

Ref

# memorandum

DATE: October 3, 1997

REPLY TO  
ATTN OF: Office of Environmental Guidance and Assistance, HPeterson, EH-412 58-69640

SUBJECT: Position on the Control of Residual Radioactive Materials

TO: Distribution

Attached for your information is a EH technical position on the appropriate descriptors of property containing residual radioactive materials and released from DOE radiological control under Order DOE 5400.5 requirements. This technical position was prepared in response to a number of field and program office inquiries and has been coordinated with the Office of General Counsel. The position is also consistent with the proposed 10 CFR Part 834.

Please submit any comments on this guidance to Hal Peterson, EH-412 (phone:202-586-9640; fax:202-586-3915; e-mail: [harold.peterson@eh.doe.gov](mailto:harold.peterson@eh.doe.gov)).

Raymond Pelletier,  
Director,  
Office of Environmental Policy  
and Assistance

Attachment:  
Draft Technical Position



<b>Contract No. 20-667-55-02459</b>			
Surcharge for Radiological Contaminated Samples	\$ 200.00	\$ 200.00	\$ 200.00
Organochlorine Pesticides (GC-ECD) (Select Item 1 for Special Clean-ups/MS confirmation)	\$ 130.00	\$ 130.00	
Organochlorine Pesticides & PCB's	\$ 132.00	\$ 132.00	
Organophosphorus Pesticides	\$ 169.00	\$ 169.00	
Chlorinated Herbicides	\$ 208.00	\$ 208.00	
<b>deleted method</b>	no bid	no bid	
Target Compound List	\$ 120.00	\$ 120.00	
Volatile Organics, GC/MS (Hazardous Waste)	\$ 130.00	\$ 130.00	
Volatiles Organics, GC/MS (Ground & Surface Water & Soil)	\$ 95.00	\$ 95.00	
Appendix IX VOCs (Some compounds identified & quantified as TICs)	\$ 240.00	\$ 240.00	
<b>deleted method, (refer to EPA 8021)</b>	no bid	no bid	
Volatile Organics (air) with Summa Cannister			\$ 270.00
Volatile Organics (air) <b>WITHOUT</b> Summa Cannister			\$ 245.00
Volatile Organics (MDL 0.1 - 0.5 ppbv)			\$ 305.00
Prep Method for 8260		\$ 25.00	
Append. IX SVOCs (Some compounds identified & quantified as TICs)	\$ 390.00	\$ 390.00	
Semi-Volatiles, GC/MS	\$ 225.00	\$ 225.00	
Dioxins/Furans (REFER TO TECHNICAL SECTION)	NO BID (REFER TO 8290 OR 1613)		
Dioxins/Furans (same detection limits as 1613B)	\$ 877.50	\$ 877.50	\$ 877.50
Surcharge for Radiological Contaminated Samples	\$ 200.00	\$ 200.00	\$ 200.00
0.1 - 1.0 pg/g (solids, tissues) (WHO, TEQ, plus Homologues)		\$ 845.00	\$ 845.00
1.0 - 5.0 pg/L (water) (WHO, TEQ, plus Homologues)	\$ 845.00		
Surcharge for Radiological Contaminated Samples	\$ 200.00	\$ 200.00	\$ 200.00
Total Organic Halogens	\$ 65.00	\$ 65.00	
Nitroaromatics and Nitrosamines	\$ 210.00	\$ 210.00	
Nitroglycerin and PETN	\$ 210.00	\$ 210.00	
Carbamate Pesticides	\$ 250.00	NA	
Carbamate Pesticides (Urea = Diuron & Linuron)	\$ 260.00	NA	
Air Toxics, Carbonyl Compounds			\$ 200.00
Formaldehyde -LC	\$ 265.20	NA	
Formaldehyde - Wet Chemistry	\$ 156.00		
PNAs (PAHs) including Benzo-a-Pyrene, naphthalene, monomethyl naphthalenes (BaP < 0.7)	\$ 143.00	\$ 143.00	
EDB & DBCP (equivalent to Method 504.1) low level	\$ 60.00	NA	
EDB and EDC	\$ 70.00	\$ 70.00	
Purgeables, Halogenated Volatile Organics GC-Hall	\$ 90.00	\$ 90.00	

Department of Energy  
Office of Environmental Policy and Assistance  
**Radiological Control Technical Position (RCTP 97-EO1)**  
Ref: DOE 5400.5. Radiation Protection of the Public and Environment

***Issue: Appropriate designation for property containing residual radioactive material meeting DOE-approved Limits for release.***

Several DOE offices and contractors requested the appropriate description or label for property containing residual radioactive material that has been certified as meeting DOE Authorized Limits or Supplemental Limits ("Authorized Limits"). Some contractors suggested to DOE field offices that the property meeting Authorized Limits should be labeled as "non-radioactive." It is not appropriate to label such material as non-radioactive for several reasons. First, nothing is non-radioactive; all property will contain at least background levels of radioactive materials. Second, Authorized or Supplemental Limits for property containing residual radioactive material are based on the premise that some residual radioactive material above background may be present, albeit at low levels. Although many properties or items surveyed may contain residual radioactive material that is indistinguishable from background, the property is certified as suitable for release, not as being "non-radioactive." In many cases, Authorized Limits are established for the restricted or prescribed end use of the property. In these situations, release of the property might not be acceptable for release under another end use.

Other DOE offices have asked if the material should continue to be designated by the waste category it falls under, even if the material was certified to meet Authorized Limits for release. For example, should soil containing residual uranium, thorium, or residual radium at levels meeting Authorized Limits for release be classified as low-level radioactive waste or Atomic Energy Act (AEA) 11e. (2) byproduct material?

Released property containing residual radioactive material within the Authorized Limits should be treated like any other effluent that meets required standards. They are neither radioactive waste nor non-radioactive materials. Such waste streams, discharges or releases are typically described as effluents meeting permitted levels, permitted effluents or merely emissions or effluents. However, once released they are not normally described as being low level waste or any other form of radioactive waste.

Order DOE 5400.5 defines residual radioactive material as radioactive material remaining in or on soil, air, equipment or structures. Residual radioactive material includes residual source, byproduct and special nuclear material and naturally-occurring (technologically enhanced) and accelerator-produced radioactive materials, but excludes radioactive material contributing to background radiation'. If determined to be a waste, property containing residual radioactive material that doesn't meet Authorized Limits must be categorized and managed in accordance with requirements for its appropriate radioactive waste type (e.g., low-level waste, AEA 11e.(2) byproduct material and so forth).

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<sup>1</sup> Naturally Occurring Radioactive Material (NORM) is treated as background material if the radioactivity or radiation hazard is not enhanced as a direct result of DOE activities (e.g., the material is in an unregulated commercial product and is used by or for DOE in the intended manner such as a grinding wheel containing thorium sands used for grinding). Property containing NORM is subject to DOE radiological protection requirements in DOE 5400.5 if the radioactivity has been enhanced or made radioactive as a result of DOE activities (e.g., DOE processed some ore for a nonradioactive component and the processing concentrated the activity in the residue). NORM is a subset of Naturally Occurring and Accelerator-Produced Radioactive Material (NARM).

209 Congeners MDL **0.02 - 0.1 ng/L** waters

\$ 1,300.00

Property meeting Authorized Limits should not be categorized as being in one of these waste categories<sup>2</sup>. It should be described and managed as property certified as meeting Authorized Limits for release. DOE does not require any specific wording as long as the limits and conditions of release are noted. For example, at a site where DOE has approved Authorized Limits for residual radioactive material in wastes to be disposed of at an onsite landfill not authorized under Order DOE 5820.2A, an appropriate designation or descriptor for wastes meeting the criteria is: "waste containing residual radioactive material at levels certified to be less than Authorized Limits for disposal at an onsite landfill." Similarly, hazardous waste meeting Authorized Limits for disposition to a RCRA-permitted Treatment, Storage or Disposal (TSD) facility could be termed "hazardous waste certified to contain residual radioactive material at or less than DOE-approved Authorized Limits<sup>3</sup> for release to RCRA-permitted TSD facilities." Such releases should be done consistent with the DOE guidance addressing such waste (DOE95 and DOE97).

#### **Technical Position:**

Property released in accordance with Authorized Limits may not be termed "non-radioactive" and should not be classified as a specific radioactive waste type (e.g. low-level waste or 11e.(2) byproduct material). Such material should be described as property certified to comply with limits for the designated use or disposition of the property, or property containing residual radioactive material at or below the applicable Authorized Limits. Examples of acceptable designations or descriptors that have been used or proposed include:

- Property certified to comply with applicable Authorized Limits for release from radiological control to [designate use or condition] (e.g., unrestricted release, disposal in an on-site landfill or recycling as waste containers).
- Hazardous waste containing residual radioactive material certified to be at or less than Authorized Limits established for release to a RCRA-permitted Treatment, Storage and Disposal (TSD) facility.
- Waste certified not to contain residual radioactive material in excess of Authorized Limits for unrestricted release.

Personal property certified to meet Authorized Limits for unrestricted release and reuse.

#### **References:**

DOE95 "Application of DOE 5400.5 requirements for release and control of property containing residual radioactive material," R. Pelletier (EH-41) to distribution, November 17, 1995.

DOE97, "Establishment and Coordination of Authorized Limits for Release of Hazardous Waste Containing Residual Radioactive Material," M. Frei (EM-30) to distribution, January 7, 1997.

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<sup>2</sup> This applies only to the radioactive component; it does not effect the categorization of a waste as RCRA hazardous waste.

<sup>3</sup> It would also be acceptable to state it as "hazardous waste certified not to contain residual radioactive material in excess of Authorized Limits..."

**PINNACLE LABS**  
**Contract No. 20-667-55-02459**

**APPENDIX D**  
**FEE SCHEDULE**

DESCRIPTION	Aqueous	NON-AQ	Tissue	AIR
<b>ORGANICS</b>				
Organochlorine Pesticides (Choose Item 1 (vs. 6) if MS confirmation is required), <b>and if Radiological Activity is present.</b>				
MDL 0.1 - 10 ng/g soils/seds (includes all prep's & QC charges)		\$ 260.00	\$ 260.00	
MDL 0.5 - 1.0 ng/L waters	\$ 260.00			
MS 1 MS confirmation for Item 1	\$ 130.00	\$ 130.00	\$ 130.00	
Surcharge for Radiological Contaminated Samples	\$ 200.00	\$ 200.00	\$ 200.00	
Tissue prep charge or Polytron Method (vegetation) for Semivolatile Methods (Tissue prep = Filleting, grinding & compositing) Use this for ITEMS 1-6.			\$ 78.00	
PCB's by ECD (Select Item 3a if extensive cleanup & background is critical, or Item 3b if analysis if for RCRA) Also, <b>select Item 3a &amp; 3c if Radiological Activity is present.</b>				
PCBs only (GC-ECD)				
Reported as Arochlors with extensive cleanup (see technical) Aq = 54 - 900 ng/L Naq = 57 - 70 ng/g	\$ 227.50	\$ 260.00	\$ 260.00	
54-congeners, WHO, NOAA, CDC, Major steady State (1-5 ng/L; 0.1 - 0.5 ng/g)	\$ 292.50	\$ 325.00	\$ 325.00	
Mass Spec Confirmation of 54 Congeners	\$ 286.00	\$ 286.00	\$ 286.00	
PCBs only (GC-ECD)	\$ 78.00	\$ 78.00	N/A	
Surcharge for Radiological Contaminated Samples	\$ 200.00	\$ 200.00	\$ 200.00	
PCB's only				
MDL 1-5 ng/g soils/seds	Refer to Items 3a & 5 for MS options, Method 1668A is preferable methodology, see Technical Section			
MDL 10-20 ng/L waters				
PCB's as congeners HRGCMS (Includes TEQ & homologues) 54 Congeners {WHO, NOAA, CDC, Major steady-state}				
MDL <b>0.5 - 10 pg/g</b> soils/seds		\$ 845.00	\$ 845.00	
54 Congeners (as in 5a) MDL <b>0.02 - 0.1 ng/L</b> waters	\$ 845.00			
209 Congeners MDL <b>0.5 - 10 pg/g</b> soils/seds		\$ 1,300.00	\$ 1,300.00	