Risk-Based Disposal Approval Request for PCBs Contaminated with Radioisotopes at the AMWTP Facility

Prepared for the
U.S. Department of Energy-Idaho Operations Office
Advanced Mixed Waste Treatment Project

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ACRONYMS

AK	Acceptable Knowledge
AMWTP	Advanced Mixed Waste Treatment Project
AMWTF	Advanced Mixed Waste Treatment Facility
BC	Battelle Columbus
CAM	Continuous Air Monitor
CERCLA	Comprehensive Environmental Response and Compensation Liability Act
D&D	Dismantling and Decommissioning
DOE	United States Department of Energy
DOE-ID	U.S. Department of Energy, Idaho Operations Office
DOE-RL	U.S Department of Energy, Richland Field Office
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ESS&H	Environmental, Security, Safety and Health
HEPA	High Efficiency Particulate Air Filters
IDAPA	Idaho Administrative Procedures Act
IDC	Item Description Code
INL	Idaho National Laboratory
nCi/g	nanocurries per gram
NFPA	National Fire Protection Act
PCB	Polychlorinated biphenyls
PPE	Personal Protection Equipment
ppm	parts per million
PVC	Polyvinyl Chloride
RBDA	Risk-Based Disposal Approval
RCRA	Resource Conservation and Recovery Act
RF	Rocky Flats
ROD	Record of Decision
RT	Radiological Technician
RTR	Real-time Radiography
SS	Special Source

SSC	Soft-sided containment
TRU	Transuranic
TSA-RE	Transuranic Storage Area-Retrieval Enclosure
TSCA	Toxic Substances Control Act
VE	Visual Examination
WAC	Waste Acceptance Criteria
WAP	Waste Analysis Plan
WIPP	Waste Isolation Pilot Plant

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EXECUTIVE SUMMARY

The U.S. Department of Energy-Idaho Operations Office (DOE-ID) is requesting authorization for the processing of transuranic (TRU) contaminated residual liquids containing polychlorinated biphenyls (PCBs) via solidification and/or absorption, as opposed to thermal treatment or decontamination. Approximately 16,139 containers of TRU waste are targeted for retrieval at the Advanced Mixed Waste Treatment Project (AMWTP). The TRU-contaminated PCB wastes are known to contain various amounts of residual liquids. The Waste Isolation Pilot Plant (WIPP), located in Carlsbad, New Mexico, is the designated disposal site for TRU waste. However, the WIPP's waste acceptance criteria (WAC) prohibit the receipt of TRU waste containing residual PCB liquids. In addition, the Environmental Protection Agency (EPA) prohibits the processing of PCB liquids to a non-liquid form in lieu of performing thermal treatment or decontamination without first obtaining an EPA risk-based disposal approval (RBDA). In order to establish viable treatment and disposal pathways for TRU-contaminated PCB waste, the AMWTP has developed this RBDA request to obtain EPA's authorization for the processing of TRU waste containing PCB residual liquids.

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1. INTRODUCTION

DOE-ID is requesting authorization to process TRU-contaminated residual liquids containing PCB's via solidification and/or absorption as opposed to thermal treatment or decontamination.[1] The request for processing these residual liquids is being sought in accordance with RBDA requirements, as outlined within 40 CFR 761.61(c). The wastes in question are PCB-contaminated mixed TRU waste. Only wastes that are projected for disposal at the WIPP are being addressed within this RBDA; it does not cover wastes whose disposal destination is other than WIPP.[2]

All wastes for which the RBDA is requested are designated as PCB remediation wastes. [1] These wastes are currently being retrieved as the result of a State of Idaho Settlement Agreement Consent Order. Once retrieved from the AMWTP earthen-covered retrievable storage area, the waste is stored at the AMWTP's mixed waste storage unit(s) prior to off-site disposal. The AMWTP's proposed PCB processing and storage areas are not subject to Comprehensive Environmental Response and Compensation Liability Act (CERCLA) program requirements, but are subject to the Resource Conservation and Recovery Act (RCRA) storage and treatment permit requirements, as well as an approved Toxic Substances Control Act (TSCA) risk-based storage authorization. Storage of PCB waste within RCRA-permitted storage areas provide equivalent protection as that provided by the TSCA PCB storage areas [40 CFR 761.65(b)(2)].

The proposed processing areas are subject to Idaho Administrative Procedures Act (IDAPA) 58.01.05.008 RCRA permit requirements for storage of mixed wastes and are authorized by a RCRA permit to perform RCRA treatment activities through absorption/stabilization activities.[4] The areas comply with all RCRA permit storage requirements (have RCRA compliant secondary containment, undergo routine inspections, have adequate fire protection, etc.) (See Attachment 1).

Prior to off-site shipment to the WIPP, PCB-contaminated TRU waste containing residual liquids will require processing into a non-liquid form in order to meet the WIPP WAC. [3] Without approval to process the TRU-contaminated liquids identified within this RBDA request, TRU waste containing any amount of residual liquids will be designated as legacy waste (i.e., wastes with no identified disposal path). Limited management options exist for legacy wastes (e.g., over-pack containers showing signs of degradation and continue storage). The only option

[1] Thermal treatment or decontamination is the prescribed treatment/disposal method for liquid PCB remediation waste whose concentration is greater than 500 parts per million (ppm) [40 CFR 761.61(b) and 761.75(b) (8) (ii)].

[2] Wastes requiring processing of liquids into non-liquid form that are destined for non-WIPP disposal facilities and whose PCB concentration exceeds 500 ppm will be subjected to an additional RBDA request (or modification of this RBDA request) and submitted in accordance with 40 CFR 761.61(c) requirements.

for wastes without an identified disposal path is long-term storage. Where possible, the AMWTP prefers to process wastes in order to avoid classification as legacy waste.

All known or suspected PCB wastes to be processed by means of liquid absorption/stabilization are defined as solidified homogeneous solids and/or debris by current TRU Programs acceptable knowledge (AK) documents. Wastes that are primarily comprised of liquids are not expected to be encountered. There is no supporting AK documentation that reflects that the AMWTP will retrieve waste with a significant amount of liquids containing PCBs (i.e., greater than incidental volumes). Although the drums are primarily expected to contain only incidental amounts of PCB-contaminated liquids, there is the possibility that a limited amount of drums may contain more than the anticipated incidental amounts.

The largest waste stream discussed, item description code Rocky Flats 003 (IDC RF003), highlights the concerns associated with PCB-contaminated residual liquids associated with all TRU waste. This IDC comprises an estimated 8,169 containers. Another estimated 6,500 containers within retrievable storage, whose IDC is unknown at this time, may possibly be identified as IDC RF003 wastes. As a result, the high-end estimate of the number of IDC RF003 containers within retrievable storage is 14,669. An additional 440 containers may be generated as a result of liquid processing. The total high-end estimate of IDC RF003 containers that may be shipped to WIPP is 15,109.

IDC RF003 wastes are described as solidified organic sludge and are classified as containing PCBs. Some of the sludge within these containers have been tested and shown to be less than 500 ppm PCB. However, most of the containers within this waste stream have not been retrieved and are not targeted for TSCA sampling due to increased radiological exposure concerns. As a result, most containers within IDC RF003 are assumed (or will be assumed) to contain greater than 500 ppm PCB [40 CFR 761.50(a)(5) and WIPP PCB disposal authorization, condition IV.B.4]. [2] If approved, the AMWTP plans on processing these PCB-contaminated TRU liquids into non-liquid form through solidification and/or absorption activities prior to shipment to the WIPP disposal facility. Appendix A, Table 1, lists selected WAC requirements for disposal of PCB waste at the WIPP disposal facility.

This RBDA demonstrates that processing of PCB-contaminated remediation TRU waste liquids into non-liquid form for purposes of disposal within the WIPP facility does not pose an unreasonable risk to human health and the environment.

2. CONCENTRATION AND QUANTITY OF PCBs

Limited PCB testing has been performed, and the results reflect variable concentration of PCBs. The exact number of TRU-contaminated PCB containers that may be retrieved from the Transuranic Storage Area-Retrieval Enclosure (TSA-RE) which also contain a measurable

volume of liquids is not known. According to TRU Programs AK documentation, there are three IDCs currently known to contain PCBs. These IDCs are RF003, RF480, and BC203. It is important to note, however, that any IDC may contain measurable amounts of liquid as well as small electrical items contaminated with PCBs (e.g., leaking light ballasts).

I. IDC RF003

RF 003 is an organic waste liquid that was sent to Building 774 and processed by mixing the waste liquids with Microcel E, a calcium silicate absorbent powder, to form a grease-like substance. According to AMWTP Operations personnel, IDC RF003 has a peanut butter or clay-like consistency. This IDC is considered to be mixed PCB-contaminated TRU waste. A worst-case estimate relating to the overall increase in the total number of containers as a result of adding sufficient absorbent to ensure no residual PCB liquids is 440.

As mentioned in Section 1, the high-end estimate of IDC RF003 containers to be shipped to WIPP is 15,109. Since most containers within IDC RF003 are not to be tested for PCBs, they are assumed to contain greater than 500 ppm PCB [40 CFR 761.50(a)(5) and WIPP PCB disposal authorization, condition IV.B.4].

II. IDC BC203

IDC BC203 is identified as a debris waste stream. There are approximately 35 containers of IDC BC203 waste at the AMWTP. It contains a variety of waste from the construction materials and discarded debris waste as a result of dismantling and decommissioning (D&D) buildings at the DOE Battelle Columbus (BC) facility, located in Columbus, Ohio. AK records indicate that twenty (20) one-gallon cans of absorbed oil waste were placed in IDC BC203 debris waste containers. The absorbed oil was radioactively contaminated oil removed from various equipment pieces (lathes, presses, etc.) during D&D operations. The PCB concentration of the absorbed oil is unknown. Other items marked or labeled as containing PCBs, such as fluorescent light ballasts, capacitors, oil-filled containers or equipment,[3] and contaminated materials from spills or cleanups, could have been generated during D&D of the buildings and may be found in IDC BC203 waste containers. These items are expected to be a minor component in the overall waste stream. As a result, IDC BC203 wastes may contain residual liquids contaminated with PCBs at unknown concentrations.

The high-end estimate of the total number of BC203 PCB-contaminated containers to be shipped to WIPP is 30.

III. IDC RF480

[3] These types of oil filled electrical items (oil filled hydraulic equipment, oil filled lathes, and large PCB capacitors etc.) are prohibited at WIPP and if found they will be removed, placed in compliant storage, and managed until alternative disposal paths are identified and approved.

This waste stream is comprised of various forms of discarded non-special source (SS) metal debris wastes that were generated during plutonium processing areas and decontamination and decommissioning operations at RF. This waste includes metal debris waste made of iron, copper, aluminum, stainless steel, galvanized metal, carbon steel, brass, bronze, and other common metal alloys. Examples of specific waste items include glovebox parts and various oil filled/cooled equipment such as mechanical (hydraulic equipment, lathes) and electrical (motors, capacitors) equipment/parts, tools, containers, scrap metals, wire, cable, ducting, piping, foil, planchets, etc. There is evidence that some equipment may contain PCB liquids (e.g., large capacitors, lathes, capacitors). According to AK documentation, oil filled equipment was to undergo draining prior to shipment and as a result only incidental amounts of liquids are expected to be associated with the oil filled equipment.[3]

The high-end estimate of the total number of PCB-contaminated IDC RF480 containers to be shipped to WIPP is 1000. [4]

Based on the above estimates, a total high-end estimate of 16,139 TRU-contaminated PCB regulated containers may be shipped to WIPP (i.e., IDCs: RF003 [15,109 containers], BC203 [30 containers] and RF480 [1,000 containers]).

3. MANAGEMENT OF PCB WASTE PRIOR TO PROCESSING

As mentioned, wastes being managed at the AMWTP's retrievable storage areas are being managed through a State of Idaho Settlement Agreement Consent Order. Once retrieved, the waste is tracked and transported to one of the AMWTP's RCRA storage modules. Waste form and presence of residual liquids (as well as other WIPP prohibited items) are evaluated through the use of VE or RTR examinations. In addition to conducting VE or RTR activities, the containers are radioassayed to identify radionuclides and measure activity levels. Sampling, VE, and RTR operations are statistically based and conducted in accordance with the WIPP Waste Analysis Plan (WAP).

4. WASTE PROCESSING

Liquid processing activities would occur inside units that meet (or are equivalent to) the controls and protection provided within a TSCA compliant storage/processing area. Processing of PCB-contaminated liquids in TRU wastes will take place within RCRA-permitted soft-sided containment (SSC) tent(s) or RCRA-permitted units that provide equivalent protection.

[4] Estimates for RF480 wastes are based off current percentage of RTR/VE encounters of ballasts, small leaking PCB electrical equipment with measurable amounts of free liquids.

Absorption Activities

Prior to absorption/solidification, the compatibility of the liquid with the absorbent being used is evaluated. Compatibility evaluations are typically performed using original waste stream AK and/or RTR/VE examination. Absorbent materials are also checked for compatibility with the original waste streams prior to conducting absorption activities.

Only approved absorbents authorized through the AMWTP RCRA permit(s) will be used for absorption. The types of absorbents used vary with the type of PCB-contaminated liquid waste undergoing treatment and are selected based on (1) recommended usage and specifications provided by manufacturers, and (2) compatibility with the waste. Based upon the testing and performance of absorbents, it has been determined that Aquaset® would be used for the absorption of aqueous liquids. Petroset® would be used for the absorption of organic liquids. Currently, Aquaset® and Petroset® are authorized by the RCRA permit(s). The use of other absorbents requires prior approval by AMWTP Environmental, Security, Safety and Health (ESS&H) and Nuclear Criticality personnel. Examples of other potential absorbents that may be used include natural materials such as vermiculite, silicates, clays, cellulose (e.g., corncobs), or synthetic materials such as activated carbon or polypropylene.

Estimates of the volume of liquid to be treated are obtained through RTR or VE examinations and are documented into the facility's RCRA operating record (i.e., 40 CFR 264.73) prior to adding absorbents. RTR uses non-invasive (e.g., X-ray) examination of the waste container and is capable of locating and identifying liquids. All estimates of liquids are obtained from RTR records and/or VE records. Most of the waste will be absorbed directly within the original 55-gallon container or within existing inner containers which are then returned to the parent container. Where the volume of the treated waste exceeds the available capacity of the void space within the original container or cannot be returned to the parent container (e.g., requires re-containerization), the treated waste will be placed in a different container(s) for shipment to WIPP. For purposes of shipment to WIPP, re-containerized waste is assigned the appropriate IDC for newly generated waste and placed in compliant storage (e.g., labeled and tracked as mixed PCB wastes) until shipped to WIPP. [5] [6]

The general PCB liquid waste processing activities for the AMWTP TSCA compliant/RCRA-permitted SSC tents (or equivalent units) include the following general steps/actions:

[5] Newly generated wastes for absorbed liquids containing PCBs are assigned AMWTP-specific IDCs, as required by the WIPP program [e.g., IDC 604 (PCB debris) or IDC 605 (PCB non-debris)]. For example, containers that are primarily debris and also contain residual liquids in the drum are assigned IDC 604. These IDCs are not identified as "source" IDCs since they are generated as a result of repackaging one of the original source IDCs (e.g., RF003, RF480 or BC203).

- Each drum/container received must be in good condition (e.g., non-leaking) or overpacked into containers in good condition.
- Mixed TRU waste includes radioactive materials that are also hazardous wastes. The waste contains fissile isotopes and can emit alpha, beta, gamma, or neutron radiation. When handling waste containers, every effort shall be made to ensure continued structural soundness as well as maintaining exposures as low as reasonably achievable (ALARA).
- To ensure positive airflow while drums are being transferred into or out of the SSC, all ventilation systems associated with the SSC must be operating, and the outer personnel door to the SSC must be closed.
- If a loss of ventilation occurs, the work inside the SSC is suspended, and the workers exit the unit until the ventilation is restored to normal.
- Only drums meeting the limits specified in the AMWTP Certification Plan for INL Transuranic Waste, for fissile material content (i.e., less than or equal to 200 ^{239}PU fissile gram equivalent) will be processed within the units for absorbent addition.
- Liquid absorption activities are conducted in strict compliance with radiological and equipment controls to support ALARA concerns. Although ALARA protocols are typically associated solely with radiation protection, the PCBs undergoing processing are inherently associated with radioactive contamination and as long as the primary concern is not through vapor transport. By following basic ALARA protocols, the TSCA "no unreasonable threat to human health and the environment" standard is achieved. Where vapors are remotely possible, HEPA filtration will suffice to support the TSCA standard.
- Prior to conducting liquid absorption activities, a job review is conducted and Industrial Hygiene and Industrial Safety is contacted to determine if organic vapor sampling is required.
- Absorbents are manually added to liquids located on the top of the sludge, as necessary.
- Where necessary, manual agitation, mechanical vibration, or other means of separating liquids will occur to affect absorption. Equipment and types of manual/mechanical means used to separate the liquid for purposes of absorption of liquid will not result in aerosol emissions.

- Where possible, absorbent is added to approximately 1 inch or more above the original liquid level and until liquid is no longer visible. Absorption may occur outside of the original container and will involve the use of sufficient absorbent to ensure all liquids are absorbed. After completion of the absorption activities, the waste is placed either back into the original container or placed into a new container. The contents of the container(s) are then visually inspected and, if additional absorbent is required, the applicable process is repeated.

5. WASTE PROCESSING SYSTEM

Processing of residual liquids will occur within AMWTP RCRA-permitted facilities and PCB compliant storage/treatment areas. The proposed processing areas are specifically designed to be operated under negative pressure and contain high efficiency particulate air (HEPA) filter exhaust/ventilation systems for the protection of AMWTP workers and to prevent spread of radioactive contamination. The HEPA filters used within the proposed processing areas exhibit a minimum efficiency of 99.97% when tested with an aerosol of essentially mono-dispersed 0.3 micron particles. The design of the ventilation system is such that it prevents or minimizes the escape of radioactive particulate aerosols into the exhaust stack and the environment. This same design helps prevent release of PCB aerosols.

All proposed processing areas are subject to IDAPA 58.01.05.008/ 40 CFR Part 264 and 40 CFR 761.65 requirements for storage and are also authorized by a RCRA permit to perform RCRA treatment activities through absorption/stabilization activities. These areas are used to store and/or treat containers of waste that do not meet the WAC for the WIPP facility. The proposed processing areas are compliant with all TSCA and RCRA permit requirements (have TSCA/RCRA compliant secondary containment, undergo routine inspection, fire protection, etc.). Each absorption operation is subject to stringent internal procedures designed to eliminate or minimize the radiological and PCB exposure to workers and/or releases to the environment.

Radiological monitoring is conducted at all proposed locations using both radiological monitoring equipment with alarms and routine radiological surveys. Continuous Air Monitors (CAMs) are located inside the buildings where absorption takes place to alert operators if airborne radiological contamination is detected during operations. The buildings also have monitors for checking personnel for alpha contamination. Radiological monitoring equipment is maintained and regularly tested by Radiological Technicians (RTs) in accordance with the Facility Radiological Protection Plan. CAMs have standby backup power in the case of an electrical power outage at the facility.

All proposed locations are protected by a fire protection system. Components of the fire protection system include fire extinguishers, fire alarm pull boxes, smoke detectors, the wet pipe sprinkler system, and alarm annunciators. The wet pipe sprinkler system is hard-piped to

dedicated underground emergency use storage tanks. Emergency procedures associated with these units are addressed within the contingency plan of the AMWTP RCRA permits (See Attachment 1).

Liquid absorption activities for radiologically contaminated PCB remediation waste are conducted inside SSC tent(s) or equivalent unit(s).

SSC Tent Process Areas

The SSC tents are temporary enclosures that are regulated under a RCRA permit for treatment and storage of mixed waste. They are used to prevent the spread of radioactive contamination during treatment operations. These tents establish the minimum standards that will be used for any other RCRA-permitted area involved in processing PCB liquids. They are nylon reinforced polyvinyl chloride (PVC) sheeting (18 oz. Standard or approved equal) with windows (e.g., 20 oz. clear PVC or approved equal) and are fire retardant, meeting a flame spread in accordance with the National Fire Protection Act (NFPA). Airlocks are used for personnel entry and exit. Filter pockets with unidirectional flow prevention devices (or flaps) are attached to the containment, usually on or near the door, to provide inlet make-up air for the ventilation system. Airline check boxes and airline hose hangers, if used, are attached to the containment and used for hanging and separating airlines inside the containment. The airline check box is mounted to allow the RT to check the airline connection for contamination from outside the containment.

The SSC tents are maintained under a negative pressure atmosphere and have a designated ventilation system that contains HEPA filtration. Prior to use, all SSC tents must be approved for use by an AMWTP RT to ensure adequate radiological control and safety. In addition to the routinely required TSCA/RCRA inspections (e.g., daily [when loading and unloading waste], weekly, and monthly inspections), RTs inspect the SSC prior to use, weekly while in use, and monthly if not in use, to determine the need for repairs, replacement, or decontamination and removal.

Ventilation

SSC Tents

Airflow is established from the outside to the inside of the containment tent (that is, area of low contamination to area of high contamination) during work in the containment tent. Inlet air filter(s) in the containment area allow airflow into the tent and maintain a slight negative pressure. The negative differential pressure ensures air flow is into the containment tent. At least one HEPA filter is attached to the tent. Filter media (such as reticulated foam) may be used to maintain containment cleanliness and extend ventilation HEPA filter life. Any airflow out of the tent is treated and filtered to remove any particulate matter. The installation establishes airflow

across the contaminated area, drawing contaminated air away from the workers. The minimum design capture velocity in the work zone at any given work station is 150 linear feet per minute.

6. MANAGEMENT OF PCB AND RESIDUAL PCB WASTES

Processed wastes that are compliant with the WIPP WAC are managed for disposal at the WIPP facility. [6] [2, 10, 11, 12] Wastes requiring processing of liquids to non-liquid form that are destined for non-WIPP disposal facilities and whose PCB concentration exceeds 500 ppm will be subjected to an additional RBDA request (or modification of this RBDA request) and submitted in accordance with 40 CFR 761.61(c) requirements. Disposal of the processed radioactive contaminated PCB remediation waste will be in accordance with applicable radioactive disposal limits, conditions outlined within the approved RBDA, and applicable TSCA and RCRA requirements.

Secondary waste generated during the processing of PCB-contaminated TRU wastes such as personal protection equipment (PPE), sampling equipment, rags and wipes is classified as newly generated PCB remediation waste and will be managed based on the actual, or assumed PCB concentration of the originating source. Secondary waste management will also be based on radiological assay results. Secondary waste will be transported to DOE-approved off-site disposal facilities based on radiological assay results, the receiving facility's WAC, and applicable TSCA and RCRA requirements.

7. SYSTEM DISPOSITION AND/OR DECONTAMINATION

System component disposition and/or decontamination conducted at the time of closure will be in accordance with the approved RCRA closure plans or alternative plans approved by EPA Region X. The RCRA closure plan considers PCBs as a constituent of concern. The RCRA closure plan and/or alternative PCB decontamination/disposal plan will be coordinated with EPA Region X prior to conducting closure activities. The following criteria outlines the general approach for conducting and managing waste contaminated with PCBs during and prior to RCRA closure of the processing areas. Where required, total PCBs measured as the sum of Aroclors, will be used for verification testing and/or PCB determinations.

[6] WIPP is currently authorized to accept PCBs at any concentration as long as they are in a non-liquid form (EPA Letter of Authorization for the Disposal of Non-Liquid PCBs at WIPP, May 15, 2003). These waste streams were previously identified and addressed within the WIPP Environmental Impact Statement document(s) (e.g., Final Environmental Impact Statement for the Waste Isolation Pilot Plant [DOE/EIS-0026, October 1980]; Final Supplemental Environmental Impact Statement for the Waste Isolation Pilot Plant [(DOE/EIS-0026-FS, January 1990]; WIPP Revised Record of Decision [ROD] 69 FR 125, June 30, 2004).

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During RCRA facility closure, in lieu of following 40 CFR 761.79 decontamination protocols, all PCB-contaminated equipment, structures, spill areas, and PPE will be decontaminated in accordance with standards outlined within the RCRA-approved closure plans (e.g., IDAPA 58.01.05.011 RCRA land disposal restriction clean surface debris standards) or alternative plans approved by EPA Region X. Equipment and structures that meet a RCRA land disposal restriction clean surface debris standard (per IDAPA 58.01.05.011) or other EPA-approved decontamination standard will be considered to be less than 50 ppm PCBs.

Wastes contaminated with PCBs that are not decontaminated per 40 CFR 761.79, or wastes that fail to meet a RCRA land disposal restriction clean surface debris standard, will be managed as TSCA-regulated remediation wastes and will be managed in accordance with 40 CFR 761 requirements as being waste greater than 50 ppm PCBs.

System decontamination and/or disposal of PCB wastes prior to RCRA facility closure will be conducted using the following criteria:

1. Prior to closure, any equipment, structures, and PPE contaminated with PCBs and destined for disposal or reuse outside of the proposed processing areas, will be decontaminated in accordance with the self implementing decontamination standards and protocols outlined within 40 CFR 761.79 requirements, or unless tested, will be disposed of as greater than 500 ppm PCBs.[7]

2. Verification testing for decontaminated equipment, structures, and/or PPE generated prior to instigating RCRA closure will be based on total analysis of all Aroclors.

Disposal of all decontamination fluids and waste, and closure-generated wastes that do not meet the land disposal restriction clean surface debris standards (or other EPA-approved alternative decontamination standards) will be in accordance with applicable requirements of 40 CFR 761 requirements.

[7] Some materials within process areas may not have reasonably contacted PCBs (e.g., PPE used outside of glovebox areas) and therefore are not subject to TSCA decontamination or disposal requirements.

8. CONCLUSION

In support of achieving compliance with DOE-ID and State of Idaho regulatory milestones, the AMWTP is seeking an approval, under this RBDA request, to conduct the processing of PCB-contaminated liquids for PCB remediation waste. The PCB remediation waste covered under this RBDA request is generated from on-site INL TRU waste retrieval activities. Prior approvals for similar processing activities have been obtained by the DOE for the Hanford facility. [8] [7, 8, 9]

PCB-contaminated TRU wastes containing any measurable amount of liquids are placed in storage at the AMWTP to await subsequent shipment to the WIPP facility. The current regulations require incineration and/or decontamination of PCB liquids and also include a prohibition on the processing of PCB liquids to a non-liquid form in order to circumvent the high temperature incineration requirements of 761.60(a) [40 CFR 761.50(a) (2) and 761.61(b)].

Few viable disposal paths are available for PCB-contaminated TRU liquids whose concentration is greater than 500 ppm. Currently, the only viable option is obtaining an approved RBDA for the absorption of liquids and disposing of the waste within the WIPP facility. Therefore, the DOE-ID is requesting approval of this RBDA to solidify these liquids in lieu of high temperature incineration or decontamination in order to meet applicable disposal criteria at the WIPP facility.

The DOE-ID does not view the processing of TRU-contaminated liquid PCB remediation waste into a non-liquid form (within authorized TSCA/RCRA storage/treatment areas operated under the above conditions) to present an unreasonable risk to human health or the environment for the following reasons:

- Based on the low risk-based calculations relating to the release of PCBs by airborne pathways,
- Based on the effectiveness of the protective measures/controls that exist within the TSCA/RCRA compliant storage/treatment areas that will be used for processing of PCB liquids, and
- Based on the fact that the designated disposal site (i.e., WIPP) is a geologic repository and is designed to provide adequate protection to human health and the environment for a minimum of 10,000 years.

[8] Prior Hanford RBDA requests for similar processing activities were submitted to EPA in 2002 and 2005.

9. REFERENCES

1. EPA letter dated February 28, 2002. From: John H. Smith PhD, EPA; To: Ms. Lynne Smith, WIPP Office Director "Legacy/Solidified TRU Waste"

2. EPA letter Dated May 15, 2003. From: Carl E. Edlund, P.E., Director Multimedia Planning and Permitting Division, EPA Region VI, Disposal of PCB/TRU Mixed waste at the Department of Energy (DOE) Waste Isolation Pilot Plant (WIPP) Carlsbad, New Mexico, (Issued May 15, 2003; Corrected June 26, 2003)

3. DOE/WIPP-02-3122 Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant, U.S. Department of Energy, Carlsbad Field Office, Carlsbad, New Mexico, Latest Revision.

4. Advanced Mixed Waste Treatment Project Hazardous Waste Management Act/Resource Conservation and Recovery Act Permit, Latest Revision.

5. AMWTP-RPT-TRUW-05, AMWTP Waste Matrix Code Reference Manual, Latest Revision.

6. AMWTP-RPT-TRUW-06, AMWTP TRU Waste Management Acceptable Knowledge Elements: AMWTP Baseline AK for Newly Generated Waste, Rev 7.

7. DOE/RL-2002-02, Application for a Risk-Based Disposal Approval for Polychlorinated Biphenyls, Hanford 200 Area Liquid Waste Processing Facilities, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

8. EPA Letter Dated June 8 2004. From: L. John Iani, Regional Administrator, EPA; To: J. Hebdon, DOE-RL, and J. Ramessun, DOE-ORP, "Approval of the Toxic Substance Control Act (TSCA) Risk-Based Remediation Waste at the 200 Area Liquid Waste Processing Facilities" U.S. Environmental Protection Agency, Region 10, Seattle, WA

9. DOE/RL Letter Dated May 19, 2005, From: Keith A. Klein, Manager DOE-RL; To: Ron Kleizenbeck, U.S. EPA Region X "Toxic Substance Control Act. Application for a Risk-Based Disposal Approval for Treatment of polychlorinated biphenyls (PCBs) from the Hanford K-Basins North Loadout Pit in T-Plant", Richland, Washington.

10. Final Environmental Impact Statement for the Waste Isolation Pilot Plant [DOE/EIS-0026, October 1980].

11. Final Supplemental Environmental Impact Statement for the Waste Isolation Pilot Plant [(DOE/EIS-0026-FS, January 1990].

12. WIPP Revised Record of Decision, EPA federal register, 69 FR 125, June 30, 2004.

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Appendix A – Selected PCB Waste Acceptance Criteria at WIPP

Table-1. Selected PCB Waste Acceptance Criteria at WIPP

Components	Criteria
PCB Concentration Levels	TRU As allowed in a chemical landfill (40 CFR 761.75)
Liquid	No residual liquid containing PCBs
Radioactivity Limits	Greater than 100 nCi/g of TRU isotopes
Compatibility	With payload container, packaging materials, other wastes, repository backfill, seal and panel closure materials

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Attachment 1—AMWTP RCRA Permits

See electronic files (2 CDs) attached to this RBDA request.

1) Storage Permit CD
2) Treatment Permit CD