

Department of Energy

Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831-8555

September 13, 1995

cy: CML
SER

Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Environment
and Conservation
Fifth Floor, Life & Casualty Tower
401 Church Street
Nashville, Tennessee 37243-1535

Dear Mr. Tiesler:

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CLOSURE PLANS FOR BUILDING 9212 E-WING AREA AND THE URANIUM TREATMENT UNIT

Per your request of August 25, 1995, please find enclosed three additional copies of each of the subject RCRA Closure Plans for units at the Department of Energy Y-12 Site, Oak Ridge, Tennessee.

If there are any questions on this matter, please contact Larry Sparks of my staff at (423) 576-2659.

Sincerely,

Robert J. Spence
Y-12 Site Manager

DP-813:Sparks

Enclosure

cc w/o enclosure
J. Powell, 9116, MS 8098, Y-12

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243 - 1535

November 7, 1995

Mr. Robert Spence
Y-12 Site
United States Department of Energy
Oak Ridge Reservation
Oak Ridge Operations Office
Post Office Box 2001
Oak Ridge, Tennessee 37831-8541

Re: Approval of the following RCRA Closure Plans;

Resource Conservation and Recovery Act (RCRA) Closure Plan for
Building 9212 E-Wing Area

Resource Conservation and Recovery Act (RCRA) Closure Plan for
the Uranium Treatment Unit

Dear Mr. Spence:

The above stated closure plans have been reviewed by my staff, which is authorized pursuant to 40 CFR 265 Subpart G, incorporated by reference at Tennessee Rule 1200-1-11-.05 (7) (a) 1. Based on this review, your plans have been determined to be complete. No public comments were received during the public comment period.

The stated plans are approved. You may proceed with closure activities in accordance with the plans and Tennessee Rule 1200-1-11-.05 (7).

Y-12 SITE OFFICE

LO NO. D-3373

FILE CODE _____

Mr. Robert Spence
November 7, 1995
Page 2

If you require further service, please contact David Moran of my staff at (615) 532-0875.

Sincerely,

A handwritten signature in dark ink, appearing to read "Tom Tiesler", written over a horizontal line.

Tom Tiesler, Director
Division of Solid Waste Management

c: Wayne Gregory, DSWM
David Moran, DSWM
Earl Leming, DOE-O

c:cp21195

Y-12 Site Office

Department of Energy

Oak Ridge Operations Office
P.O. Box 2001
Oak Ridge, Tennessee 37831-8555

November 21, 1995

Mr. F. P. Gustavson, Vice President
Defense and Manufacturing
Lockheed Martin Energy Systems, Inc.
Post Office Box 2009
Oak Ridge, Tennessee 37831-8010

Dear Mr. Gustavson:

APPROVAL OF RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CLOSURE PLANS

This letter provides notification that the Tennessee Department of Environment and Conservation (TDEC) has approved the RCRA closure plans for Building 9212 E-Wing Area and for the Uranium Treatment Unit. Enclosed is a copy of the letter from TDEC of November 7, 1995. Closure of these units must now proceed according to the schedules in each closure plan. ←

If you have any questions or need additional information, please contact Larry Sparks of my staff at 6-2659.

Sincerely,

Robert J. Spence
Y-12 Site Manager

DP-813:Sparks

Enclosure

cc w/enclosure:
J. Powell, 9116, MS 8098, Y-12

Internal Correspondence

MARTIN MARIETTA ENERGY SYSTEMS, INC.

Date: December 8, 1995

To: N. C. Jessen Jr.

cc: T. R. Butz, E. T. Collins, C. H. Fritts, J. M. Gilbert,
R. M. Keyser, C. M. LaBorde, M. K. Morrow, J. E. Powell,
S. E. Rathke, R. K. Roosa, File-EMD-RC

From: C. C. Hill, Y-12 Plant Environmental Coordinator
Building 9116, MS-8098, 6-7113

Subject: Uranium Treatment Facility and E-Wing
Resource Conservation and Recovery Act (RCRA) Closures

ENVIRONMENTAL DIRECTIVE

On November 7, 1995, personnel from the Tennessee Department of Environment and Conservation (TDEC) approved the RCRA hazardous waste unit closure plans for the Uranium Treatment Unit and the RCRA Storage Unit located in E-wing of Building 9212. These closures must be performed in accordance with schedules prescribed in the approved closure plans. Personnel from the Department of Energy must certify to the state staff on or before March 6, 1996 (for the E-wing storage area), and May 5, 1996 (for the Uranium Treatment Unit), that the closures have been completed. Completion of these closures in accordance with the approved closure plan is required to remain in compliance with the Tennessee Hazardous Waste Management Regulations.

REQUIRED IMMEDIATE ACTIONS:

Based on these facts, you are directed to provide to the Y-12 Plant Environmental Coordinator the following information by December 15, 1995:

1. A detailed project schedule that will accomplish a certified complete closure in accordance with the schedule contained in the approved closure plans.
2. Identify the individual who will have the project management responsibility and accountability.

In addition, during the project, a periodic status report that identifies any schedule slippage to the approved interim milestones *must be provided to the Y-12 Plant Environmental Coordinator at least ten days prior to the approved milestone.*

If you have any questions, please contact me.

CCH:bjs

MARTIN MARIETTA ENERGY SYSTEMS, INC.POST OFFICE BOX 2009
OAK RIDGE, TENNESSEE 37831

January 17, 1996

Mr. R. J. Spence
Department of Energy, Oak Ridge Operations
Post Office Box 2001
Oak Ridge, Tennessee 37831

Dear Mr. Spence:

**Resource Conservation and Recovery Act Closure Plan for the
Uranium Treatment Unit--Schedule Change Request**

The enclosed, revised Table 1 Closure Schedule for the Uranium Treatment Unit and below-stated addition to the closure plan are submitted for your review, approval, and forwarding to personnel at the Tennessee Department of Environment and Conservation (TDEC) (attention: Mr. Tom Tiesler). This submittal is in accordance with Title 40, Code of Federal Regulations (CFR), Parts 265.113 and 115, Subpart G, and Tennessee Rule 1200-1-11.05(7)(d).

The first interim scheduled milestone--*Remove Inventory*--with duration/date of 45 days (from TDEC personnel approval on November 7, 1995) and resulting date of December 22, 1995, was missed. The enclosed, revised Table 1 represents a best-effort schedule to maintain completion of closure activity within 180 days (i.e., by May 5, 1996) as required by the closure schedule approved by TDEC personnel (reference paragraph 8.0 of the closure plan). Table 1 has been revised to reflect 180 days of closure activity and 60 days for preparation of certification documentation, as allowed by 40 CFR Part 265.115. Interim milestone dates have been revised accordingly and reflect the time necessary to prepare and approve work procedures related to enriched uranium operations.

Additionally, TDEC personnel approval of the following addition to paragraph 4.0, *Closure Activities*, is requested in order to provide the flexibility for conducting operations. This is considered a minor, technical modification which will assist in meeting the schedule and accomplishing the same end result.

"Steps 1 through 6 may be conducted in part, in any sequence, or may overlap as deemed appropriate in order to expedite closure activities."

Mr. R. J. Spence, DOE-ORO

Page 2

January 17, 1996

If you have any questions, please contact E. T. Collins at 574-8886.

Very truly yours,

T. R. Butz
Y-12 Plant Manager

TRB:bjs

Enclosure: As Stated

cc/enc: C. H. Fritts
J. S. Guilford
C. C. Hill
J. A. Kreykes
S. E. Rathke
R. K. Roosa/N. C. Jessen
L. M. Sparks, DOE-ORO
C. L. Stair/T. P. A. Perry
W. C. Tindal
Y-12 Central Files
File-EMD-RC

cc: T. R. Butz
F. P. Gustavson
R. M. Keyser/J. E. Powell
M. K. Morrow

Enclosure
Letter, Butz to Spence
Dated: January 17, 1996

Letter Title

**Resource Conservation and Recovery Act Closure Plan for the
Uranium Treatment Unit—Schedule Change Request**

TABLE 1**CLOSURE SCHEDULE FOR THE URANIUM TREATMENT UNIT**

ACTION	EXPECTED COMPLETION²	APPROVED SCHEDULE	REVISED SCHEDULE (Days:Date)	ACTUAL SCHEDULE (Days:Date)
Notify Tennessee Department of Health and Environment of intent to initiate	180 days			
Receive final volumes of waste; initiate closure	0	11/7/95 ³	0:11/7/95	0:11/7/95
Remove inventory, load, and transfer (Step 1)	45	12/22/95	150:4/5/96	
Decontaminate equipment (Steps 2-5)	110	2/25/96	159:4/16/96	
Decontaminate structures and diked area (Step 6)	115	3/1/96	170:4/25/96	
Analyze samples and results	150	4/5/96	178:5/3/96	
Prepare documentation for certification by an independent Professional Engineer	175	4/30/96	209:6/3/96	
Receive closure certification by DOE	180	5/5/96	239:7/2/96	
or				
Repeat decontamination and sample analysis ¹	**			
Receive independent Professional Engineer and DOE certify closure				

Footnotes

¹ If decontamination must be repeated or if closure activities cannot be completed within the allotted time, extension of the closure schedule beyond the maximum of 180 days will be requested.

² Number of days following initiation of closure.

³ TDEC Closure Plan approval date.

TDEC Approval: Revised Schedule and Steps 1-6 in any sequence or overlap.

Signature:

Date

FEB 07 1996

Tom Tiesler, Director
Division of Solid Waste Management
Tennessee Department of Environment
and Conservation
Fifth Floor, Life & Casualty Tower
401 Church Street
Nashville, Tennessee 37243-1535

Certified Mail
Z 009 191 241

Dear Mr. Tiesler:

**RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CLOSURE PLAN FOR THE URANIUM
TREATMENT UNIT, Y-12 PLANT, OAK RIDGE, TN**

The purpose of this letter is to document a telephone conversation between David Moran, TDEC, and Larry Sparks of my staff which took place on January 24, 1996. The purpose of the telephone conversation was to discuss progress towards completion of the subject Closure Plan. A summary of that telephone conversation follows.

The first issue discussed was the interim completion dates for the individual steps to close the Uranium Treatment Unit contained in the approved Closure Plan. Agreement was reached that the only regulatory driven completion date is the 180 day limit to complete the closure. The interim dates are viewed as goals to be used to track progress, not hard and fast deadlines. Mr. Sparks indicated that the first interim date had been missed but that efforts are being taken to ensure that all work is completed within 180 days from the Closure Plan approval.

The second issue discussed was the actual order in which the work will progress. In describing the work necessary to effect closure, the Closure Plan breaks the work into discrete steps for ease of explanation. These steps are numbered consecutively. It was agreed that this numbering of the steps did not necessarily mean that work on each step had to be fully completed prior to the start of work on the next step. Working steps concurrently, as appropriate, with additional resources is how we plan to meet the 180 day closure requirement.

Y-12 SITE OFFICE

LOG NO. R-0161

FILE CODE 54912

Tom Tiesler

-2-

FEB 07 1996

The telephone conversation concluded with an agreement that a formal change to the approved Closure Plan was unnecessary at this time. If you disagree with this conclusion or with any of the issues discussed above, please notify us as soon as possible. If you have any questions or require further information, please feel free to contact Mr. Sparks at (423) 576-2659.

Sincerely,

Original Signed by
R. J. Spence

Robert J. Spence
Y-12 Site Manager

DP-813:Sparks

cc:

E. Lemming, TDEC, Oak Ridge
J. Powell, 9116, MS 8098, Y-12

960121wp.gb

File Code:54912

Action: _____ Date: _____

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Solid Waste Management
Fifth Floor, L & C Tower
401 Church Street
Nashville, Tennessee 37243-1535

February 15, 1996

Mr. Robert J. Spence
Y-12 Site Manager
Department of Energy
Oak Ridge Operations Office
Post Office Box 2001
Oak Ridge, Tennessee 37831-8555

OPTIONAL FORM 98 (7-90)

FAX TRANSMITTAL

of pages 1

To	John Powell	From	Larry Sparks
Dept./Agency	EMD	Phone #	62659
Fax #	49041	Fax #	68010
NSN 7540-01-317-7368		5099-101 GENERAL SERVICES ADMINISTRATION	

Dear Mr. Spence:

I am in receipt of your letter dated February 7, 1996, addressed to Mr. Tom Tiesler pertaining to the closure plan for the Uranium Treatment Unit at the Y-12 plant. Your understandings as put forth in the letter are correct, but be aware of the fact that this pertains solely to the Uranium Treatment Unit and no other closure.

The 180 day work completion requirement is an enforceable date and must be adhered to unless a written request for an extension is submitted to, and approved by the Division.

If you have any additional questions about this issue, please feel free to contact me at telephone number (615) 532-0875.

Sincerely,

David Moran

David Moran
DOE Coordinator, DSWM

c: E. Leming, DOE-O

c:uranep.doc

Y-12 SITE OFFICE

LOG NO. E-0448

FILE CODE _____

MARTIN MARIETTA ENERGY SYSTEMS, INC.POST OFFICE BOX 2009
OAK RIDGE, TENNESSEE 37831

February 16, 1996

Mr. R. J. Spence
Department of Energy, Oak Ridge Operations
Post Office Box 2001
Oak Ridge, Tennessee 37831

Dear Mr. Spence:

**Contract DE-AC05-84OR21400, Resource Conservation and Recovery Act (RCRA)
Closure Plan for the Uranium Treatment Unit--Schedule Deviation**

This is to advise you that the Tennessee Department of Environment and Conservation (TDEC) staff-approved interim closure schedule dates of February 25, 1996, (decontaminate equipment) and March 1, 1996, (decontaminate structures and diked areas) will not be met. The closure activity is progressing in accordance with the revised schedule which was submitted for your approval and forwarding to personnel at the TDEC. We are requesting that Mr. David Moran of the TDEC be advised of this information.

Per discussions with Larry Sparks, of your staff, the revised schedule was discussed with Mr. Moran on January 24, 1996, and deemed acceptable. Written TDEC staff approval of the revised schedule is anticipated in due course. However, notification of missed, approved closure schedule dates will continue until the TDEC staff approval of the revised schedule is in hand.

If you have any questions, please contact E. T. Collins at 574-8886.

Very truly yours,

T. R. Butz
Y-12 Plant Manager

TRB:rft

cc: T. R. Butz
E. T. Collins
C. H. Fritts
C. D. Goins Jr.
J. S. Guilford
F. P. Gustavson
C. C. Hill

R. M. Keyser/J. E. Powell
M. K. Morrow/N. C. Jessen
S. E. Rathke
L. M. Sparks, DOE-ORO
C. L. Stair/T. P. A. Perry
Y-12 Central Files
File-EMD-RC

APPENDIX B

Uranium Treatment Unit--Closure Plan

MARTIN MARIETTA

**RESOURCE CONSERVATION AND
RECOVERY ACT (RCRA)
CLOSURE PLAN FOR
THE URANIUM TREATMENT UNIT**

Environmental Management Department

Health, Safety, Environment, and
Accountability Organization

Enriched Uranium Operations
Organization

Prepared by
Oak Ridge Y-12 Plant
Oak Ridge, Tennessee 37831
Managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400

**MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY**

**RESOURCE CONSERVATION AND
RECOVERY ACT (RCRA)
CLOSURE PLAN FOR
THE URANIUM TREATMENT UNIT**

Environmental Management Department

Health, Safety, Environment, and Accountability Organization

Enriched Uranium Operations Organization

Date Published--March 1995

**Prepared by
Oak Ridge Y-12 Plant
Oak Ridge, Tennessee 37831-8169
Managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400**

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ACRONYMS

CFR	Code of Federal Regulations
DOE	U.S. Department of Energy
Energy Systems	Martin Marietta Energy Systems, Inc.
EPA	U.S. Environmental Protection Agency
ppm	Parts Per Million
pvc	Polyvinyl Chloride
RCRA	Resource Conservation and Recovery Act
TDEC	Tennessee Department of Environment and Conservation

1.0 INTRODUCTION

This closure plan has been prepared for the Uranium Treatment Unit located at the Y-12 Plant in Oak Ridge, Tennessee (Environmental Protection Agency [EPA] Identification TN 389-009-0001). The actions required to achieve closure of the Uranium Treatment Unit are outlined in this plan, which is being submitted in accordance with Tennessee Rule 1200-1-11-.05(7) and Title 40, Code of Federal Regulations (CFR), Part 265, Subpart G.

The Uranium Treatment Unit is used to store and treat waste materials that are regulated by the Resource Conservation and Recovery Act (RCRA). A diagram of the Uranium Treatment Unit is shown in Figure 1. This plan details all steps that are to be performed to close the Uranium Treatment Unit at the end of its operation.

The Oak Ridge Y-12 Plant was built by the U.S. Army Corps of Engineers in 1943 as part of the Manhattan Project. The U.S. Department of Energy (DOE) owns and operates the Y-12 Plant. Personnel from Martin Marietta Energy Systems, Inc. (Energy Systems), co-operate and manage the Y-12 Plant under a prime contract with DOE. The contract is administered by personnel at the DOE, Oak Ridge Operations Office.

The Y-12 Plant occupies approximately 800 acres in Anderson County, Tennessee, and is located southwest of the city of Oak Ridge. Approximately 4,000 people are employed at the Y-12 Plant, including employees of the Oak Ridge National Laboratory who are assigned to the plant. Two surface streams, East Fork Poplar Creek and Bear Creek, border the facility on the south, east, and southwest sides of the plant. Access to the Y-12 Plant is controlled on Bear Creek Road on the north side of the facility; indirect access is available from Scarboro Road on the east side and Bethel Valley Road on the south side of the facility. A controlled access road from Bethel Valley Road by way of Mt. Vernon Road is located on the southwest side of the site.

The mission of Y-12 Plant personnel is to provide a key manufacturing technology center for the development and demonstration of unique materials, components, and services of importance to DOE and the nation. This mission is accomplished through reclaiming and storing nuclear materials, manufacturing nuclear materials, manufacturing components for the defense capabilities of the nation, supporting national security programs, and providing services to other customers as approved by DOE personnel.

1.1 Unit Description

The Uranium Treatment Unit, associated equipment, and diked areas are located east of Building 9206 within the boundaries of the Y-12 Plant. The Uranium Treatment Unit consists of two 300-gallon polytanks and associated structural support stands, two electrically driven agitators, and approximately 400 square feet of ten-mil polyvinyl chloride (PVC) liners. Also included in this closure plan are twelve 55-gallon drums filled with Raschig rings which were used to collect the RCRA solutions prior to treatment at the Uranium Treatment Unit. The design treatment capacity of the Uranium Treatment Unit is 500 gallons per day, and the design storage capacity of the drum storage area is 990 gallons.

Figure 1. Uranium Treatment Unit.

The Uranium Treatment Unit treats organic solutions containing enriched uranium. Before these solutions can be transferred from a nuclear safe container, they must be below 400 parts per million (ppm) uranium concentration. The treatment unit takes waste organic solutions containing characteristically hazardous and F001 and F002 listed (Freon 113) waste with a uranium concentration less than 400 ppm, mixes this solution with depleted uranyl nitrate to create a solution in which the U-235 concentration is less than 1 percent, and then adjusts the pH of this solution with the addition of caustic.

2.0 CLOSURE PLAN CONTENTS

This plan has been prepared in accordance with the requirements of 40 CFR Part 265, Subpart G, and Tennessee Rule 1200-1-11-.05(7)(a). The steps that are to be performed to close the Uranium Treatment Unit are detailed herein.

Because the Uranium Treatment Unit is part of the Y-12 Plant, which is a federal facility, no closure cost estimate, financial assurance mechanism, or liability insurance is required. This exemption from certain financial requirements is found in 40 CFR Part 265.140(c) and Tennessee Rule 1200-1-11-.05(8)(a).

3.0 CLOSURE PLAN PERFORMANCE STANDARD

Closure of the Uranium Treatment Unit minimizes the need for further maintenance, prevents the release of hazardous constituents from the unit, protects human health and the environment, and complies with all applicable closure requirements. The applicable requirements for the site are found in 40 CFR Part 265.197 and Tennessee Rule 1200-1-11-.05(10).

This standard will be accomplished through the removal of all RCRA hazardous wastes stored in polytanks and containers at the unit. The RCRA wastes will be transferred to an appropriately permitted facility for storage, treatment, or disposal. To minimize residual contamination on site, the treatment area, containers, tanks, and equipment located there will be cleaned until satisfactorily decontaminated and sampled according to the attached sampling and analysis plan, if applicable.

3.1 Closure Procedures

Before closure activities begin, the unit will be surveyed by the Y-12 Radiological Control (Rad Con) Department personnel and a safety plan will be prepared based on the site conditions. The plan will identify radiological and chemical hazards as well as controls to reduce worker risk.

3.2 Partial Closure and Final Closure Activities

This is a final closure of the Uranium Treatment Unit, associated equipment, and diking; there will be no partial closure activities. Final closure activities will proceed as described below.

4.0 CLOSURE ACTIVITIES

The equipment that is utilized during operations includes two 300-gallon polytanks; two stainless-steel, electrically driven agitators used to mix solutions in the 300-gallon polytanks; twelve 55-gallon stainless steel drums; and 90 cubic feet (7 cases/drum; 144 rings/case) of Raschig rings used as a nuclear poison in the 55-gallon drums. Facility-related items requiring decontamination include structural supports for the 300-gallon polytanks and the two-layer PVC 10-mil liners (approximately 400 square feet) for the diked area.

Step 1: Removal of Waste Inventory

All hazardous waste will be transferred to an approved facility for storage, treatment, or disposal. Equipment to be used will be, but is not limited to, forklift truck, hand pallet jack, and/or hand dolly. Material will be removed from the polytanks or drums using pumps or other means as necessary. Sludges, if present, will be removed using pumps or removed by shovels or scoops. All material removed will be transferred to an approved facility for storage, treatment, and/or disposal in drums, polytanks, or tank trucks.

Step 2: Decontamination of Stainless-Steel Agitators

The two stainless steel agitators will be deenergized and processed through a two-stage cleaning process. The initial cleaning will be with a detergent applied using a high pressure washer. The second stage will be a two-step rinsing with hot water applied with a high pressure washer. All solution generated will be collected, containerized, properly characterized, and stored at an approved on-site storage facility awaiting treatment or disposal. The containerized solution will be marked, stored, and treated based upon the appropriate RCRA listings and applicable RCRA characteristics. The solution generated during the final cleaning pass will be collected separately and sampled for RCRA constituents to document that decontamination criteria listed in Table 4 in the attached sampling and analysis plan are met (see Appendix A). The agitators will not be disposed of, but will be considered clean reusable equipment.

Step 3: Decontamination of 300-gallon Polytanks

The polytanks will be drained of RCRA hazardous wastes. The tanks will be decontaminated using a two step approach. The initial cleaning will be with a detergent applied using a high pressure washer. The second stage will be a two-step rinsing with hot water applied with a high pressure washer. All solution generated will be collected, containerized, properly characterized, and stored at an approved on-site storage facility awaiting treatment or disposal. The containerized solution will be marked, stored, and treated based upon the appropriate RCRA listings and applicable RCRA characteristics. The solution generated during the final cleaning pass will be collected separately and sampled for RCRA constituents to document that decontamination criteria listed in Table 4 in the attached sampling and analysis plan are met. The polytanks will then be disposed of as nonhazardous waste or reused for nonhazardous purposes.

Step 4: Decontamination of Raschig Rings

The RCRA decontamination of the Raschig rings will be attempted using a four-stage process. The Raschig rings will be removed from the 55-gallon drums and segregated based upon the

RCRA constituents that have been in contact with the rings. In addition, the rings will be segregated based upon the buildup of material on the rings (i.e., very dirty, somewhat dirty, fairly clean). Segregating the rings in this manner will minimize the hazardous waste that is generated. The segregated rings will be placed inside a stainless steel mesh basket (or similar device) and cleaned with a detergent applied using a high pressure washer. The rings will then be rinsed with water and allowed to soak in a 30 percent nitric acid solution. The rings will then be cleaned with a detergent applied with a high pressure washer. The final stage will consist of a thorough rinsing with hot water applied with a high pressure washer. All solution generated will be collected, containerized, and stored at an approved on-site storage facility. The containerized solution will be marked, stored, and treated based upon the appropriate RCRA listings and applicable RCRA characteristics. The solution generated during the final cleaning pass will be collected separately and sampled for RCRA constituents to document that the decontamination criteria listed in Table 4 in the attached sampling and analysis plan are met.

If RCRA decontamination of the Raschig rings is unsuccessful, the rings will be packaged into 55-gallon drums and placed into long-term storage as mixed hazardous waste.

Step 5: Decontamination of 55-gallon Stainless Steel Drums

The drums will be drained of RCRA hazardous wastes. The drums will be considered empty under 40 CFR Part 261.7 if:

- All wastes have been removed that can be removed using the practices commonly employed to remove materials from similar containers (e.g., pouring or pumping), and
- No more than one inch of residue remains on the bottom of the container or inner liner, or
- No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner.

All material removed from the containers will be collected, containerized, properly characterized, and stored at an approved on-site storage facility awaiting treatment or disposal. The drums will then be disposed of as nonhazardous waste or reused for other purposes.

Step 6: Decontamination of Plastic Liner and Structural Support for 300-gallon Poly tanks

The structural supports and the plastic liner will be decontaminated using a two-step process. Initial cleaning will be with a detergent applied using a high pressure washer. This will be followed by a two-stage high pressure rinsing. All solution generated will be collected, containerized, and stored at an approved on-site storage facility. The containerized solution will be marked, stored, and treated based upon the appropriate RCRA listings and applicable RCRA characteristics. The solution generated during the final cleaning pass will be collected separately and sampled for RCRA constituents to document that decontamination criteria listed in Table 4 in the attached sampling and analysis plan are met.

If RCRA decontamination of the liner is unsuccessful, the liner will be packaged into 55-gallon drums and placed into long-term storage as mixed hazardous waste.

Step 7: Decontamination of Asphalt Surface under the Plastic Liner

A thorough inspection of the integrity of each layer of the plastic liner will be made during the above described decontamination effort. If there is no indication that the liner has been breached, this will be documented and no decontamination will be performed on the asphalt. If the liner has been breached, then the asphalt surface, beneath the breached area of the liner, will be cleaned using a two stage process. The surface will initially be cleaned with a detergent. This will be followed by a hot water rinse. The excess solution generated will be collected, containerized, and stored at an approved on-site storage facility pending the analysis from samples taken from the solution. Based on the analytical results, the containerized solution will be disposed of in an appropriate manner. The excess solution generated during the final cleaning pass will be collected separately and sampled for RCRA constituents to document that decontamination criteria listed in Table 4 in the attached sampling and analysis plan are met.

5.0 VERIFICATION OF DECONTAMINATION

Rinse water samples will be analyzed for the hazardous constituents formerly stored in the container storage and treatment areas as an indicator of decontamination verification. Decontamination will be considered complete if the concentration of these constituents in the water are less than the decontamination criteria listed in Table 4 in the attached sampling and analysis plan. The sample will be analyzed by EPA method ("Test Methods for Evaluating Solid Waste," SW-846, November 1990 as amended). Sampling and analytical quality assurance/quality control will be conducted as specified in SW-846. Further water and surfactant/water rinses will be used if decontamination of an item is not complete. These rinses will be repeated until the decontamination criteria listed in Table 4 in the attached sampling and analysis plan are met.

6.0 CERTIFICATION OF CLOSURE

Documentation for certification by an independent Professional Engineer will be prepared. Final certification of closure by DOE and Energy Systems personnel will be performed. The certification, along with the closure report, will then be submitted to the Commissioner of the Tennessee Department of Environment and Conservation (TDEC) staff for closure approval.

7.0 MAXIMUM WASTE INVENTORY

The maximum treatment capacity of the Uranium Treatment Unit is 500 gallons per day, and the maximum waste inventory of the drum storage area is 990 gallons or 18 drums.

The Uranium Treatment Unit and container storage area receive and treat only wastes that are characteristically hazardous or F001 and F002 listed (Freon 113) wastes. The wastes originate from processes located in either Building 9206 or Building 9212.

8.0 SCHEDULE FOR CLOSURE

Closure activities will be completed within 180 days from the closure plan being approved by personnel from the state. The actual times for each step of the closure activities are shown in Table 1. It is not anticipated that an extension of time for closure activities will be required. However, if closure cannot be completed within the specified time, a request for an extension of closure time will be submitted to the TDEC Commissioner in accordance with Tennessee Rule 1200-1-11-.06(7)(d).

9.0 POSTCLOSURE CARE

Remediation activities of this closure plan are intended to clean up any RCRA hazardous contaminants that may have resulted from storage and/or treatment activities associated the Uranium Treatment Unit. Upon successful completion of cleanup activities and certification/approval of the TDEC Commissioner, this site will be returned to plant activities and not subject to any further requirements under 40 CFR Part 265, Subpart G, or Tennessee Rule 1200-1-11-.05(7).

<p style="text-align: center;">TABLE 1 CLOSURE SCHEDULE FOR THE URANIUM TREATMENT UNIT*</p>	
ACTION	EXPECTED COMPLETION**
Notify Tennessee Department of Health and Environment of intent to initiate	-180 days
Receive final volumes of waste; initiate closure	0
Remove inventory, load and transfer	45
Decontaminate equipment	110
Decontaminate structures and diked area	115
Analyze samples and results	150
Prepare documentation for certification by an independent Professional Engineer	175
Receive closure certification by DOE	180
or	
Repeat decontamination and sample analysis	**
Receive independent Professional Engineer and DOE certify closure	

* If decontamination must be repeated or if closure activities cannot be completed within the allotted time, extension of the closure schedule beyond the maximum of 180 days will be requested.

** Number of days following initiation of closure.

APPENDIX A

**RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
CLOSURE PLAN FOR THE URANIUM TREATMENT UNIT**

SAMPLING AND ANALYSIS PLAN

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ACRONYMS

CFR	Code of Federal Regulations
DDU	Destructive Distillation Unit
Energy Systems	Martin Marietta Energy Systems, Inc.
ICP	Inductively Coupled Plasma
PVC	Polyvinyl Chloride
PCB	Polychlorinated Biphenyl
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
SOP	Standard Operating Procedure
SVOA	Semivolatile Organic Analysis
VOA	Volatile Organic Analysis

1.0 PROJECT OVERVIEW

This document defines the sampling and analytical procedures needed to assure that the decontamination of materials needed for closure of the Uranium Treatment Unit is achieved.

The Uranium Treatment Unit consists of the treatment area, polytanks, and associated equipment located east of Building 9206 at the Y-12 Plant. The Uranium Treatment Unit has been used to store and treat waste materials that are regulated by the Resource Conservation and Recovery Act (RCRA). The *Closure Plan for the Uranium Treatment Unit* (Y/TS-1253) details the steps to be performed to close this unit in accordance with the requirements of Title 40, Code of Federal Regulations (CFR), Part 265, Subpart G, and Tennessee Rule 1200-1-11-.05(7)(a).

1.1 Project Description

The Uranium Treatment Unit has in the past received, stored, and treated waste solutions that contained organic material contaminated with low concentrations of uranium. The equipment covered by this closure plan includes:

- * Two 300-gallon polytanks.
- * Two stainless-steel, electrically driven agitators,
- * Twelve 55-gallon stainless-steel drums,
- * Raschig rings (each 55-gallon drum contains 7 cases [144 rings/case] of Raschig rings),
- * Structural supports for the two 300-gallon polytanks,
- * Approximately 400 square feet of 10-mil polyvinyl chloride (PVC) liner, and
- * Asphalt surface under the plastic liner (*ONLY if the integrity of the two layers of the plastic liner has been breached*).

Analyses of rinse waters will be performed to determine if any RCRA-hazardous materials are remaining after material has undergone decontamination. Process knowledge indicates that the Toxicity Characteristic Leaching Procedure analytes listed in Table 4 could be present. Random testing of the area has confirmed that no polychlorinated biphenyl (PCB) contamination of the area took place. Presence of radiological contamination is known, but is not of concern from the standpoint of this sampling and analysis activity.

The drums will not require decontamination because they will be drained of RCRA hazardous wastes and declared empty under 40 CFR Part 261.7. The applicable criterion for RCRA-empty is as follows:

- * All wastes have been removed that can be removed using the practices commonly employed to remove materials from similar containers (e.g., pouring or pumping), and
- * No more than one inch of residue remain on the bottom of the container or inner liner, or
- * No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner.

1.2 Material Description

The Uranium Treatment Unit has the capacity of treating 500 gallons of waste per day and storing up to 900 gallons. The waste received at the treatment facility originates from the following different streams (C. H. Fritts, interoffice memorandum, 5/10/94):

- a. Distillate from the ventilation system of Building 9212 Destructive Distillation Unit (DDU). Potentially applicable waste codes include:

D002: exhibits the characteristics of corrosivity,
D004: containing Arsenic (CAS# 7440-38-2),
D005: containing Barium (CAS# 7440-39-3),
D006: containing Cadmium (CAS# 7440-43-9),
D007: containing Chromium (CAS# 7440-47-3),
D008: containing Lead (CAS# 7439-92-1),
D009: containing Mercury (CAS# 7439-97-6),
D010: containing Selenium (CAS# 7782-49-2),
D011: containing Silver (CAS# 7440-22-4),
D018: containing Benzene (CAS# 71-43-2),
D019: containing Carbon Tetrachloride (CAS# 56-23-5),
D021: containing Chlorobenzene (CAS# 108-90-7),
D022: containing Chloroform (CAS# 67-66-3),
D023: containing o-Cresol (CAS# 95-48-7),
D024: containing m-Cresol (CAS# 108-39-4),
D025: containing p-Cresol (CAS# 106-44-5),
D026: containing Cresol,
D027: containing 1,4-Dichlorobenzene (CAS# 106-46-7),
D028: containing 1,2-Dichloroethane (CAS# 107-06-2),
D029: containing 1,1-Dichloroethylene (CAS# 75-35-4),
D030: containing 2,4-Dinitrotoluene (CAS# 121-14-2),
D032: containing Hexachlorobenzene (CAS# 118-74-1),
D033: containing Hexachlorobutadiene (CAS# 87-68-3),
D034: containing Hexachloroethane (CAS# 67-72-1),
D035: containing Methyl Ethyl Ketone (CAS# 78-93-3),
D036: containing Nitrobenzene (CAS# 98-95-3),
D037: containing Pentachlorophenol (CAS# 87-86-5),
D038: containing Pyridine (CAS# 110-86-1),
D039: containing Tetrachloroethylene (CAS# 127-18-4),
D040: containing Trichloroethylene (CAS# 79-01-6),
D041: containing 2,4,5-Trichlorophenol (CAS# 95-95-4),
D042: containing 2,4,6-Trichlorophenol (CAS# 88-06-2),
D043: containing Vinyl Chloride (CAS# 75-01-4)

- b. Waste extraction solutions from the primary and secondary column extractors in the enriched uranium recovery process. Potential contaminants include:
- D002: exhibits the characteristics of corrosivity,
 - D004: containing Arsenic (CAS# 7440-38-2),
 - D005: containing Barium (CAS# 7440-39-3),
 - D006: containing Cadmium (CAS# 7440-43-9),
 - D007: containing Chromium (CAS# 7440-47-3),
 - D008: containing Lead (CAS# 7439-92-1),
 - D009: containing Mercury (CAS# 7439-97-6)
- c. Waste Freon F001 and F002 resulting from the use as a water displacement chemical during the handling and storage of uranium materials at the Y-12 Plant.
- d. Non-PCB oil resulting from the plant operation. The oil itself is not a listed RCRA waste. Potential applicable waste codes include D018: (containing Benzene [CAS #71-43-2]) and D035 (containing Methyl Ethyl Ketone [CAS# 78-93-3]).
- e. Propylene Glycol from the cooling process of uranium metal machining. Propylene Glycol is a non-RCRA material. Potential applicable waste codes are D007: (containing Chromium [CAS# 7440-47-3]) and D008 (containing lead [CAS# 7439-92-1]).

These waste streams are handled and stored in the 300-gallon polytanks and in twelve 55-gallon drums. All drums contain Raschig rings.

2.0 DESIGN AND PROCEDURES FOR SAMPLE COLLECTION

In accordance with the RCRA closure plan, rinse water samples will be collected. Before samples are collected, all RCRA hazardous waste previously stored in containers and polytanks at the unit will have been removed. The decontamination process will consist of a detergent wash followed by rinse steps. The final rinse material for the plastic liner, Raschig rings, structural supports, polytanks, and agitators will be sampled and analyzed for the RCRA constituents listed in Table 4 to document that decontamination criteria have been met. All other solutions generated through the decontamination process will be collected, containerized, and stored at an approved on-site storage facility for future treatment or disposal.

The analytical samples to be collected are shown in Table 1. Details of sample collection are discussed in the sections that follow.

Table 1. Anticipated number of analytical samples

Sample	Minimum Number of Samples
Liner rinse water (1 each)	2
Raschig ring rinse water	12
Structural support rinse water (2 replicates)	2
Agitator rinse water (2 each)	4
Polytanks (2 each)	4
Quality Control (QC) Samples	
Trip blanks	1 per cooler with volatile organic analyses (VOAs)
Source water blanks	1 per source water
Replicates	20% of non-QC Samples

Decontamination of Stainless-Steel Agitators

The two stainless steel agitators will be deenergized and processed through a two-stage cleaning process. The initial cleaning will consist of a detergent applied using a high pressure washer. The second stage will be a two-step rinsing with hot water applied with a high pressure washer. All solution generated will be collected, containerized, properly characterized, and stored at an approved on-site storage facility awaiting treatment or disposal. The containerized solution will be marked, stored, and treated based upon the appropriate RCRA listings and applicable RCRA characteristics. The solution generated during the final cleaning pass will be collected separately and sampled for RCRA constituents to document that decontamination criteria listed in Table 4 are met. The agitators will not be disposed of, but will be considered clean reusable equipment.

Decontamination of 300-gallon Polytanks

The polytanks will be drained of RCRA hazardous wastes. The tanks will be decontaminated using a two-step approach. The initial cleaning will consist of a detergent applied using a high pressure washer. The second stage will be a two-step rinsing with hot water applied with a high pressure washer. All solution generated will be collected, containerized, properly characterized, and stored at an approved on-site storage facility awaiting treatment or disposal. The containerized solution will be marked, stored, and treated based upon the appropriate RCRA listings and applicable RCRA characteristics. The solution generated during the final cleaning pass will be collected separately and sampled for RCRA constituents to document that decontamination criteria listed in Table 4 are met. The polytanks will then be disposed of as non-hazardous waste or reused for nonhazardous purposes.

Decontamination of Raschig Rings

The RCRA decontamination of the Raschig rings will be attempted using a four-stage process. The Raschig rings will be removed from the 55-gallon drums and will be

segregated based upon the RCRA constituents that have been in contact with the rings. In addition, the rings will be segregated based upon the buildup of material on the rings (i.e., very dirty, somewhat dirty, fairly clean). The segregated rings will be placed inside a stainless steel mesh basket (or similar device) and cleaned with a detergent applied using a high pressure washer. The rings will then be rinsed with water and then allowed to soak in a 30 percent nitric acid solution. The rings will then be cleaned with a detergent applied with a high pressure washer. The final stage will consist of a thorough rinsing with hot water applied with a high pressure washer. All solution generated will be collected, containerized, and stored at an approved on-site storage facility. The containerized solution will be marked, stored, and treated based upon the appropriate RCRA listings and applicable RCRA characteristics. The solution generated during the final cleaning pass will be collected separately and sampled for RCRA constituents to document that the decontamination criteria listed in Table 4 are met.

If RCRA decontamination of the Raschig rings is unsuccessful, the rings will be packaged into 55-gallon drums and placed into long-term storage as mixed hazardous waste.

Decontamination of Plastic Liner and Structural Support for 300-gallon Poly tanks

The structural supports and the plastic liner will be decontaminated using a two-step process. Initial cleaning will be with a detergent applied using a high pressure washer. This will be followed by a two-stage high pressure rinsing. All solution generated will be collected, containerized, and stored at an approved on-site storage facility. The containerized solution will be marked, stored, and treated based upon the appropriate RCRA listings and applicable RCRA characteristics. The solution generated during the final cleaning pass will be collected separately and sampled for RCRA constituents to document that decontamination criteria listed in Table 4 are met.

If RCRA decontamination of the liner is unsuccessful, the liner will be packaged into 55-gallon drums and placed into long-term storage as mixed hazardous waste.

Decontamination of Asphalt Surface under the Plastic Liner

A thorough inspection of the integrity of each layer of the plastic liner will be made during the above described decontamination effort. If there is no indication that the liner has been breached, this will be documented and no decontamination will be performed on the asphalt. If the liner has been breached, then the asphalt surface will be cleaned using a two-stage process. The surface will initially be cleaned with a detergent applied with a high pressure washer. This will be followed by a high pressure hot-water rinse. All solution generated will be collected, containerized, and stored at an approved on-site storage facility pending the analysis from samples taken from the solution. Based on the analytical results, the containerized solution will be disposed of in an appropriate manner. The solution generated during the final cleaning pass will be collected separately and sampled for RCRA constituents to document that decontamination criteria listed in Table 4 are met.

2.1 Sampling Procedures

Sample sizes, preservatives, and holding times are given in Table 2.

Samples listed in Table 1 will be collected by Martin Marietta Energy Systems, Inc. (Energy Systems), sampling personnel. Samples will be preserved in the field, scanned by Y-12 Radiological Control personnel, and delivered to the Energy Systems analytical laboratory at the end of each sampling day or no later than 24 hours after the samples are collected. Samples are stored in coolers at 4 °C (metals samples may be stored uncooled) in the field and during transport to the laboratory.

2.1.1 Water Sampling

Protocols from or consistent with the *Environmental Surveillance Procedures Quality Control Program*, ES/ESH/INT-14, are to be used when possible. The following activities take place once the decontamination is completed. Samples for volatile organic determinations will be collected as soon as possible.

As indicated in Table 1, an additional volume of water will sometimes be needed to provide sufficient sample for laboratory QC. Each sample will be placed in its container as soon as it has been obtained. The samples are preserved in accordance with practices given in Table 2. The field notebook and chain-of-custody forms will be completed in accordance with ESP-503, *Field Logbooks and Data Forms* (August 1994), and -501/500 *Chain-of-Custody* (January 1990).

2.2 Sampling Quality Assurance (QA)

Field sampling personnel must perform operations according to the closure plan, this sampling and analysis plan (SAP), and the procedures specified.

The quality of the sampling is monitored by the analysis of field duplicate samples. Collection of replicate samples serves two uses. Every other replicate collected is designated as a field duplicate; these are ideally collocated with the original associated sample.

Field blanks (source water blanks) will be submitted at a rate of one sample per water type (e.g., steam cleaning water and decontamination water) per sampling event (time sampling personnel arrive at the site until the time they leave for more than 24 hours).

To ensure that cross-contamination does not occur, most sampling equipment will be utilized only one time. However, if equipment is reused, decontamination will be performed as described in ES/ESH/INT-14.

2.3 Sample Preservation, Containers, and Holding Times

The primary means of sample preservation will be cooling to 4° ± 2° C. For water samples, chemical preservation will be conducted according to requirements of Environmental Protection Agency (EPA) SW-846 *Test Methods for Evaluating Solid Waste*, November 1990, as amended (see Table 2).

Sample containers will be selected as appropriate for the applicable analysis. Choosing the correct container is a matter of making sure that the sample and container are nonreactive to

Table 2. Preservation, holding times, and containers by sample type and analysis

Sample Type	Analysis (SW-846)	Preservation	Holding time	Containers
Waters	VOAs		7 days to analyze	2-40 mL amber vials with Teflon-lined caps
	SVOAs*	4°C	14 days to extraction, plus 40 days to analysis	2-L amber glass jar with Teflon liner
	Metals	HNO ₃ to pH < 2	180 days	1-L glass or polyethylene jar
	Mercury	HNO ₃ to pH < 2	13 days in polyethylene, 38 days in glass	250-mL polyethylene or glass jar (Note change in 1992 SW-846 update)

Herbicides and Pesticides will not be required for this closure.

*SVOAs = Semivolatile Organic Analyses

each other. If possible, containers will be kept full to help retard air oxidation. Volatile samples must be collected with zero headspace.

Holding times will follow the guidance provided in EPA/SW-846. Holding times start at the time of collection of the sample in the field.

3.0 SAMPLE CUSTODY AND DOCUMENTATION

3.1 Chain of Custody

The ability to trace samples from the time of collection is accomplished through the process known as chain of custody. This record is filled out during the sampling event and accompanies every sample from the time it is taken until the sample is relinquished to the laboratory. Samples taken under chain-of-custody for this project will follow the specific guidance provided in ESP-501/500 or Analytical Service Organization Standard Operating Procedure (SOP) 9094, *Sample Chain of Custody* (February 1982).

3.2 Sample Container Label

Samples will be physically identified by a label placed on the sample bottle in a manner that is clear and easily recognizable. Samplers will fill out the labels on each container before collection, if possible, to minimize handling errors. Labels will be attached to the sample container and discarded when analysis is complete.

3.3 Field Notebook

The field sampling event will be recorded in the field notebook. The field notebook is bound with consecutively numbered pages. All pertinent information necessary to interpret the analytical data will be recorded in the field notebook in black ink. The entries should provide a chronological record of the sampling team's activities, enabling reconstruction of the sampling event at a later date. The field notebooks are to be maintained as project records.

3.4 Laboratory Notebooks

Laboratory logbooks provide a record of events surrounding the analysis of the samples. The recorded data entered into the notebook each day must be reviewed and signed by the user and a qualified second reviewer (e.g., peer reviewer, supervisor, team leader). All entries are made in ink. Data must be sufficient to enable a person to reconstruct sample preparation and analysis and to perform any calculations. The notebook is also used to record the source of all standard materials, sample preparations, sample preservations, and unusual conditions. Guidance on laboratory notebooks can be found in Y-12 Plant SOP 9069, *Issue, Use, and Accountability of Laboratory Logbooks in the Analytical Services Organization*.

4.0 ANALYTICAL PROCEDURES

The following sections provide a brief description of the analytical methods to be used in this characterization study. Table 3 lists the analytical methods. The number of samples expected to be analyzed are given in Table 1, and the determinations to be performed for each sample and matrix are given in Table 2.

Quality control practices suggested or recommended by the analytical method will be considered required for this project unless the laboratory obtains permission from the project otherwise prior to initiation of analysis.

4.1 SW-846 Totals

Water samples will be analyzed by current SW-846 protocols as indicated in Table 3.

4.2 Calibration

All laboratory equipment must be calibrated according to manufacturer's instructions, analytical protocols, and applicable Y-12 Plant SOPs such as 9071, *Calibration of Analytical Equipment*, and 9086, *Calibration of Mechanical and Electronic Pipettes*.

4.3 Laboratory QA and QC

Laboratory QA systems must be in place, documented, and implemented.

The goal of a QA program is to monitor the activities within the laboratory to ensure that all data generated are suitable for their intended use. The QA activities will be under the direction of a person that reports directly to the laboratory director or other independent QA organizations.

Table 3. Analytical methods^a

Analyzes	Method of analysis (SOPs)
ICP metals	6010
Mercury	7470
Semivolatiles	8270
Volatiles	8240 or 8260

^a All samples will undergo further preparation and possibly cleanup according to approved SW-846 methods prior to analysis.

The laboratory responsible for the analysis will subject a minimum of 5 percent of all samples to spiking for the purpose of QC. The laboratory also will analyze 5 percent of the samples as laboratory duplicates.

Additional material will be supplied and identified for these QC samples from the field replicates. The results will serve as tools to evaluate the quality of data being furnished by the laboratory. Procedures for analyzing QC samples and utilizing the results must be in place. At a minimum, the QC program must meet the criteria specified within the required methods.

5.0 DATA REDUCTION, VERIFICATION, REPORTING, AND ASSESSMENT

5.1 Data Reduction/Verification

Field data and observations are verified by another sample team member at the time of collection and are reported without further manipulation or reduction to the Project Manager. Data generated in the laboratory will be reduced and verified in accordance with the specific procedures and the internal QA program of that laboratory. Applicable Y-12 Plant SOPs include 9122, *Internal Data Verification*; 9114, *Statistical Determination of Precision, Bias, Significant Digits, and Detection Limits*; and Data Management Procedures associated with different Y-12 Plant analytical centers.

All data generated on controls and samples shall be maintained at the laboratory. The QA data generated by the laboratory will be part of the deliverables for this project.

5.2 Reporting

Hard-copy results will be the formal transfer method for reporting results to the Project Manager. In addition to hard-copy results, results and QC data will be submitted electronically. Electronic data should be in ASCII file format or similar standard format.

Table 4. TCLP regulatory levels

ANALYTE	Level (mg/L)
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Chromium	5.0
Lead	5.0
Mercury	0.2
Selenium	1.0
Silver	5.0
o-Cresol	200.0
m-Cresol	200.0
p-Cresol	200.0
Cresol	200.0
1,4 Dichlorobenzene	7.5
2,4 Dinitrotoluene	0.13
Hexachlorobutadiene	0.5
Hexachloroethane	3.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0
2,4,5 Trichlorophenol	400.0
2,4,6 Trichlorophenol	2.0
Hexachlorobenzene	0.13
Benzene	0.5
Carbon tetrachloride	0.5
Chlorobenzene	100.0
Chloroform	6.0
1,2 Dichloroethane	0.5
1,1 Dichloroethylene	0.7
Methyl ethyl ketone	200.0
Tetrachloroethylene	0.7
Trichloroethylene	0.5
Vinyl chloride	0.2
Methylene Chloride	0.02
1,1,1-Trichloroethane	0.02
1,1,2-Trichloro-1,2,2-trifluoroethane	0.02
Trichloromonofluoromethane	0.02

Herbicides and pesticides will not be required for this closure.

Distribution:

M. S. Burris
C. H. Fritts
J. A. Kreykes
A. K. Lee/DOE-OSTI (2)
W. G. McMillan, DOE-ORO
S. E. Rathke
L. M. Sparks
B. E. Walton
Y-12 Central Files
File-EMD-RC

Appendix C

Building 9706 Uranium Treatment Unit - Photographs

Reference Number	Photograph Number	Subject
C-1	319542	UTU Prior to Closure
C-2	319543	UTU Prior to Closure
C-3	320712	Site Surface Prior to Decontamination
C-4	320713	Site Surface Prior to Decontamination
C-5	320887	Equipment, Drum, Liners Removed
C-6	321042	Site Surface After Decontamination
C-7	321025	Decontamination Facility
C-8	321044	Loading Raschig Ring for Decontamination
C-9	321028	Decontaminating Raschig Rings
C-10	32103	Decontaminated Raschig Rings
C-11	321190	Decontamination of Subsurface

APPENDIX C-1
9206 URANIUM TREATMENT UNIT--RCRA
CLOSURE
PRIOR TO CLOSURE
12/95, PHOTOGRAPH 319542

APPENDIX C-2
9206 URANIUM TREATMENT UNIT
PRIOR TO CLOSURE
12/95, PHOTOGRAPH 319543

APPENDIX C-3
9206 URANIUM TREATMENT UNIT
EQUIPMENT, DRUMS, AND LINERS REMOVED
DECONTAMINATED LINER STORED ON SITE
SITE SURFACE NOT DECONTAMINATED
3/95, PHOTOGRAPH 320887

APPENDIX C-4
9206 URANIUM TREATMENT UNIT
SITE SURFACE PRIOR TO DECONTAMINATION
4/95, PHOTOGRAPH 320712

APPENDIX C-5
9206 URANIUM TREATMENT UNIT
SITE SURFACE PRIOR TO DECONTAMINATION
4/95, PHOTOGRAPH 320713

APPENDIX C-6
9206 URANIUM TREATMENT UNIT
SITE AFTER DECONTAMINATION
4/95, PHOTOGRAPH 321042

APPENDIX C-7
9206 URANIUM TREATMENT UNIT
DECONTAMINATION FACILITY
4/95, PHOTOGRAPH 321025

APPENDIX C-8
9206 URANIUM TREATMENT UNIT
LOADING RASCHIG RINGS FOR
DECONTAMINATION
4/95, PHOTOGRAPH 321044

-
- ALL VISITORS REPORT TO SSHO •
 - NO EATING, DRINKING, CHEWING OR SMOKING •
 - 40 HOUR TRAINING •
 - SSHO PHONE •

APPENDIX C-9
9206 URANIUM TREATMENT UNIT
DECONTAMINATING RASCHIG RINGS
4/95, PHOTOGRAPH 321028

APPENDIX C-10
9206 URANIUM TREATMENT UNIT
DECONTAMINATED RASCHIG RINGS
4/95, PHOTOGRAPH 321038

APPENDIX C-11
9206 URANIUM TREATMENT UNIT
DECONTAMINATION OF SURFACE
4/95, PHOTOGRAPH 321190

APPENDIX D

Uranium Treatment Unit-- Radiological Survey/Work Permit and Industrial Hygiene Requirements

RADIOLOGICAL CONTROL ORGANIZATION MONITORING AND SURVEY RESULTS

BUILDING: 9206	ROOM/AREA: EAST OF DOCK	AREA CODE: IS-48-RCRA
TYPE OF SURVEY: ☒ AREA ☒ MATERIAL/EQUIPMENT	DESCRIPTION OF MATERIAL/EQUIPMENT/AREA: Drums & Floor Area	DATE: 1-4-96 TIME: 1420

Sample Number	Description	CONTAMINATION READINGS (1)				RADIATION READINGS (2)		
		ALPHA (cpm/100 cm ²)		BETA GAMMA (cpm/100 cm ²)		Gamma (rem/hr)	Beta (rem/hr)	Neutron (rem/hr)
		Max Fixed Plus Removable	Removable	Max Fixed Plus Removable	Removable			
1	See back for map	400	<250	6,000	<600	NONE	NONE	NONE
2		2,000		9,000				
3		1,000		7500				
4		2,000		12,000				
5		1,000		6,000				
6		2,000		12,000				
7		2,000		6,000				
8		4,000		1500				
9		2,000		3000				
10		4,000		6,000				
11		800		1500				
12		<250		1500				
13		400		3000				
14		<250		1500				
15		400		3000				
16		400		1500				
17		1200		1500				
18		800		6000				
19		<250	↓	3000	↓			
20	↓ ↓	<250	<250	3000	<600	↓	↓	↓

Radiation Instrument Used: (1) ALPHA **21103** BETA GAMMA **23076** NEUTRON **N/A**

RADCON TECHNICIAN SIGNATURE: *Jerry W. Couper* BADGE: **10071**

RADCON TECHNICIAN PRINTED NAME: **J.W. Couper**

1. SITE URANIUM SURFACE RADIOACTIVITY GUIDES (NRC 10 CFR 20.101)

ALPHA		BETA GAMMA		
Removable	Max Fixed Plus Removable	Removable	Max Fixed Plus Removable	
≤ 1,000	≤ 5,000	≤ 1,000	≤ 5,000	Classified as uncontaminated
> 1,000	> 5,000	> 1,000	> 5,000	Classified as contaminated

2. The minimum detectable limit is approximately 250 cpm/100 cm² alpha and 100 cpm/100 cm² beta gamma fixed plus removable for radioactivity guidelines other than uranium. Refer to Procedure 110-101.

3. Readings are taken at a distance of 30 cm unless otherwise noted.

***SEE MAP ON REVERS
SIDE FOR SURVEY
LOCATIONS**

DISTRIBUTION	Reference
Operations Supervisor	110-101
QA Supervisor	110-102

Signature: *W. Gordon* Date: **1/4/96**

RADIOLOGICAL CONTROL ORGANIZATION MONITORING AND SURVEY RESULTS

BUILDING: <u>9206</u>	ROOM/AREA: <u>EAST OF DOCK</u>	AREA CODE: <u>15-48 RCRA</u>
TYPE OF SURVEY: ☒ AREA ☒ MATERIAL/EQUIPMENT	DESCRIPTION OF MATERIAL/EQUIPMENT/AREA: <u>Drums & Floor Area</u>	DATE: <u>1-4-96</u> TIME: <u></u>

Sample Number	DESCRIPTION	CONTAMINATION READINGS (1)				RADIATION READINGS (2)		
		ALPHA (cpm/100 cm ²)		BETA GAMMA (cpm/100 cm ²)		Gamma Rem/hr	Beta Rem/hr	Neutron Rem/hr
		Max Fixed Plus Removable	Removable	Max Fixed Plus Removable	Removable			
21	See back for map	800	<250	30,000	<600	NONE	NONE	NONE
22		400		15,000				
23		12,000		9,000				
24		16,000		3,000				
25		8,000		6,000				
26		12,000		6,000				
27		16,000		12,000				
28		12,000		15,000				
29		20,000		9,000				
30		8,000		6,000				
31		16,000		15,000				
32		12,000		9,000				
33		400		6,000				
34		800		9,000				
35		400		6,000				
36		400		1500				
37		<250		3000				
38		1200		1500				
39		800	↓	1500	↓			
40	↓	1600	<250	2100	<600	↓	↓	

RADCON Instrument Used (1) D1 ALPHA Y 21103 BETA GAMMA Y 23076 NEUTRON N/A
 RADCON TECHNICIAN SIGNATURE James W. Cooper BADGE 10071
 RADCON TECHNICIAN PRINTED NAME J.W. Cooper

Y-12 SITE URANIUM SURFACE RADIOACTIVITY GUIDE 5 IN cpm/100 cm²

ALPHA		BETA GAMMA		
Removable	Max Fixed Plus Removable	Removable	Max Fixed Plus Removable	
≤ 1,000	≤ 5,000	≤ 1,000	≤ 5,000	Classified as uncontaminated
> 1,000	> 5,000	> 1,000	> 5,000	Classified as contaminated

*SEE MAP ON REVERSE SIDE FOR SURVEY LOCATIONS

- The minimum detectable limit is approximately 250 cpm/100 cm² alpha and 600 cpm/100 cm² beta gamma fixed plus removable. For radioactivity guidelines other than uranium refer to Procedure Y-10-101.
- Readings are taken at a distance of 30 cm unless otherwise noted.

DISTRIBUTION
Operations Supervisor
HCT Supervisor

REVIEW AND APPROVAL

W. H. Gordon

HCT Supervisor

1/4/96

Date

References

Y70-101
Y70-117

Use the space below to draw a general floor plan using equipment, stairs, walls, rooms, etc., in the area as landmarks. Place numbers corresponding with survey locations inside the appropriate symbol and list specific survey location descriptions on the attached HPAM form. Use either a HPAM-5 or a HPAM-111.

Note by Report Author

Inspector J. W. Cooper advises that there were 11 barrels on site and not just the 10 indicated above. The survey was to advise EUO personnel of the general radiological contamination levels on site and not a specific item contamination level.

2 E. T. Collins

E. T. Collins
6-3-96

ARA	CA	HCA	HRA	RA	RBA	RMA
Airborne Radiation Area	Contamination Area	High Contamination Area	High Radiation Area	Radiation Area	Radiological Buffer Area	Radiological Material Area

MAP SYMBOLS

- Smear Location
- Fixed + Removable
- △ Large Area Wipe
- < > Radiation Reading
- /// Stereiff Pad

MARTIN MARIETTA ENV. SYS. SYSTEMS, INC.
RADIOLOGICAL WORK PERMIT

☐ GENERAL RWP
☒ JOB-SPECIFIC RWP

RWP NUMBER
 96C-0068

1. EFFECTIVE
 3-18-96

2. EXPIRES
 7-31-96

3. EXTENDED TO

4. LOCATIONS OF WORK 9206 East Dock area / 9767-2

5. DESCRIPTION OF WORK Decontaminate Equipment per RCRA Closure
 YTS-1253

☐ SEE RWP SUPPL. INFO. FORM

6. PRE-JOB CONDITIONS

High Contamination

☐ SEE ATT. SURVEY ☒ SEE RWP SUPPL. INFO. FORM

7. ANTICIPATED CONDITIONS DURING JOB

High Contamination

☐ SEE RWP SUPPL. INFO. FORM

8. REQUIRED DOSIMETER

☒ TLD ☐ Pocket Chamber
☐ Neutron ☐ Extremity
☐ Electronic ☐ Multiple Dosimeters
☐ SEE RWP SUPPL. INFO. FORM

9. REQUIRED RESPIRATORY PROTECTION

☒ None ☐ Full Face ☐ PAPR ☐ Supplied
☐ SCBA ☐ SEE RWP SUPPL. INFO. FORM
 TYPE OF CARTRIDGE
☐ Particulate ☐ GMHF-C ☐ Other (specify)

10. TRAINING

☐ RWI ☒ RWII ☐ Special (SEE RWP SUPPL. INFO. FORM) ☐ Current Respirator Fit

11. REQUIRED ANTI-C CLOTHING (NO. OF PAIRS INDICATED IN PARENTHESES)

COVERALLS

GLOVES

SHOE COVERS

OTHER

☒ Cloth no hood (1) ☒ Rubber (1) ☒ Booties (1) ☐ Lab coat ☒ Hood
☐ Cloth with hood () ☒ Surgeon's (1) ☒ Rubber, low top (1) ☐ Rain coat ☐ Skull cap
☐ Splashproof ☐ Cotton Liner ☐ Rubber, high top ☐ Jacket
☐ Disposable () ☐ Work (specify) ☐ Disposable () ☐ Hard hat

12. SPECIAL ANTI-C CLOTHING INSTRUCTIONS

☒ SEE RWP SUPPL. INFO. FORM

13. PRE-JOB BRIEFING REQUIRED?

☒ NO ☐ YES ☐ SEE RWP SUPPL. INFO. FORM

14. RCC COVERAGE

☒ Routine Surveys ☐ Initial ☐ Intermittent ☐ Continuous ☐ Post-Job
 Only (SEE RWP SUPPL. INFO. FORM)

15. SPECIAL INSTRUCTIONS

RWP void if area is posted as - 1) radiation area
 2) respirator area
 3) system breach

☒ SEE RWP SUPPL. INFO. FORM

16. BIOASSAY REQUIREMENTS

☐ None ☒ Routine ☐ Special (SEE RWP SUPPL. INFO. FORM)

17. APPROVALS

Signature

Badge

Date

Written/RCO

J.D. [Signature]

33093

3/18-96

Approved/RCO

[Signature]

30878

3/18-96

ALARA /RCO

None

None

None

Work Group Supervisor

T.H. [Signature]

19925

3-18-96

RWP Terminated/RCO

Distribution:

RCO-RC

Work Group Supervisor

RWP NUMBER 96C-0068

- c) See routine survey results before entering area.
- 12) Saranex suits or PET (tyvek) suits may be substituted for cloth anti-c's if necessary. A plastic shield may be utilized for face protection by operations personnel while wet decontamination is in progress. See site specific Health and Safety Plan for ITH specifics on clothing options.
- 15) This RWP is valid for wet type decontamination activities per DECON.

INTEROFFICE MEMORANDUM

Date: 22-Feb-1996 12:51pm EST
From: P D Calkin
CALKINPD@A1@OCU1
Dept: 2066
Tel No:

TO: TINDALWC

CC: LOMAXBA MCINTYRERF POLSONJE

Subject: Fwd: ORGANIC ASSAY NEUTRALIZATION PPE
File: CLOSURE 001296

Bill,

After conferring with the RADCON Department, the Industrial Hygiene Department (IHD) recommends that Polyethylene Tyvek (PET) may be utilized for personal protective equipment (PPE) during each task of the Organic Assay Neutralization Operation. While performing (task one) sampling, personnel may utilize the PET instead of the chemical protective sleeves.

While performing (task two) neutralization and (task three) caustic mixing, personnel may utilize PET instead of Saranex protective suits. Operators should be made aware that PET has not been tested against many of the constituents that are potentially contained in the Distillate drums. Therefore, if the PET is utilized while performing tasks associated with the Distillate drums, spills or splashes of volumes greater than 100 ml will necessitate an immediate change. Spills less than 100 ml will necessitate an inspection of the PET by the operators to ensure no degradation or permeation has occurred.

Please feel free to contact me if I can be of further assistance.

Pete Calkin
Industrial Hygiene Department

I N T E R O F F I C E M E M O R A U M

Date: 01-Mar-1996 09:03am EST
From: P D Calkin
CALKINPD@A1@OCU1
Dept: 2066
Tel No:

TO: TINDALWC

CC: LOMAXBA

Subject: Fwd(2): ORGANIC ASSAY NEUTRALIZATION PPE
File: READ 001392

Bill,

As we discussed Wednesday, additional Industrial Hygiene Department recommendations include the following:

Rubber booties will be utilized during all three tasks.

For Task Three (Caustic Mixing), the requirement for utilizing a fan to direct potential airborne hazards away from the operators' breathing zone or the utilization of a half-face respirator with GMCH cartridge is now optional.

Please feel free to contact me if I can be of further assistance.

Pat Calkin
Industrial Hygiene Department

Date: 15-Feb-1996 09:40am EST

From: P D Calkin
CALKINPD@A1@OCU1
Dept: 2066
Tel No:

TO: LOMAXBA TINDALWC

CC: GREENEJS

Subject: ORGANIC ASSAY NEUTRALIZATION PPE

Bill,

The Industrial Hygiene Department (IHD) recommends the following protection with regard to the tasks that will be performed during the Organic Assay Neutralization Operation located at the Uranium Treatment Unit RCRA Facility.

Task One (Uranium Sampling) - Personal Protective Equipment (PPE) shall include company clothing and shoes, goggles, chemical resistant sleeves, and Trionic or Latex gloves. The use of a fan to direct potential airborne hazards away from the operators' breathing zone is required when sampling the distillate drum(s).

Task Two (Drum Neutralization) - PPE shall include Saranex suit, Trionic or Latex gloves, company shoes, safety glasses, and face shield (hard hat required if Saranex suit has no hood). The use of a fan to direct potential airborne hazards away from the operators' breathing zone is required when neutralization of the distillate drums is performed. At minimum, half-face respirator with GMCH cartridge is required. The task of pouring the caustic solution into the drum(s) shall be performed very slowly and cautiously and is to be performed at times when weather conditions will not present additional concerns.

Task Three (Caustic Mixing) - PPE shall include Trionic and Latex gloves, safety goggles, face shield, Saranex suit (hard hat required if Saranex suit has no hood), and company shoes. Mixing is required to be performed with the use of a fan to direct potential airborne hazards away from the operators' breathing zone or a half-face respirator with GMCH cartridge. The task of mixing the caustic flake is to be performed at times when weather conditions will not present additional concerns.

Pete Calkin

APPENDIX E

Uranium Treatment Unit--Site-Specific Health and Safety Plan

SITE-SPECIFIC HEALTH AND SAFETY PLAN

FOR

Site Name: Uranium Treatment Unit (UTUC)

Prepared by:

Peter Call 3-12-96
(Signature) (Date)

Reviewed by:

William V. ... 3/13/96
EUO Operations (Signature) (Date)

Reviewed by:

William V. ... 3-13-96
RADCON (Signature) (Date)

Reviewed by:

Peter Call 3-12-96
Industrial Hygiene (Signature) (Date)

Reviewed by:

J. J. Heane 3-12-96
Industrial Safety (Signature) (Date)

Approved by:

P. Weigel 3/13/96
HAZWOPER Coordinator (Signature) (Date)

1.0 SITE DESCRIPTION

The UTUC Site is located at the western exclusion area of Y-12 .

The UTUC Site is near the (roads, other landmarks) located between First street and "E" street.

2.0 SITE HISTORY

(Brief description of site history and use. Include all site activities that may contribute to current site conditions.) The Uranium Treatment Unit is used to store and treat waste materials that are regulated by the Resource Conservation and Recovery Act (RCRA).

The Oak Ridge Y-12 Plant was built by the U.S. Army Corps of Engineers in 1943 as part of the Manhattan Project. The U.S. Department of Energy (DOE) owns and operates the Y-12 Plant. Personnel from Lockheed Martin Energy Systems, Inc. (Energy Systems), co-operate and manage the Y-12 Plant under a prime contract with DOE. The contract is administered by personnel at the DOE, Oak Ridge Operations Office.

The Y-12 Plant occupies approximately 800 acres in Anderson County, Tennessee, and is located southwest of the city of Oak Ridge. Approximately 4000 people are employed at the Y-12 Plant including employees of the Oak Ridge National Laboratory who are assigned to the plant. Two surface streams, East Fork Poplar Creek and Bear Creek, border the facility on the south, east, and southwest sides of the plant. Access to the Y-12 Plant is controlled on Bear Creek Road on the north side of the facility; indirect access is available from Scarboro road on the east side and Bethel Valley Road by way of Mt. Vernon road is located on the southwest side of the site.

The mission of Y-12 Plant personnel is to provide a key manufacturing components for the defense capabilities of the nation supporting national security programs, and providing services to other customers as approved by DOE personnel.

The Uranium Treatment Unit (UTUC), associated equipment, and diked areas are located east of Building 9206 within the boundaries of the Y-12 Plant. The UTUC consists of two 300-gallon polytanks and associated structural support stands, two electrically driven agitators, and approximately 400 square feet of 10 mil polyvinyl chloride (PVC) liners. Also included in this closure plan are twelve 55-gallon drums filled with Raschig rings which were used to collect the RCRA solutions prior to treatment at the UTUC. The design treatment capacity of the UTUC is 500 gallons per day, and the design storage capacity of the drum storage area is 900 gallons.

3.0 HEALTH AND SAFETY HAZARD EVALUATION

[Place an X in each () to indicate presence of hazard]

3.1 Physical Hazards

(X) Heat Stress	(X) Cold Stress
() Confined Space	() Enclosed Space

☒ Heavy Lifting	☒ Tripping/Falling
☐ High Voltage	☒ High Pressure Water
☐ Oxygen Deficient	☒ Explosive/Flammable
☐ Vibration	☒ Noise
- 3.2 Construction Hazards
☐ Trenching	☐ Excavating	☒ Heavy Equipment
☐ Demolition	☐ High Work	☐ Welding/Cutting
☒ Ladders	☐	
- 3.3 Chemical Hazards
☐ Organic Chemical	☒ Inorganic Chemical	☒ Carcinogen
☒ Corrosive	☒ Reactive	
☒ Mutagen	☒ Teratogen	
☐ OSHA Specific Substances		
- 3.4 Ionizing Radiological Hazards
☒ Internal Exposure	☒ External Exposure
- 3.5 Non-Ionizing Radiological Hazards
☐ UV	☐ RF	☐ Microwave
☐ Laser		
- 3.6 Biological/Vector Hazards
☐ Wildlife	☐ Plants	☐ Medical Waste
☐ Bacterial	☐ Parasites	

4.0 PREVIOUS SAMPLING RESULTS

Contaminant Source (Water, Sediment, Sludge Soil, Air, etc...)

	Quantity or Concentration
Propylene glycol	35 gallons (3 drums)
Distillate	35 gallons (2 drum)
Dibutyl Carbitol	35 gallons (1 drum)
Tributyl Phosphate	
Oil	35 gallons (3 drums)
Freon	35 gallons (2 drums)

5.0 CONTAMINANTS

- 5.1 Chemical: Nitric Acid
PEL/TLV* : 2 ppm IDLH: 100 ppm
STEL: none LEL: none
Action Level: 1ppm
Route of Exposure: Inhalation, Ingestion
Monitoring Equipment: Silica Gel
Symptoms/Effects of Exposure: Irritation to mucous membranes and eyes;
skin irritation; delayed pulmonary bronchitis.
Special Medical Monitoring: none
- 5.2 Chemical: Uranium Metal
PEL/TLV* : 0.2 mg/ m3 IDLH: 30 mg/m3
STEL: 0.6 mg/m3 LEL: none
Action Level: 0.1 mg/m3
Route of Exposure: Inhalation, Ingestion
Monitoring Equipment: Direct reading; 37 mm cellulose ester
Symptoms/Effects of Exposure: Radiation hazard exists from inhalation
of fine particles of approximately one micron. Acute swallowing of
uranium produces low toxicity because of poor absorption. Uranium
compounds may cause damage to liver and kidneys, with possible
albuminuria and hematuria.
Special Medical Monitoring: RADCON monitoring program

(Provide detailed description, controls, and requirements, for each task to be performed, i.e., drilling, sampling, etc.)

6.1 Description: Decontamination of 300-Gallon Polytank

Level of Personal
Protective Equipment: Primary Level D Modified

Engineering Controls: None

Administrative Controls: 1) 50 Series Procedures
(required permits, training) 2) 70 Series Plant Procedures.
3) 40 Hour OSHA training with 8-Hour
refresher
4) Radiological worker training
5) Respirator training

6) Medically qualified

Personal Protective Equipment:
(Specify Type)

- a) Respiratory Protection: P: See Applicable Radiological Work Permit (RWP)
- b) Protective Clothing: P: Company issue clothing /Radiological required clothing
- c) Head Protection: P: See radiological requirements
- d) Eye Protection: P: Company issue safety goggles
- e) Foot Protection: P: Company issue safety shoes
- f) Hand Protection: P: Leather palm gloves and/or rubber gloves
- g) Hearing Protection: P: Industrial Hygiene Department will make determination
- h) Tape-up Required: P: See radiological requirements

6.2 Description: Decontamination of Stainless Steel Agitator

Level of Personal
Protective Equipment: Primary Level D Modified

Engineering Controls: None

Administrative Controls
(required permits, training)

- 1) 50 Series Procedures
- 2) 70 Series Plant Procedures.
- 3) 40 Hour OSHA training with 8-Hour refresher
- 4) Radiological worker training
- 5) Respirator training
- 6) Medically qualified

Personal Protective Equipment:
(Specify Type)

- a) Respiratory Protection: P: See applicable Radiological Work Permit (RWP)
- b) Protective Clothing: P: Company issue clothing/Radiological required clothing
- c) Head Protection: P: See radiological requirements
- d) Eye Protection: P: Company issue safety goggles
- e) Foot Protection: P: Company issue safety shoes

- f) Hand Protection: P: Leather palm gloves and/or rubber gloves
- g) Hearing Protection: P: Industrial Hygiene Department will determine
- h) Tape-up Required: P: See radiological requirements

6.3 Description: Transfer of Raschig Rings from Drum to Poly Liner

Level of Personal Protective Equipment: Primary Level D Modified

Engineering Controls: None

Administrative Controls (required permits, training)

- 1) 50 Series Procedures
- 2) 70 Series Plant Procedures.
- 3) 40 Hour OSHA training with 8-Hour refresher
- 4) Radiological worker training
- 5) Respirator training
- 6) Medically qualified

Personal Protective Equipment:
(Specify Type)

- a) Respiratory Protection: P: See applicable Radiological Work Permit (RWP)
- b) Protective Clothing: P: Company issue clothing/radiological required clothing
- c) Head Protection: P: See radiological requirements
- d) Eye Protection: P: Company issue safety goggles
- e) Foot Protection: P: Company issue safety shoes
- f) Hand Protection: P: Rubber latex gloves
- g) Hearing Protection: P: None
- h) Tape-up Required: P: See radiological requirements

6.4 Description: Transfer of Raschig Rings from Poly Liner to Baskets

Level of Personal Protective Equipment: Primary Level Modified D

Engineering Controls: None

Administrative Controls (required permits, training)

- 1) 50 Series Procedures
- 2) 70 Series Plant Procedures.

- 3) 40 Hour OSHA training with 8-Hour refresher
- 4) Radiological worker training
- 5) Respirator training
- 6) Medically qualified

Personal Protective Equipment:
(Specify Type)

- a) Respiratory Protection: P: See applicable Radiological Work Permit (RWP)
- b) Protective Clothing: P: Company issue clothing/radiological clothing requirements
- c) Head Protection: P: See radiological requirements
- d) Eye Protection: P: Company issue safety glasses
- e) Foot Protection: P: Company issue safety shoes
- f) Hand Protection: P: Leather palm gloves and rubber gloves
- g) Hearing Protection: P: None
- h) Tape-up Required: P: See radiological requirements

6.5 Description: Decontamination of Raschig Rings in Baskets

Level of Personal Protective Equipment: Primary Level Modified D

Engineering Controls: None

Administrative Controls
(required permits, training)

- 1) 50 Series Procedures
- 2) 70 Series Plant Procedures.
- 3) 40 Hour OSHA training with 8-Hour refresher
- 4) Radiological worker training
- 5) Respirator training
- 6) Medically qualified

Personal Protective Equipment:
(Specify Type)

- a) Respiratory Protection: P: See Radiological Work Permit
- b) Protective Clothing: P: Company issue clothing/radiological work requirements/acid protective sleeves/chemical resistant apron
- c) Head Protection: P: See radiological requirements

- d) Eye Protection: P: Company issue safety goggles/face shield
- e) Foot Protection: P: Company issue safety shoes
- f) Hand Protection: P: Leather palm gloves and rubber gloves (Trionic)
- g) Hearing Protection: P: Industrial Hygiene Department will determine
- h) Tape-up Required: P: See radiological requirements

The Industrial Hygiene Department has been requested to perform area Nitric Acid measurements to determine airborne concentrations. The MDA-TLD 1 will be utilized in order to determine immediate concentrations in the air.

6.6 Description: Decontamination of 55-Gallon Stainless Steel Drum

Level of Personal Protective Equipment: Primary Level D Modified

Engineering Controls: None

Administrative Controls
(required permits, training)

- 1) 50 Series Procedures
- 2) 70 Series Plant Procedures.
- 3) 40 Hour OSHA training with 8-Hour refresher
- 4) Radiological worker training
- 5) Respirator training
- 6) Medically qualified

Personal Protective Equipment:
(Specify Type)

- a) Respiratory Protection: P: See applicable Radiological Work Permit (RWP)
- b) Protective Clothing: P: Company issue clothing/radiological clothing requirements
- c) Head Protection: P: See radiological requirements
- d) Eye Protection: P: Company issue safety goggles
- e) Foot Protection: P: Company issue safety shoes
- f) Hand Protection: P: Leather palm gloves and rubber gloves
- g) Hearing Protection: P: Industrial Hygiene Department will determine
- h) Tape-up Required: P: See radiological requirements

6.7 Description: Decontamination of Structural Support for 300-Gallon Polytank

Level of Personal Protective Equipment: Primary Level D Modified

Engineering Controls: None

Administrative Controls (required permits, training)

- 1) 50 Series Procedures
- 2) 70 Series Plant Procedures.
- 3) 40 Hour OSHA training with 8-Hour refresher
- 4) Radiological worker training
- 5) Respirator training
- 6) Medically qualified

Personal Protective Equipment:
(Specify Type)

- a) Respiratory Protection: P: See applicable Radiological Work Permit (RWP)
- b) Protective Clothing: P: Company issue clothing/radiological clothing requirements
- c) Head Protection: P: See radiological requirements
- d) Eye Protection: P: Company issue safety goggles
- e) Foot Protection: P: Company issue safety shoes
- f) Hand Protection: P: Leather palm gloves and rubber gloves
- g) Hearing Protection: P: Industrial Hygiene Department will determine
- h) Tape-up Required: P: See radiological requirements

6.8 Description: Decontamination of Plastic Liner Layer

Level of Personal Protective Equipment: Primary Level D Modified

Engineering Controls: None

Administrative Controls (required permits, training)

- 1) 50 Series Procedures
- 2) 70 Series Plant Procedures.
- 3) 40 Hour OSHA training with 8-Hour refresher
- 4) Radiological worker training
- 5) Respirator training
- 6) Medically qualified

Personal Protective Equipment:
(Specify Type)

- a) Respiratory Protection: P: See applicable Radiological Work Permit (RWP)
- b) Protective Clothing: P: Company issue clothing/radiological work clothing
- c) Head Protection: P: See radiological requirements
- d) Eye Protection: P: Company issue safety goggles
- e) Foot Protection: P: Company issue safety shoes
- f) Hand Protection: P: Leather palm gloves and rubber gloves
- g) Hearing Protection: P: Industrial Hygiene Department will determine
- h) Tape-up Required: P: See radiological requirements

7.0 MONITORING REQUIREMENTS

<u>Instrument</u>	<u>Task(s)</u>	<u>Monitoring Frequency</u>	<u>Action Guidelines</u>
7.1 Direct Reading Instruments			
LEL Meter	None		
O ₂ Meter	None		
Colorimetric Indicator Tube	None		
Photoionization Detector	None		
Flame Ionization Detector	None		
Alpha Meter	All	Constant	
Beta/Gamma Meter	All	Constant	
Area Radiation Monitors	None		
Perimeter Radiation Monitor	None		
Noise Meter	6.1, 6.2, 6.5, 6.6, 6.7, 6.8		
Wibget	All		
MDA-TLD 1	6.5	Initial	
7.2 Personnel Monitoring			
Whole-body Dosimetry	All	Quarterly	
Extremity Dosimetry	All	Quarterly	
Whole-body Count	All	Annual	
Urinalysis/Bioassay	All	Monthly	
Chemical Air Sampling	Personal	Industrial Hygiene Determination	
Radiological Air Sampling	All	RADCON will determine	

8.0 HAZARD ANALYSIS

8.1 Chemicals and Residues

Specific labeling requirements of site-generated waste: Labelled as RCRA wastes with completed 2114A tags.

Chemical-specific disposal requirements: Initiation of Form 2109, "Request for Transfer, Storage, or Disposal of Wastes," any time wastes enter area.

RCRA wastes do not accumulate more than 75 days.

8.2 Fire/Explosion

Tasks Storage

Are flammable liquids present? Yes

Description	Distillate Organics
Location	55 gallon stainless steel drum; inside RCRA area
Quantity	70 gallons
Containment/Storage method:	Polyurethane Storage Drums

For welding, cutting, or brazing is a Welding Permit required? No

8.3 Confined/Enclosed Spaces

Confined/enclosed space entry required (Low/High Risk)? No

Operations Safety Work Permit required? No

Standard Operating Procedure required? Yes

8.4 Ionizing Radiation

Tasks All

Applicable detailed checklist? Radiological Work Permit (RWP)

Primary contaminating isotope(s) Uranium

Location on site UTUC

Containment/storage method Stainless steel storage containers
Polyurethane storage containers

Radiation type Alpha/Beta/Gamma

Dose rate (maximum) 0 mR/h @ 1 meter(s)
(average) 0 mR/h @ 1 ft & direct

Worker dose limit 5000 mR/yr
(whole body)

		Alpha	Beta/Gamma
Contamination level	(fixed)	<u><20000</u> dpm/100 cm ²	<u><30000</u> dpm/100 ²
	(removable)	<u>250</u> dpm/100 cm ²	<u><600</u> dpm/100 ²

Airborne contamination concentration 0.0 d/m/m³ 0.0 d/m/m³

Water contamination potential? No

Unrestricted airborne contamination release potential? No

Radiation work permit required? Yes

RADCON coverage? Conditional

Special task operation requirements? YES/CON Welding/cutting/brazing
YES/CON Grinding/chipping
YES/CON Hydraulic/air hammer operation
YES/CON Dusty conditions (sweeping,
vacuuming, etc.)
YES/CON Equipment decontamination/free
release

8.5 Electrical Hazards

Tasks 6.1, 6.2, 6.5, 6.6, 6.7, 6.8

Electrical shock hazard? Yes

110 Voltage
AC Current

Location of hazard: Hotsy High Pressure Compressor and associated portable lighting placed inside of the RCRA Area.

8.6 Temperature Extremes

Tasks All

Temperature extremes (Hot/Cold)? Yes
_____ Average daily high temperature (during work shift) °F/°C
_____ Average daily low temperature (during work shift) °F/°C
_____ Average wind speed MPH cloudy/sunny
_____ Temperature WBGT °C

Work load: Work/Rest regimen:
_____ Light % work
X _____ Moderate % rest
_____ Heavy

Threshold Limit Value:

Precautions (specify): Temperature extreme conditions will be determined by the Industrial Hygiene Department

Cooling/heating equipment needed: Temperature Dependant

8.7 Noise

Tasks 6.1, 6.2, 6.5, 6.6, 6.7, 6.8

Noise extremes? Yes

Sound level > 85 dB(A)
Noise source(s): Hotsy High Pressure Carbon Dioxide Compressor

Noise above 85 dB(A) (hearing protection required) Yes

Precautions (specify): Hearing Protection Devices required when utilizing the Hotsy High Pressure Carbon Dioxide for decontamination.

8.9 Safety Hazards

Site posted information/notification required?	Yes
Site posting required?	Yes
Site guard required?	No
Access control required?	Yes
Entry/exit logs required?	Yes
Escape routing/posting required (include site map)?	No
Compressed gas cylinders?	No
Location:	
Storage:	

9.0 EMERGENCY PREPAREDNESS

Evacuation route: The evacuation route for the UTUC are to the assembly points are number 4, next to the cafe.

EMERGENCY CONTACTS: All emergency services at the UTUC Site are to be contacted by first calling the Plant Shift Superintendent (PSS) at _

4-7172. In the event that the PSS is not available, emergency services may be reached at the telephone numbers shown below.

<u>Facility Personnel</u>	<u>Phone</u>
PSS	4-7172
Program Health/Safety Coordinator	1-2486
Industrial Hygiene/Cathy Groover	6-3976
Bill Sliski	1-2486
Walter Porter	6-6698
Pete Calkin	6-7183
Industrial Safety/John Greene	4-1560
RADCON/Dave Gass	4-8070
Bill Gordon	6-5055

<u>Emergency Assistance Service</u>	<u>Phone</u>
Police	911
Ambulance	911
Fire	911
Hospital	4-1580
Doctor	4-1580
Health Information Services	4-1580

10.0 RECORD KEEPING REQUIREMENTS

(Mark with an X as appropriate)

	<u>Required</u>
Hazardous Chemicals	
Area monitoring	X
Personnel monitoring	
Oxygen Level Measurements	
Flammability Measurements	
Ionizing Radiation	
Worker dose	X
Contamination levels	X
Airborne contamination level	X
Radiological work permit (RWP)	X
Non-Ionizing Radiation	
UV level measurements	
Microwave level measurements	
Laser power level measurements	
Biological	
Personnel exposure monitoring	X
Electrical	
Tag-out records	
Temperature extremes	
WBGT measurements	X
Daily temperature/wind speed	
Noise	
Area monitoring	X
Personnel monitoring	
Personnel Medical Monitoring	X
Safety/Emergency Response	
OSHA accident records	X
Accident/incident reports	X
Personal Protective Equipment	
Inspection of: Clothing	X
Respirators	X
Gloves	X
Boots	X
Waste Disposal Manifests	X
Spill Incident Reports	X
Training of Employees	X

APPENDIX F

Uranium Treatment Unit

1. Customer Sample Number and Laboratory Report (ELIMS) Number
 2. Source Water ELIMS Number
 3. Trip Blank ELIMS Number
 4. Customer Sample Number Description
 5. Chromium Analysis Explanation
-

9206 RCRA CLOSURE

ELIMS NO.	CUSTOMER SAMPLE NO.	COC#	SAMPLE DATE	TIME	TECH. BADGE NO.	COMMENTS
E960650017	001	18753	3/12/96	09:15	13303	
E960650018	002	18753	3/12/96	09:30	13303	
E960650020	003	18753	3/12/96	09:45	13303	
E960650022	004	18753	3/12/96	10:00	13303	
E960650023	005	18754	3/19/96	14:15	13303/25966	
E960650024	006	18755	3/22/96	14:10	13303/32216	
E960650025	007	18756	3/25/96	14:20	13303/32216	DIRTY WATER
E960650026	008	18757	3/26/96	16:31	32216/24480	DIRTY WATER
E960650027	009	18757	3/28/96	13:51	11368	
E960650028	009	18758	3/28/96	13:59	11368	DUPLICATE
E960650029	010	18759	3/29/96	14:28	13303/32216	
E960650030	011	18760	4/9/96	15:00	13303/11368	MILDLY SOAPY
E960650031	012	18761	4/11/96	14:40	13303/28962	
E960650032	013	18762	4/12/96	14:30	13303/11368	
E960650033	014	18763	4/17/96	08:30	13303/11368	
E960650034	015	18763	4/17/96	08:40	13303/11368	
E960650035	016	18763	4/17/96	08:45	13303/11368	
E960650036	017	18764	4/17/96	15:00	32216/30096	
E960650037	017	18764	4/17/96	15:00	32216/30096	DUPLICATE
E960650038	018	18765	4/18/96	14:40	30096/26888	
E960650039	019	18765	4/18/96	14:45	30096/26888	
E960650040	020	18765	4/18/96	14:50	30096/26888	
E960650041	021	18766	4/19/96	08:55	32216/28962	

ENTRIES MUST BE IN WATERPROOF BLACK INK.

MS Elliott
4/24/96

9206 RCRA CLOSURE

ELIMS NO.	CUSTOMER SAMPLE NO.	COC#	SAMPLE DATE	TIME	TECH. BADGE NO.	COMMENTS
E960650042	021	18766	4/19/96	08:55	32216/28962	DUPLICATE
E960650043	022	18766	4/19/96	08:55	32216/28962	
E960650044	023	18767	4/19/96	14:15	32216/13718	
E960650045	024	18767	4/19/96	14:25	32216/13718	
E960650046	025	18768	4/20/96	15:02	11368/22559	
E960650047	026	18768	4/20/96	15:10	11368/22559	
E960650048	026	18768	4/20/96	15:10	11368/22559	DUPLICATE
E960650049	027	18768	4/20/96	15:25	11368/22559	
E960650050	028	18768	4/20/96	15:31	11368/22559	
E960660028	029	18769	4/21/96	14:52	22559/28962	
E960660029	030	18769	4/21/96	15:03	22559/28962	
E960660030	030	18769	4/21/96	15:03	22559/28962	DUPLICATE
E960660031	031	18769	4/21/96	15:10	22559/28962	
E960660032	032	18769	4/21/96	15:15	22559/28962	
E960660033	033	18769	4/21/96	15:20	22559/28962	
E960660034	034	18769	4/21/96	15:26	22559/28962	
E960660035	035	18770	4/22/96	15:15	32216/24480	
E960660036	035	18770	4/22/96	15:15	32216/24480	DUPLICATE
E960660037	036	18770	4/22/96	15:25	32216/24480	
E960660038	037	18770	4/22/96	15:31	32216/24480	
E960660039	038	18770	4/22/96	15:36	32216/24480	
E960660040	CANCEL	CANCEL	4/22/96	CANCEL	CANCEL	CANCEL
E960660041	038	18770	4/22/96	15:36	32216/24480	DUPLICATE
E960660042	039	18771	4/23/96	14:35	13303/11368	

ENTRIES MUST BE IN WATERPROOF BLACK INK.

ml E. J. ...

9206 RCRA CLOSURE

[illegible]

ENTRIES MUST BE IN WATERPROOF BLACK INK.

9206 RCRA CLOSURE

TRIP BLANK

ELIMS NO.	CUSTOMER SAMPLE NO.	COC#	SAMPLE DATE	TIME	TECH. BADGE NO.	COMMENTS
E960650021	TRIP BLANK	18753	3/12/96	08:30	13303	ASTM#1
E960670001	TRIP BLANK	18754	3/19/96	13:45	11368	ASTM#1
E960670002	TRIP BLANK	18755	3/22/96	13:30	13303	ASTM#1
E960670003	TRIP BLANK	18756	3/25/96	13:05	13303	ASTM#1
E960670004	TRIP BLANK	18757	3/26/96	16:05	32216	ASTM#1
E960670006	TRIP BLANK	18758	3/28/96	12:36	11368	ASTM#1
E960670007	TRIP BLANK	18759	3/29/96	13:50	13303	ASTM#1
E960670008	TRIP BLANK	18760	4/9/96	14:10	13303	ASTM#1
E960670009	TRIP BLANK	18761	4/11/96	14:00	13303	ASTM#1
E960670010	TRIP BLANK	18762	4/12/96	14:00	13303	ASTM#1
E960670011	TRIP BLANK	18763	4/17/96	07:45	11368	ASTM#1
E960670012	TRIP BLANK	18764	4/17/96	15:00	32216	ASTM#1
E960670013	TRIP BLANK	18765	4/18/96	06:30	30096	ASTM#1
E960670014	TRIP BLANK	18766	4/19/96	08:15	32216	ASTM#1
E960670015	TRIP BLANK	18767	4/19/96	13:10	32216	ASTM#1
E960670016	TRIP BLANK	18768	4/20/96	13:40	11368	ASTM#1
E960670017	TRIP BLANK	18769	4/21/96	14:00	11368	ASTM#1
E960670018	TRIP BLANK	18770	4/22/96	13:55	11368	ASTM#1
E960670019	TRIP BLANK	18771	4/23/96	14:00	13303	ASTM#1
E960670020	TRIP BLANK	18772	4/24/96	13:00	13303	ASTM#1
E960670021	TRIP BLANK	18773	5/2/96	13:30	13303	ASTM#1
E960670022	TRIP BLANK					
E960670023	TRIP BLANK					
E960670024	TRIP BLANK					

ENTRIES MUST BE IN WATERPROOF BLACK INK.

9206 RCRA CLOSURE **SOURCE BLANK**

ELIMS NO.	CUSTOMER SAMPLE NO.	COC#	SAMPLE DATE	TIME	TECH. BADGE NO.	COMMENTS
E960660151	SOURCE/SPIGOT/HOSE	18754	3/19/96	14:10	13303/25966	
E960660152	SOURCE/SPIGOT/HOSE	18755	3/22/96	14:00	13303/32216	
E960660153	SOURCE/SPIGOT/HOSE	18756	3/25/96	14:25	13303/32216	
E960660154	SOURCE/SPIGOT/HOSE	18757	3/26/96	16:23	32216/24480	
E60660155	SOURCE/SPIGOT/HOSE	18758	3/28/96	13:36	11368	
E960660156	SOURCE/SPIGOT/HOSE	18759	3/29/96	14:30	13303/32216	
E960660157	SOURCE/SPIGOT/HOSE	18760	4/9/96	14:50	13303/11368	
E960660158	SOURCE/SPIGOT/HOSE	18761	4/11/96	14:30	13303/11368	
E960660159	SOURCE/SPIGOT/HOSE	18762	4/12/96	14:20	13303/11368	
E960660160	SOURCE/SPIGOT/HOSE	18763	4/13/96	08:20	13303/11368	NEW HOSE
E960660161	SOURCE/SPIGOT/HOSE	18764	4/17/96	15:00	32216/30096	
E960660162	SOURCE/SPIGOT/HOSE	18765	4/18/96	14:30	30096/25966	
E960660163	SOURCE/SPIGOT/HOSE	18766	4/19/96	08:55	32216/28962	
E960660164	SOURCE/SPIGOT/HOSE	18767	4/19/96	14:10	32216/13718	
E960660165	SOURCE/SPIGOT/HOSE	18768	4/20/96	14:55	11368/22559	
E960660166	SOURCE/SPIGOT/HOSE	18769	4/21/96	14:46	22559/28962	
E960660167	SOURCE/SPIGOT/HOSE	18770	4/22/96	15:05	32216/24480	
E960660168	SOURCE/SPIGOT/HOSE	18771	4/23/96	14:30	13303/11368	
E960680035	SOURCE/SPIGOT/HOSE	18772	4/24/96	13:55	13303/32216	
E960680036	SOURCE/SPIGOT/HOSE					
E960680037	SOURCE/SPIGOT/HOSE					
E960680038	SOURCE/SPIGOT/HOSE					
E960680039	SOURCE/SPIGOT/HOSE					
E960680040	SOURCE/SPIGOT/HOSE					
E960680041	SOURCE/SPIGOT/HOSE					

ENTRIES MUST BE IN WATERPROOF BLACK INK.

MS Eefact
4/24/96

erial No.:	Date:	Description:
001	8/1/96	Predess Supply Water
002	3/1/96	Predess Hotsy Supply Water.
003	3/1/96	Predess 3 section Sink and Baskets
004	3/1/96	Dike Water Sample.
005	3/19/96	Agitator A
006	3/22/96	Agitator B
007	3/25/96	Poly Tank A
008	3/26/96	Poly Tank B
009	3/27/96	Structural Support B
010	3/28/96	Structural Support A
011	4/9/96	Dike Layer #1
012	4/11/96	Dike Layer #2
013	4/12/96	Dike Layer #3
014	4/16/96	Freon 4B Rings
015	4/16/96	Freon 4B Rings
016	4/16/96	Freon 4A Rings
017	4/16/96	Freon 4A Rings
018	4/17/96	Distillate 6A Rings

Serial No:	Date:	Description:
519	4/17/96	Distillate 64 Rings
520	4/17/96	Distillate 68 Rings
021	4/17/96	Distillate 68
022	4/18/96	Distillate 68
023	4/18/96	Oil 5A/5B/5C (combined drum)
024	4/19/96	Coalaut 2B
025	4/19/96	Coalaut 2B
026	4/19/96	Coalaut 2B
027	4/19/96	Coalaut 2C
028	4/19/96	Coalaut 2C
029	4/19/96	Coalaut 2E
030	4/19/96	Coalaut 2E
031	4/20/96	Oil 5C
032	4/20/96	Oil 5C
033	4/21/96	Ext 1B
034	4/21/96	Ext 1B
035	4/21/96	Oil 5A
036	4/21/96	Oil 5A

I N T E R O F F I C E M E M O R A N D U M

Date: 22-May-1996 12:37pm EDT
From: Debbie Garrett Ailey
AILEYDG1@A1@OCU1
Dept: 7222
Tel No: 1-2385

TO: COLLINSET

CC: BUDDINNPIII KEEBLERDT MCCOYR WILKESRM

Subject: Re: UTU-Analysis>>THANKS

File: READ 025114

Tom,

The reason that you received three answers below the 0.2 mg/L reporting limit for chromium has to do with the way our software programs handle significant figures and rounding when the final report is generated. The reporting limit for chromium within the software (after the sample dilution factor is applied) is 0.111 mg/L. A determination of whether a result is below the reporting limit is done before any rounding and significant digits rules are enacted. After the QC data in the analysis has been evaluated the sample results are rounded for reporting. In the case of chromium all results and the reporting limit are rounded to the first decimal, which is the precision limit for chromium. The reporting limit is rounded up to 0.2 mg/L since 0.111 is greater than 0.1 mg/L. The three samples in question, E960650045, E960660038, E960660043 had chromium results of 0.14, 0.12 and 0.11 mg/L chromium, respectively, and were noted as having reportable amounts of chromium before the rounding of the results took place.

We are reviewing whether rounding can be done prior to determining whether a result is below the reporting limit. This approach also has limitations. If you wish we will be glad to edit the ICP results for these three samples to reflect that they are <0.2 mg/L like the majority of your samples. Please let us know. Sorry for the inconvenience and delay.

Debbie

APPENDIX G

Uranium Treatment Unit--Decontamination Records

G-1 "Empty" Drum Sign-off Sheet

G-2 Item Decontamination Sign-off Sheet

G-3 Raschig Ring Decontamination Tracking Logsheet
Note: The "207X" number is the basket number.

G-4 Waste Disposal

G-5 Detergent--Material Safety Data Sheet

G-6 Waste Inventory

Drum Verification Sign-Off Sheet

J.D. Waters
Operations Manager, 9206 Special Chemical Processing

Acceptance Criteria:

(from Y/TS-1253, RCRA Closure Plan for the Uranium Treatment Unit)

The drums will be drained of RCRA hazardous wastes. The drums will be considered empty under 40 CFR Part 261.7 if

- All wastes have been removed that can be removed using the practices commonly employed to remove materials from similar containers, **AND**
- No more than one inch of residue remains on the bottom of the container or inner liner, **OR**
- No more than 3 percent by weight of the total capacity of the container remains in the container or the inner liner.

Drum ID	Drum Meets Acceptance Criteria (as stated above)	
	Signature	Date
COOLANT-2B ✓	<i>D.J. Jones</i>	<i>3-27-96</i>
COOLANT-2C ✓	<i>D.J. Jones</i>	<i>3-27-96</i>
COOLANT-2E ✓	<i>D.J. Jones</i>	<i>3-27-96</i>
EXTRACTANT-1B	<i>B.A. Chisley</i>	<i>4-2-96</i>
OIL-5A	<i>D.J. Jones</i>	<i>4-1-96</i>
OIL-5B	<i>D.J. Jones</i>	<i>4-24-96</i>
OIL-5C	<i>D.J. Jones</i>	<i>4-1-96</i>
DISTILLATE-6A	<i>B.A. Chisley</i>	<i>4-2-96</i>
DISTILLATE-6B	<i>Tony H. Dutton</i>	<i>4-24-96</i>
FREON-4A	<i>D.J. Jones</i>	<i>4-3-96</i>
FREON-4B	<i>D.J. Jones</i>	<i>4-3-96</i>

Reviewed by:

William C. Trivedi
Project Manager

4/25/96
Date

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Equipment Description: Pretest Supply Water Serial Number: 001

Action	Activity	
1	High-pressure detergent wash	Signature N/A DPSP Supervisor
2	High-pressure hot water rinse	Signature N/A DPSP Supervisor
3	Second high-pressure hot water rinse	Signature N/A DPSP Supervisor

6	Sample results indicate that equipment <u>is</u> / is not free of RCRA contamination.	Signature <u>W. J. [Signature]</u> 4/2/96 Project Manager
7	Material is to be dispositioned as N/A	Signature N/A Project Manager

Comments:

Sample No. 960650017 WTi 4/2/96

Decontamination Sign-Off-Sheet

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Equipment Description: Pretest Hotry Supply Water Serial Number: 002

Action	Activity	
1	High-pressure detergent wash	Signature <u>N/A</u> DPSD Supervisor
2	High-pressure hot water rinse	Signature <u>N/A</u> DPSD Supervisor
3	Second high-pressure hot water rinse	Signature <u>N/A</u> DPSD Supervisor

6	Sample results indicate that equipment <u>is</u> is not free of RCRA contamination.	Signature <u>W. J. D. Watkins 4/2/96</u> Project Manager
7	Material is to be dispositioned as <u>N/A</u>	Signature <u>N/A</u> Project Manager

Comments:

Sample number 960650018. W. J. D. Watkins 4/2/96

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Equipment Description: Pretest 3 section Silt & Basalts Serial Number: 003

Action	Activity	
1	High-pressure detergent wash	Signature N/A DPSD Supervisor
2	High-pressure hot water rinse	Signature N/A DPSD Supervisor
3	Second high-pressure hot water rinse	Signature N/A DPSD Supervisor

6	Sample results indicate that equipment is / is not free of RCRA contamination.	Signature 4/2/96 Project Manager
7	Material is to be dispositioned as N/A	Signature N/A Project Manager

Comments:

Sample No. 960650020 *Winded* 4/2/96

Decontamination Sign-Off-Sheet

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Equipment Description: Dike Water Sample Serial Number: 004

Action	Activity	Signature
1	High-pressure detergent wash	<u>N/A</u> DPSD Supervisor
2	High-pressure hot water rinse	<u>N/A</u> DPSD Supervisor
3	Second high-pressure hot water rinse	<u>N/A</u> DPSD Supervisor

6	Sample results indicate that equipment <u>is</u> / is not free of RCRA contamination.	<u>Signature</u> <u>W. J. ...</u> 4/2/96 Project Manager
7	Material is to be dispositioned as <u>N/A</u>	<u>Signature</u> <u>N/A</u> Project Manager

Comments:

Sample No. 960650022 W. J. ... 4/2/96

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Action	Activity	
1	High-pressure detergent wash	Signature DPSD Supervisor
2	High-pressure hot water rinse	Signature DPSD Supervisor
3	Second high-pressure hot water rinse	Signature DPSD Supervisor

6	Sample results indicate that equipment is is not free of RCRA contamination.	Signature 4/4/96 Project Manager
7	Material is to be dispositioned as <u>Unrestricted use</u>	Signature 5/3/96 Project Manager

Comments:

Sample No. 960650023 Wind 4/3/96

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Comments:

Sample No. 960650024 *Winded* 4/3/96

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Equipment Description: 11 Polytinene 44 Serial Number: 007
3-25-96

Action	Activity	
1	High-pressure detergent wash	Signature <u>G. J. Jones</u> DPSD Supervisor 3-25-96
2	High-pressure hot water rinse	Signature <u>G. J. Jones</u> 3-2 DPSD Supervisor
3	Second high-pressure hot water rinse	Signature <u>G. J. Jones</u> 3- DPSD Supervisor

6	Sample results indicate that equipment is is not free of RCRA contamination.	Signature <i>W. Tind</i> 4/3/96 Project Manager
7	Material is to be dispositioned as Storage in 9206 RMA #3	Signature <i>W. Tind</i> 4/10/96 Project Manager

Comments:

Sample No. 9606 50025 Wriedel 4/3/96

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Equipment Description: B PolyTANK Serial Number: 008

Action	Activity	
1	High-pressure detergent wash	Signature <u>G. J. Jones 3-26</u> DPSD Supervisor
2	High-pressure hot water rinse	Signature <u>G. J. Jones 3-26</u> DPSD Supervisor
3	Second high-pressure hot water rinse	Signature <u>G. J. Jones 3-26</u> DPSD Supervisor

6	Sample results indicate that equipment <u>is</u> / is not free of RCRA contamination.	Signature 4/12/96 Project Manager
7	Material is to be dispositioned as Storage in 9200 RMA #3	Signature 4/20/96 Project Manager

Comments:

Sample No. 960650026 WFin 4/3/96

Decontamination Sign-Off-Sheet

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Equipment Description: STRUCTURAL SUPPORT Serial Number: 009 B
FRAMING FOR POLYETHANE

Action	Activity	Signature
1	High-pressure detergent wash	<u>H. J. Jones</u> 3-27-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>H. J. Jones</u> 3-27-96 DPSD Supervisor
3	Second high-pressure hot water rinse	<u>H. J. Jones</u> 3-28-96 DPSD Supervisor

6	Sample results indicate that equipment <u>is</u> is not free of RCRA contamination.	<u>Will Tied</u> 4/17/96 Project Manager
7	Material is to be dispositioned as <u>Storage in 9206 RMA #3</u>	<u>Will Tied</u> 4/20/96 Project Manager

Comments:

Sample No. 960650027 Will Tied 4/3/96

Sample No 960650028 is a duplicate of 009. Will Tied 4/17/96

Decontamination Sign-Off-Sheet

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Equipment Description: A Structural FRAMING Serial Number: 010

Action	Activity	Signature
1	High-pressure detergent wash <u>GG</u>	<u>G. J. Jones</u> 3-28-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>G. J. Jones</u> 3-28-96 DPSD Supervisor
3	Second high-pressure hot water rinse	<u>G. J. Jones</u> 3-28-96 DPSD Supervisor

6	Sample results indicate that equipment <u>is</u> / is not free of RCRA contamination.	<u>Willie D</u> 4/17/96 Project Manager
7	Material is to be dispositioned as <u>Storage in 9206 RM #3</u>	<u>Willie D</u> 4/22/96 Project Manager

Comments:

Sample No. 960650029 Willie D 4/3/96

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Action	Activity	
1	High-pressure detergent wash	Signature <u>B. Adkins</u> 4-9-96 DPSD Supervisor
2	High-pressure hot water rinse	Signature <u>B. Adkins</u> 4-9-96 DPSD Supervisor
3	Second high-pressure hot water rinse	Signature <u>B. Adkins</u> 4/9/96 DPSD Supervisor

6	Sample results indicate that equipment is/ is not free of RCRA contamination.	Signature <i>Will T. Wood</i> 4/29/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	Signature <i>Will T. Wood</i> 4/29/96 Project Manager

Comments:

Sample No 960650030 *Winded* 4/17/96

Decontamination Sign-Off-Sheet

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

4-11-96

Equipment Description: Dike Layer #2 Serial Number: 012

Action	Activity	Signature
1	High-pressure detergent wash	<u>Bob Norrley</u> 4-10-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>Bob Norrley</u> 4-10-96 DPSD Supervisor
3 4-11-96	Second high-pressure hot water rinse	<u>Tony H. Dutton</u> DPSD Supervisor

6	Sample results indicate that equipment <u>is</u> is not free of RCRA contamination.	<u>Will Tread</u> 4/29/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>Will Tread</u> 4/29/96 Project Manager

Comments:

Sample No 960650031 W Tread 4/17/96

Decontamination Sign-Off-Sheet

J.D. Weather
Operations Manager, 9206 Special Chemical Processing

Equipment Description: Dike Layer #3 Serial Number: 013

Action	Activity	Signature
1	High-pressure detergent wash	<u>H.G. Jones</u> 4-12-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>H.G. Jones</u> 4-12-96 DPSD Supervisor
3	Second high-pressure hot water rinse	<u>H.G. Jones</u> 4-12-96 DPSD Supervisor

6	Sample results indicate that equipment (s) is not free of RCRA contamination.	<u>Will Tind</u> 4/29/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>Will Tind</u> 4/29/96 Project Manager

Comments:

Sample No. 960650032. Will Tind 4/29/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: FREON 4 B Serial Number: 014

Basket Designation: 2079/2072/2078/2077/2074/2073 2070

Date of Transfer: 4-15-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>AGG</u> 4-15-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>AGG</u> 4-15-96 DPSD Supervisor
3	One hour nitric acid soak.	<u>AGG</u> 4-15-96 DPSD Supervisor
4	High-pressure detergent wash.	<u>THD</u> 4-16-96 DPSD Supervisor
5	High-pressure hot water rinse.	<u>AGG</u> 4-16-96 DPSD Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	<u>Will Tind</u> 4/21/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>Will Tind</u> 4/29/96 Project Manager

Comments:
<u>Sample No. 960650033 Will Tind 35981 4/29/96</u>

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: FREON 4 B Serial Number: 015 898
014 4-1

Basket Designation: 2077/2074/2073

Date of Transfer: 4-15-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>J. D. Watkins</u> 4-15-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>J. D. Watkins</u> 4-15-96 DPSD Supervisor
3	One hour nitric acid soak.	<u>J. D. Watkins</u> 4-15-96 DPSD Supervisor
4	High-pressure detergent wash.	<u>J. D. Watkins</u> 4-16-96 DPSD Supervisor
5	High-pressure hot water rinse.	<u>J. D. Watkins</u> 4-16-96 DPSD Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	Signature <u>Will Tinsley</u> 4/29/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	Signature <u>Will Tinsley</u> 4/29/96 Project Manager

Comments:
<u>Sample No. 960650034 Will Tinsley 4/29/96</u>

Raschig Ring Decontamination Sign-Off Sheet

J. A. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: FREON 4 A Serial Number: 016

Basket Designation: 2072/2079 2078

Date of Transfer: 4/16/96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>gag 4-16-96</u> DPSD Supervisor
2	High-pressure hot water rinse	<u>gag 4-16-96</u> DPSD Supervisor
3	One hour nitric acid soak.	<u>gag 4-16-96</u> DPSD Supervisor
4	High-pressure detergent wash.	<u>gag 4-16-96</u> DPSD Supervisor
5	High-pressure hot water rinse.	<u>gag 4-16-96</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> are not free of RCRA contamination.	Signature <u>Will Tind</u> 5/1/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	Signature <u>Will Tind</u> 5/2/96 Project Manager

Comments:
<u>Sample No. 960650035 Will Tind 4/29/96</u>

Raschig Ring Decontamination Sign-Off Sheet

J. J. Watkins

Operations Manager, 9206 Special Chemical Processing

Drum Designation: FREON 4A

Serial Number: 017

Basket Designation: 2076 / 2080 / 2075 / 2073 889

Date of Transfer: 4-16-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>ggg 4-16-96</u> DPSD Supervisor
2	High-pressure hot water rinse	<u>ggg 4-16-96</u> DPSD Supervisor
3	One hour nitric acid soak.	<u>ggg 4-16-96</u> DPSD Supervisor
4	High-pressure detergent wash.	<u>Tommy J. Dutton 4-17-96</u> DPSD Supervisor
5	High-pressure hot water rinse.	<u>Tommy H. Dutton</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	<u>W. F. ... 5/3/96</u> Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>W. F. ... 5/3/96</u> Project Manager

Comments:

Sample No. 960650036 W. F. ... 4/29/96

Duplicate No. 960650037. W. F. ... 4/29/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: Dist. 6A Serial Number: 018

Basket Designation: 2072/2080/2078

Date of Transfer: 4-17-96

Action	Activity	Signature
1	High-pressure detergent wash.	Signature <u>[Signature]</u> 4-17-96 DPSD Supervisor
2	High-pressure hot water rinse	Signature <u>[Signature]</u> 4-17-96 DPSD Supervisor
3	One hour nitric acid soak.	Signature <u>[Signature]</u> 4-17-96 DPSD Supervisor
4	High-pressure detergent wash.	Signature <u>[Signature]</u> 4-17-96 DPSD Supervisor
5	High-pressure hot water rinse.	Signature <u>[Signature]</u> 4-17-96 DPSD Supervisor

6	Sample results indicate that rings <u>are</u> are not free of RCRA contamination.	Signature <u>[Signature]</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	Signature <u>[Signature]</u> 5/3/96 Project Manager

Comments:
Sample No. 960650038 <u>[Signature]</u> 4/29/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: DIST 6A

Serial Number: 019

Basket Designation: 2079 / 2075 / 2076

Date of Transfer: 4-17-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>909 4-17-96</u> DPSD Supervisor
2	High-pressure hot water rinse	<u>909 4-17-96</u> DPSD Supervisor
3	One hour nitric acid soak.	<u>909 4-17-96</u> DPSD Supervisor
4	High-pressure detergent wash.	<u>909 4-17-96</u> DPSD Supervisor
5	High-pressure hot water rinse.	<u>909 4-17-96</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> are not free of RCRA contamination.	<u>Whitcomb 5/2/96</u> Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>Whitcomb 5/2/96</u> Project Manager

Comments:
<u>Sample No 960650039 Whitcomb 4/29/96</u>

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: (Dist) 6 B Serial Number: 020

Basket Designation: 2073/2074/2077

Date of Transfer: 4-17-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>ggg</u> 4-17-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>ggg</u> 4-17-96 DPSD Supervisor
3	One hour nitric acid soak.	<u>ggg</u> 4-17-96 DPSD Supervisor
4	High-pressure detergent wash.	<u>ggg</u> 4-18-96 <u>Tony H. Dutton</u> DPSB Supervisor
5	High-pressure hot water rinse.	<u>ggg</u> 4-18-96 <u>Tony H. Dutton</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	<u>W. J. Dutton</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>W. J. Dutton</u> 5/3/96 Project Manager

Comments:

Sample No. 960650040 <u>W. J. Dutton</u> 4/29/96

Raschig Ring Decontamination Sign-Off Sheet

J. A. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: (Dist) 6B

Serial Number: 021

Basket Designation: 2072/2078/2080

Date of Transfer: 4-17-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>gag 4-17-96</u> DPSD Supervisor
2	High-pressure hot water rinse	<u>gag 4-17-96</u> DPSD Supervisor
3	One hour nitric acid soak.	<u>gag 4-17-96</u> DPSD Supervisor
4	High-pressure detergent wash.	<u>gag 4-18-96</u> <u>Tom H. Dutton</u> DPSD Supervisor
5	High-pressure hot water rinse.	<u>gag 4-18-96</u> DPSD Supervisor

6	Sample results indicate that rings <u>(are)</u> are not free of RCRA contamination.	<u>W. J. Dutton</u> 5/2/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>W. J. Dutton</u> 5/2/96 Project Manager

Comments:

Sample No 960650041 W. J. Dutton 4/29/96

Duplicate No 960650042 W. J. Dutton 4/29/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: Dist 6 B

Serial Number: 022

Basket Designation: 2073/2074

Date of Transfer: 4-18-96

Action	Activity	
1	High-pressure detergent wash.	Signature <u>4-18-96</u> <u>Tom H. Dutton</u> DPSD Supervisor
2	High-pressure hot water rinse	Signature <u>4-18-96</u> <u>Tom H. Dutton</u> DPSD Supervisor
3	One hour nitric acid soak.	Signature <u>4-18-96</u> <u>Tom H. Dutton</u> DPSD Supervisor
4	High-pressure detergent wash.	Signature <u>4-18-96</u> <u>W. J. A.</u> DPSD Supervisor
5	High-pressure hot water rinse.	Signature <u>4-18-96</u> <u>W. J. A.</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	Signature <u>W. J. A.</u> 5/2/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	Signature <u>W. J. A.</u> 5/2/96 Project Manager

Comments:

Sample No. 960650043 W. J. A. 4/29/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: Oil 5A, 5B, 5C Serial Number: 023

Basket Designation: 2072/2078/2080

Date of Transfer: 4-18-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>[Signature]</u> 4-18-96 DPSP Supervisor
2	High-pressure hot water rinse	<u>[Signature]</u> 4-18-96 DPSP Supervisor
3	One hour nitric acid soak.	<u>[Signature]</u> 4-18-96 DPSP Supervisor
4	High-pressure detergent wash.	<u>[Signature]</u> 4-18-96 DPSP Supervisor
5	High-pressure hot water rinse.	<u>[Signature]</u> 4-18-96 DPSP Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	<u>[Signature]</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>[Signature]</u> 5/3/96 Project Manager

Comments:

Sample No. 960650044 [Signature] 4/29/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: COOLANT 2B

Serial Number: 024

Basket Designation: 2073/2074/2076

Date of Transfer: 4-19-96

Action	Activity	
1	High-pressure detergent wash.	Signature <u>4-19-96</u> <u>Tony H. Dutton</u> DPSB Supervisor
2	High-pressure hot water rinse	Signature <u>4-19-96</u> <u>Tony H. Dutton</u> DPSB Supervisor
3	One hour nitric acid soak.	Signature <u>4-19-96</u> <u>Tony H. Dutton</u> DPSB Supervisor
4	High-pressure detergent wash.	Signature <u>4-19-96</u> <u>Tony H. Dutton</u> DPSB Supervisor
5	High-pressure hot water rinse.	Signature <u>4-19-96</u> <u>Tony H. Dutton</u> DPSB Supervisor

6	Sample results indicate that rings <u>are</u> are not free of RCRA contamination.	Signature <u>W. J. Dutton</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	Signature <u>W. J. Dutton</u> 5/3/96 Project Manager

Comments:
<u>Sample No. 960650045 W. J. Dutton 4/29/96</u>

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: COOLANT 2B

Serial Number: 025

Basket Designation: 2072/2078/2075

Date of Transfer: 4-19-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>4-19-96</u> <u>T. H. Dutton</u> DPSB Supervisor
2	High-pressure hot water rinse	<u>4-19-96</u> <u>T. H. Dutton</u> DPSB Supervisor
3	One hour nitric acid soak.	<u>4-19-96</u> <u>T. H. Dutton</u> DPSB Supervisor
4	High-pressure detergent wash.	<u>T. H. Dutton</u> DPSB Supervisor
5	High-pressure hot water rinse.	<u>T. H. Dutton</u> DPSB Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	<u>Signature</u> <u>W. J. Dutton</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>Signature</u> <u>W. J. Dutton</u> 5/3/96 Project Manager

Comments:

Sample No. 960650046 W. J. Dutton 4/29/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: COOLANT 2B

Serial Number: 026

Basket Designation: 2080/2029

Date of Transfer: 4-19-96

Action	Activity	
1	High-pressure detergent wash.	Signature <u>4-19-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
2	High-pressure hot water rinse	Signature <u>4-19-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
3	One hour nitric acid soak.	Signature <u>4-19-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
4	High-pressure detergent wash.	Signature <u>H. J. 4-19-96</u> DPSD Supervisor
5	High-pressure hot water rinse.	Signature <u>H. J. 4-19-96</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	Signature <u>W. J. 5/3/96</u> Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	Signature <u>W. J. 5/3/96</u> Project Manager

Comments:
Sample No 960650047. Duplicate 960650048 <u>W. J. 4/29/96</u>

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: Coolant 2C

Serial Number: 027

Basket Designation: 2073/2074/2076

Date of Transfer: 4-19-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>[Signature]</u> 4-19-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>[Signature]</u> 4-19-96 DPSD Supervisor
3	One hour nitric acid soak.	<u>[Signature]</u> 4-19-96 DPSD Supervisor
4	High-pressure detergent wash.	<u>[Signature]</u> 4-19-96 DPSD Supervisor
5	High-pressure hot water rinse.	<u>[Signature]</u> 4-19-96 DPSD Supervisor

6	Sample results indicate that rings <u>are</u> // are not free of RCRA contamination.	<u>[Signature]</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>[Signature]</u> 5/3/96 Project Manager

Comments:
<u>Sample No. 960650049</u> <u>[Signature]</u> 4/30/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: Coolant 2C Serial Number: 028

Basket Designation: 2075 / 2078 / 2077 ⁸⁰⁸
4-20-96

Date of Transfer: 4-19-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>[Signature]</u> 4-19-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>[Signature]</u> 4-19-96 DPSD Supervisor
3	One hour nitric acid soak.	<u>[Signature]</u> 4-19-96 DPSD Supervisor
4	High-pressure detergent wash.	<u>[Signature]</u> 4-19-96 DPSD Supervisor
5	High-pressure hot water rinse.	<u>[Signature]</u> 4-19-96 DPSD Supervisor

6	Sample results indicate that rings are are not free of RCRA contamination.	<u>[Signature]</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Red Waste</u>	<u>[Signature]</u> 5/3/96 Project Manager

Comments:
Sample No. 960650050 <u>[Signature]</u> 4/30/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: Coolant 2E

Serial Number: D29

Basket Designation: 2079/2072/2080

Date of Transfer: 4-19-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>YJA 4-19-96</u> DPSD Supervisor
2	High-pressure hot water rinse	<u>YJA 4-19-96</u> DPSD Supervisor
3	One hour nitric acid soak.	<u>YJA 4-19-96</u> DPSD Supervisor
4	High-pressure detergent wash.	<u>THD 4-20-96</u> DPSD Supervisor
5	High-pressure hot water rinse.	<u>THD 4-20-96</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	<u>W. J. ... 5/3/96</u> Project Manager
7	Material is to be dispositioned as <u>Red Waste</u>	<u>W. J. ... 5/3/96</u> Project Manager

Comments:
Sample No. 960660028 <u>W. J. ... 4/30/96</u>

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: Coolant 2E

Serial Number: 030

Basket Designation: 2076 / 2074

Date of Transfer: 4-19-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>THD 4-20-96</u> DPSD Supervisor
2	High-pressure hot water rinse	<u>THD 4-20-96</u> DPSD Supervisor
3	One hour nitric acid soak.	<u>YGG 4-20-96</u> DPSD Supervisor
4	High-pressure detergent wash.	<u>YGG 4-20-96</u> DPSD Supervisor
5	High-pressure hot water rinse.	<u>YGG 4-20-96</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	<u>W. J. ... 5/3/96</u> Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>W. J. ... 5/3/96</u> Project Manager

Comments:
<u>Sample No. 960660029, 960660030 (Dup.) W. J. ... 4/30/96</u>

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: OIL 5C Serial Number: 031

Basket Designation: 2076/2074/2080

Date of Transfer: 4-20-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>[Signature]</u> 4-20-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>[Signature]</u> 4-20-96 DPSD Supervisor
3	One hour nitric acid soak.	<u>[Signature]</u> 4-20-96 DPSD Supervisor
4	High-pressure detergent wash.	<u>[Signature]</u> 4-20-96 DPSD Supervisor
5	High-pressure hot water rinse.	<u>[Signature]</u> 4-20-96 DPSD Supervisor

6	Sample results indicate that rings <u>(are)</u> are not free of RCRA contamination.	<u>[Signature]</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>[Signature]</u> 5/3/96 Project Manager

Comments:
Sample No. 960660031 <u>W. [Signature]</u> 4/30/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: Oil 5C

Serial Number: 032

Basket Designation: 2072/2079

Date of Transfer: 4-20-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>ggg 4-20-96</u> DPSD Supervisor
2	High-pressure hot water rinse	<u>ggg 4-20-96</u> DPSD Supervisor
3	One hour nitric acid soak.	<u>ggg 4-20-96</u> DPSD Supervisor
4	High-pressure detergent wash.	<u>4-21-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
5	High-pressure hot water rinse.	<u>4-21-96</u> <u>Tony H. Dutton</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> are not free of RCRA contamination.	<u>W. T. Dutton 5/3/96</u> Project Manager
7	Material is to be dispositioned as <u>Radio Waste</u>	<u>W. T. Dutton 5/3/96</u> Project Manager

Comments:

Sample No. 960660032 W. T. Dutton 4/30/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: EXTRACTANT 1B

Serial Number: 033

Basket Designation: 2076/2080/2074

Date of Transfer: 4-21-96

Action	Activity	
1	High-pressure detergent wash.	Signature <u>4-21-96</u> <u>Terry H. Dutton</u> DPSP Supervisor
2	High-pressure hot water rinse	Signature <u>4-21-96</u> <u>Terry H. Dutton</u> DPSP Supervisor
3	One hour nitric acid soak.	Signature <u>4-21-96</u> <u>Terry H. Dutton</u> DPSP Supervisor
4	High-pressure detergent wash.	Signature <u>4-21-96</u> <u>Terry H. Dutton</u> DPSP Supervisor
5	High-pressure hot water rinse.	Signature <u>4-21-96</u> <u>Terry H. Dutton</u> DPSP Supervisor

6	Sample results indicate that rings <u>(are)</u> are not free of RCRA contamination.	Signature <u>5/3/96</u> <u>W. H. Dutton</u> Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	Signature <u>5/3/96</u> <u>W. H. Dutton</u> Project Manager

Comments:

Sample No 960660033 W. H. Dutton 4/30/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: EXTRACTANT 1B

Serial Number: 034

Basket Designation: 2075/2072/2078

Date of Transfer: 4-21-96

Action	Activity	
1	High-pressure detergent wash.	Signature <u>4-21-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
2	High-pressure hot water rinse	Signature <u>4-21-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
3	One hour nitric acid soak.	Signature <u>4-21-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
4	High-pressure detergent wash.	Signature <u>4-21-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
5	High-pressure hot water rinse.	Signature <u>4-21-96</u> <u>Tony H. Dutton</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	Signature <u>W. J. Dutton</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	Signature <u>W. J. Dutton</u> 5/3/96 Project Manager

Comments:

Sample No 760660034 W. J. Dutton 4/30/96

Raschig Ring Decontamination Sign-Off Sheet

J.D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: OIL 5A

Serial Number: 035

Basket Designation: 2079/2077/2074

Date of Transfer: 4-21-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>[Signature]</u> 4-21-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>[Signature]</u> 4-21-96 DPSD Supervisor
3	One hour nitric acid soak.	<u>[Signature]</u> 4-21-96 DPSD Supervisor
4	High-pressure detergent wash.	<u>[Signature]</u> 4-21-96 DPSD Supervisor
5	High-pressure hot water rinse.	<u>[Signature]</u> 4-21-96 DPSD Supervisor

6	Sample results indicate that rings <u>are</u> are not free of RCRA contamination.	<u>[Signature]</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>[Signature]</u> 5/3/96 Project Manager

Comments:
<u>Sample No. 960660035, Duplicate 960660036 W. J. D. 4/30/96</u>

Raschig Ring Decontamination Sign-Off Sheet

J. J. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: 1018-5A Serial Number: 036

Basket Designation: 2078/2073/2080

Date of Transfer: 4-21-96

Action	Activity	
1	High-pressure detergent wash.	Signature <u>[Signature]</u> 4-21-96 DPSD Supervisor
2	High-pressure hot water rinse	Signature <u>[Signature]</u> 4-21-96 DPSD Supervisor
3	One hour nitric acid soak.	Signature <u>[Signature]</u> 4-21-96 DPSD Supervisor
4	High-pressure detergent wash.	Signature <u>[Signature]</u> 4-21-96 DPSD Supervisor
5	High-pressure hot water rinse.	Signature <u>[Signature]</u> 4-21-96 DPSD Supervisor

6	Sample results indicate that rings <u>are</u> / are not free of RCRA contamination.	Signature <u>[Signature]</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Red Waste</u>	Signature <u>[Signature]</u> 5/3/96 Project Manager

Comments:
<u>Sample No 960660037 W. J. Watkins 4/30/96</u>

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: 01 5B Serial Number: 037

Basket Designation: 2072/2075/2078

Date of Transfer: 4-21-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>[Signature]</u> 4-21-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>[Signature]</u> 4-21-96 DPSD Supervisor
3	One hour nitric acid soak.	<u>[Signature]</u> 4-21-96 DPSD Supervisor
4	High-pressure detergent wash.	<u>[Signature]</u> 4-22-96 DPSD Supervisor
5	High-pressure hot water rinse.	<u>[Signature]</u> 4-22-96 DPSD Supervisor

6	Sample results indicate that rings <u>are</u> are not free of RCRA contamination.	<u>[Signature]</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Red Waste</u>	<u>[Signature]</u> 5/3/96 Project Manager

Comments:
<u>SA 4/20/96</u> Sample No. 9606600038 <u>W. V. [Signature]</u> 4/30/96

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: Dil 5B Serial Number: 038

Basket Designation: 2074/2077/2079

Date of Transfer: 4-21-96

Action	Activity	
1	High-pressure detergent wash.	Signature <u>4-22-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
2	High-pressure hot water rinse	Signature <u>4-22-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
3	One hour nitric acid soak.	Signature <u>4-22-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
4	High-pressure detergent wash.	Signature <u>4-22-96</u> <u>Tony H. Dutton</u> DPSD Supervisor
5	High-pressure hot water rinse.	Signature <u>4-22-96</u> <u>Tony H. Dutton</u> DPSD Supervisor

6	Sample results indicate that rings <u>are</u> are not free of RCRA contamination.	Signature <u>5/3/96</u> <u>W. J. Dutton</u> Project Manager
7	Material is to be dispositioned as <u>Red Waste</u>	Signature <u>5/3/96</u> <u>W. J. Dutton</u> Project Manager

Comments:	<u>5-4/30/96</u>
<u>Sample No. 960660039 Duplicate 960660040/1 W. J. Dutton 4/30/96</u>	

Raschig Ring Decontamination Sign-Off Sheet

J. D. Watkins
Operations Manager, 9206 Special Chemical Processing

Drum Designation: Raschig Ring Samples Serial Number: 039

Basket Designation: 2074

Date of Transfer: 4-22-96

Action	Activity	Signature
1	High-pressure detergent wash.	<u>J. D. Watkins</u> 4-22-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>J. D. Watkins</u> 4-22-96 DPSD Supervisor
3	One hour nitric acid soak.	<u>J. D. Watkins</u> 4-22-96 DPSD Supervisor
4	High-pressure detergent wash.	<u>J. D. Watkins</u> 4-22-96 DPSD Supervisor
5	High-pressure hot water rinse.	<u>J. D. Watkins</u> 4-22-96 DPSD Supervisor

6	Sample results indicate that rings <u>are</u> are not free of RCRA contamination.	<u>W. J. D. Watkins</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Rad Waste</u>	<u>W. J. D. Watkins</u> 5/3/96 Project Manager

Comments:
<u>Sample No. 960660042 W. J. D. Watkins 4/30/96</u>

Decontamination Sign-Off-Sheet

J.D. Weatherman
Operations Manager, 9206 Special Chemical Processing

Equipment Description: North RCRA DIKE Serial Number: 040
(Asphalt)

Action	Activity	Signature
1	High-pressure detergent wash	<u>[Signature]</u> 4-23-96 DPSD Supervisor
2	High-pressure hot water rinse	<u>[Signature]</u> 4-23-96 DPSD Supervisor
3	Second high-pressure hot water rinse	<u>[Signature]</u> 4-23-96 DPSD Supervisor

6	Sample results indicate that equipment (is) is not free of RCRA contamination.	<u>[Signature]</u> 5/3/96 Project Manager
7	Material is to be dispositioned as <u>Unrestricted use</u>	<u>[Signature]</u> 5/3/96 Project Manager

Comments:

Sample No 960660043 [Signature] 4/30/96

Raschig Ring Contamination Tracking Logsheet

J.D. Wathen
Operations Manager, 9206 Special Chemical Processing

Original Drum	Basket Number	Basket Number	Basket Number	Basket Number	Basket Number	Basket Number	Basket Number	Basket Number	Basket Number	Rinse (Initial when complete)
COOLANT 2B	1 2 3 2073	1 2 3 2074	1 2 3 2076	1 2 3 2072	1 2 3 2078	1 2 3 2075	1 2 3 2080	1 2 3 2079	1 2 3	N/A
COOLANT 2C	1 2 3 2073	1 2 3 2074	1 2 3 2076	1 2 3 2075	1 2 3 2078	1 2 3	1 2 3	1 2 3	1 2 3	N/A
COOLANT 2E	1 2 3 2079	1 2 3 2072	1 2 3 2080	1 2 3 2077	1 2 3 2076	1 2 3 2074	1 2 3	1 2 3	1 2 3	N/A
EXTRACTANT 1B 4-21-96	1 2 3 2076	1 2 3 2080	1 2 3 2074	1 2 3 2075	1 2 3 2072	1 2 3 2078	1 2 3	1 2 3	1 2 3	N/A
OIL 5A	1 2 3 2079	1 2 3 2077	1 2 3 2074	1 2 3 2078	1 2 3 2073	1 2 3 2080	1 2 3	1 2 3	1 2 3	N/A
OIL 5B	1 2 3 2072	1 2 3 2078	1 2 3 2075	1 2 3 2079	1 2 3 2074	1 2 3 2077	1 2 3	1 2 3	1 2 3	N/A
OIL 5C	1 2 3 2076	1 2 3 2074	1 2 3 2080	1 2 3 2072	1 2 3 2079	1 2 3	1 2 3	1 2 3	1 2 3	N/A
DISTILLATE 6A	1 2 3 2072	1 2 3 2080	1 2 3 2078	1 2 3 2079	1 2 3 2075	1 2 3 2076	1 2 3	1 2 3	1 2 3	N/A
DISTILLATE 6B Extremely Dirty	1 2 3 2073	1 2 3 2074	1 2 3 2077	1 2 3 2072	1 2 3 2078	1 2 3 2080	1 2 3 2074	1 2 3 2073	1 2 3	N/A
FREON 4A	1 2 3 02072	1 2 3 2079	1 2 3 2078	1 2 3 2076	1 2 3 2080	1 2 3 2075	1 2 3	1 2 3	1 2 3	N/A
FREON 4B	1 2 3 02079	1 2 3 02072	1 2 3 02078	1 2 3 02077	1 2 3 02074	1 2 3 02073	1 2 3	1 2 3	1 2 3	N/A

Circle one to indicate condition of the rings: 1 = Very Dirty

2 = Somewhat Dirty

3 = Fairly Clean

5-C-5A-5B - ^{very} Dirty
2072/2078/2080

I N T E R O F F I C E M E M O R A N D U M

Date: 16-May-1996 09:33am EDT
From: Charles H Fritts
FRITTSCH
Dept: 2637
Tel No: 576-7052 / PAGER 873-7407

TO: COLLINSET

CC: DUNCANAL FRITTSCH

Subject: Re: Closure Costs
File: READ

025042

Tom,

A separate account was set for closure activities associated with the UTU which Bill should be able to supply you, but no special account was set up for the E-Wing Closure. Since the E-Wing Closure didn't involve the amount of work and time that UTU did, we didn't keep track of the amount of time it took to search for the needed information.

Items that were deconed will be stored within an EUO Radioactive Material Storage Area (RMA) according to plant procedures. These items will remain in these areas until a percent U235 and a total U can be determined for these items. Energy System Waste Management Organization (ESWMO) cannot receive and store these items within their areas without this analysis. (This includes the drums packed with the rings that were deconed.)

The wash/rinse will be disposed of by ESWMO at the West End Treatment Facility (WETF), the drums that are F-Listed will be stored by ESWMO at CWSA (Dolly Parton Tents), and the other drums (characteristic) will be stored by ESWMO at OD-8. All of these waste are presently being stored at AA-13 (drums), located at Building 9206, and AA-19 (Tuff-Tanks), located at Building 9818, while undergoing waste certification. All of these waste will be moved to the designated permitted facility before the ninety-day time ends which is July 30, 1996. By this date all waste generated by the closure activities will be properly stored in a ESWMO permitted facility.

Chuck Fritts

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: R I P P E R I

Page 1 of 2

SECTION I

Manufacturers Name: The Hotay Corporation, Detergent Division
Address: 2621 7 th.Avenue South Phone Number: 712-862-7737
City, State & Zip: Estherville, Iowa 51334

FOR MEDICAL EMERGENCY : Rocky Mountain Poison Control Center
303-623-5716.

FOR CHEMICAL EMERGENCY: Spill, Leak, Fire, Exposure or Accident
call CHEMTREC - 1-800-424-9300.
Outside U.S. call 202-483-7616

Person Responsible for Preparation: Dean F. Fernholz

Revision Date : September 15, 1994

Supersedes : June 1, 1993

D.O.T. Shipping Class: Cleaning Compound, Class 55

Health Hazards	:Health	[2]
0 > 4	:Flammability	[0]
None- Extreme	:Reactivity	[0]

SECTION II HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	CAS NO.	OSHA PEL	ACGIH TLV	ORAL LD50 Rat	%

Ethoxylated Alcohol	68439-45-2	NE	NE	5100 mg/kg	1-5%
Ethoxylated Alcohol	52623-95-7	NE	NE	1890 mg/kg	1-5%
Ethoxylated Alcohol	9036-19-5	NE	NE	1800 mg/kg	1-5%
Sodium Metasilicate	6834-82-0	NE	NE	800 mg/kg	5-10%

SECTION III PHYSICAL AND CHEMICAL CHARACTERISTICS

Boiling Point > 212 (Deg. F.)	Specific Gravity 1.03
Vapor Pressure (mm/hg) 23	Vapor Density (Air=1) 1.2
Solubility in Water: Soluble	Reactivity in Water: None
pH 5% solution = 11.8	Melting Point 32 (Deg F.)
Appearance & Odor: Purple color liquid, mild odor	

SECTION IV FIRE & EXPLOSION DATA

Flash Point: NA	Method Used: NA
Flammable Limits in air % by volume	LEL Lower NA UEL Upper NA
Auto-Ignition Temperature: NA	
Extinguisher Media: Water, Dry Chemical, Carbon Dioxide, Foam	
Special Fire Fighting Procedures: None	
Unusual Fire & Explosion Hazards: None	

SECTION V PHYSICAL HAZARDS (REACTIVITY DATA)

Stability: Stable [X] Unstable []
Incompatibility (Materials to avoid) : Strong acids, oxidizing agents
Hazardous Decomposition Products: NA
Hazardous Polymerization: May occur [] Will NOT occur [x]
Conditions to avoid: NA

RIPPER I

Page 2 of 2

SECTION VI HEALTH HAZARDS

Acute: Eye burns, skin irritation
Chronic: Eye burns and skin irritation
Signs & Symptoms of Exposure: Eye irritation
skin irritation.
Medical Conditions Generally
Aggravated by Exposure: NA
Carcinogen or Potential Carcinogens: NONE

EMERGENCY FIRST AID:

EYES: Flush with water, call physician immediately.
SKIN: Flush with water, call physician if irritation
persists.

INTERNAL: Drink water, call a physician immediately.

ROUTES OF ENTRY :

1. Inhalation : NA
2. Eyes : Undiluted can cause eye irritation/burns
3. Skin : Undiluted can cause skin irritation
4. Ingestion : Undiluted can cause stomach irritation

SECTION VII SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Handling and storage: Store in dry area, DO NOT FREEZE.
Keep container closed when not in use
Other precautions : NONE
In case of spill : Shut off leak, Flush area with water.
Large spill should be diked with
earth; then pump to salvage tank
Waste Disposal : Dispose of in accordance with all Federal,
State, and Local pollution control regulations.

SECTION VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection: NA
Ventilation : Use with adequate ventilation
Protective Gloves : Rubber
Eye Protection : Safety glasses or goggles
Other : Waterproof Suit and Boots may be worn
Hygienic Practices : Wash thoroughly after handling

SECTION IX COMMUNITY RIGHT TO KNOW LIST

<u>Chemical Name</u>	<u>CAS. No</u>
Water	7732-18-5
Sodium Metasilicate	6834-92-0
Sodium Tripoly Phosphate	7758-29-4
Ethoxylated Alcohol	68438-45-2
Ethoxylated Alcohol	9036-19-5
Ethoxylated Alcohol	52623-85-5

NA = Not applicable NE = None established

While the information and recommendations set forth herein
are believed to be accurate as of the date hereof, THE HOTSY
CORPORATION, DETERGENT DIVISION, MAKES NO WARRANTY WITH RESPECT
THERE TO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

I N T E R O F F I C E M E M O R A N D U M

Date: 26-Feb-1996 09:44am EST
From: William Charles Tindal
TINDALWC
Dept: 2637
Tel No: (423) 241-6556

O: COLLINSET

Subject: Inventory of the UTU
File: OUTBOX

001331

As you requested earlier in this project, the following is an inventory of the waste and equipment in the Uranium Treatment Unit:

Waste Extractant	26kg
Waste Coolant	23kg
Waste Distillate	45kg
Waste Freon	36kg
Waste Oil	82kg

Two 300gal. Poly Tanks
Two Agitators
Two Structural Supports
Eleven Drums of Raschig Rings
One Mixing Drum
Approximately 10 layers of PVC diking material

Bill Tindal

Distribution:

E. T. Collins

C. H. Fritts

N. C. Jessen

A. K. Lee/DOE-OSTI, 9731, MS-8175 (2)

J. E. Powell

S. E. Rathke

R. K. Roosa

L. M. Sparks, DOE-ORO

W. C. Tindal

File-EMD-RC

Y-12 Central Files