

**Instructions for: Process Knowledge Evaluation Form (PKEF) for  
NonHazardous/NonPCB Solid Radioactive Waste Streams**

- PKEF No. = a unique number assigned by the WCO for approved waste stream characterization by process knowledge.
- WSPS No = the unique number assigned to the associated Waste Stream Profile Sheet for the radiological characterization for this waste stream.
- GI Name = name of generator interface staff that collected data for the PKEF and/or prepared the PKEF.
- ECR Name = environmental compliance representative that reviewed the process, administrative controls, segregation methods, and waste characterization documentation and validated the accuracy of the RCRA/PCB contents.

1. List all chemicals used in the generating process defined in I.7 of the WSPS and/or that are available for use in the process. Indicate how each is used and which would be expected to be present in the waste stream.
2. Determine if any administrative controls are in place to prevent mixing radioactive wastes and hazardous chemicals. If used, describe.
3. Determine if any wastes are treated by the generator at the point of generation. If yes, then describe the original waste, the treatment process and outline the purpose (e.g., organic chemistry research glassware emptied and triple rinsed to meet RCRA empty criteria; rinsates discharged to LLW System; glassware included in waste stream).

Determine if the treatment removes a RCRA characteristic (ICR or TC), and then determine if any UHC's would be present in the waste stream that would require treatment to meet LDRs. Document basis for UHC presence or absence.

4. Identify any potentially hazardous components in the waste even if they are non-RCRA regulated (used for intended purpose). Examples: lead soldered can seams, TIDs containing lead, lead or PCB-bearing paint on equipment surface, brass/bronze parts, lead used as shielding, RCRA empty containers, etc.
5. Determine whether the generating process defined in item I.7 of the WSPS has the potential to generate any RCRA-listed discarded commercial chemicals, off-specification products, regulated container residues, or spill residues of such a product, or a formulation in which the chemical is the sole-active ingredient in a commercial product (including a lab standard). If the potential is there, then describe waste segregation efforts or other administrative controls in place to keep these wastes out of NTS waste streams.
6. Determine whether the generating process would include any PCB-containing lab standards or commercial chemicals (such as microscope immersion oil)? If yes, then describe waste segregation efforts or other administrative controls in place to keep these wastes out of the NTS waste streams.

7. Determine if the process defined in Item I.7 of the WSPS has the potential to use any RCRA-regulated solvent(s) (F001 to F005) for their solvent properties (cleaner, degreaser, extractant, diluent, etc.). If yes, list RCRA-regulated solvents used in the process. Next, for any RCRA spent solvents, verify sole use of RCRA solvents (F001 to F005) and/or solvent mixture rule percentages in products based on before use composition do not apply OR describe waste segregation efforts or other administrative controls in place to keep F-listed solvent wastes out of NTS waste streams.
8. Review the waste generating process identified in I.7 of the WSPS against the other RCRA-listed waste descriptions (other Fs or Ks) and verify that none of those processes are covered by another RCRA-listed waste code (other F or K). If other F or K listed wastes could be generated, then describe the segregation efforts and/or other administrative controls in place to keep these listed wastes out of NTS waste streams.
9. Determine if the waste includes any manufactured products. If yes, then list all items (examples: cloth wipes, styrofoam cups, paper, rubber tubing, pumps, brass valves, bronze shavings, etc.). Check product list against RCRA exclusions for: arsenical treated wood; treated leather; circuit boards; recyclable batteries, lamps, scrap metal; etc. List any applicable RCRA exclusions. Note: lamps, circuit boards, batteries, scrap metal being disposed of are not exempted from RCRA.

Determine if the manufactured products would be contaminated with a RCRA-listed waste (e.g., solvent wipe). If yes, then describe segregation and/or administrative controls in place to keep listed waste out of NTS waste streams. If yes, and the contaminant is only F003 spent solvent, then confirm the product is dry at the point of generation. If only F003-listed and dry, then obtain generator confirmation/signature.

Determine if the products would be contaminated with PCBs? If yes, then describe segregation and/or administrative controls in place to segregate this waste from the NTS wastes.

10. Document whether the waste contains any unknowns? If unknowns are present, segregate and manage these as RCRA until proven otherwise by sampling and analysis.
11. Evaluate waste for RCRA Toxicity Characteristics (RCRA organics, pesticides, or metals) Use MSDS, manufacturer's knowledge, generator knowledge of ingredients and their percentages, and/or prior analyses as basis for the TC evaluation. Sample and analyze for any properties/constituents where PK basis is weak. If present, document expected concentrations of each RCRA constituent. If present at regulated levels, then describe segregation and/or administrative controls in place to keep RCRA-regulated wastes out of NTS wastes. If not present, document basis. Identify sample results numbers when applicable on Attachment Z, T10 thru T15.

Determine if a RCRA exemption/exclusion applies to the waste (e.g., fly ash, special nuclear material, empty container, UST spill clean up wastes or TSCA-regulated dielectric fluid)? If the waste is RCRA exempted/or excluded, then list the applicable regulatory cite.

<b>Process Knowledge Evaluation Form for                      NonHazardous/NonPCB Solid Radioactive Waste Streams</b>			
PKEF No. _____ GI _____		Associated WSPS No. _____ ECR _____	
1. List chemicals (including brand names and MSDS no.) used in the process defined in I.7 of the WSPS. Indicate how chemicals are used and which chemicals would be present as contaminants in the waste stream.	Attach sheets as necessary.		
2. Are hazardous materials controlled to prevent mixing in the wastestream?	Yes	No	If yes, describe internal controls in place.
3. Is any generator treatment of process residues conducted (solidification, neutralization, etc.).	Yes	No	If yes, describe the original waste, the treatment process and its purpose.
If treatment removes RCRA characteristic, then determine if UHCs require treatment?	Yes, UHCs present	No, UHCs not present or don't require treatment	If yes, consult WCO for guidance. If either yes or no, document basis.
4. Identify any potentially hazardous components in the waste (lead soldered can seams, TIDs containing lead, lead or PCB-bearing paint on equipment surface, brass/bronze parts, lead used as shielding, RCRA empty containers, etc.).	Circle none, or list.		
5. Does the generating site covered by this PKEF generate any RCRA-listed discarded commercial chemicals, off-specification products, regulated container residues, or spill residues of such a product, or a formulation in which the chemical is the sole-active ingredient in a commercial product (including a lab standard)?	Yes	No	If yes, describe segregation and controls. List any nonRCRA chemicals present on Attachment Z, T10 thru T15.
6. Does the generating site generate any PCB-containing lab standards or commercial chemicals (e.g., microscope immersion oil)?	Yes	No	If yes, describe segregation and controls.
7. Are any RCRA-regulated solvent(s) (F001 to F005) used for their solvent properties present?	Yes	No	If yes, then list RCRA-regulated spent solvents:

If yes, verify sole use of RCRA solvents (F001 to F005) and/or solvent mixture rule percentages in products based on before use composition <u>do not apply</u> OR describe waste segregation efforts or other administrative controls in place to keep F-listed solvent wastes out of this waste stream.			Explain basis if not F-listed:  OR  Explain segregation/controls:
<b>8.</b> Verify that none of the waste generating processes are covered by another RCRA-listed waste code(s) (other Fs or Ks).	Yes, listed	No, not listed	If yes, describe segregation and/or administrative controls in place.
<b>9.</b> Does the waste include manufactured products?	Yes	No	List all; attach sheets as necessary.
Check against exclusions for: arsenical treated wood; treated leather; circuit boards; recyclable batteries, lamps, scrap metal; etc.			If excluded provide Reg. Cite:  If not excluded, go on to 10.
Are any such products contaminated with a listed waste (such as F001, 2, 4 or 5 spent solvent) including wipes?	Yes	No	If yes, describe segregation and/or administrative controls in place.
Are any such products contaminated with an F003 spent solvent (e.g., a wipe)?	Yes	No	If yes, then verify "dry" at point of generation.  Generator signature:
Are any such products contaminated with PCBs?	Yes	No	If yes, describe segregation and/or administrative controls in place.
<b>10.</b> Does the waste contain any unknowns?	Yes	No	If yes, manage as RCRA until proven otherwise. Use Haz. Waste Process Knowledge Worksheet
<b>11.</b> Evaluate waste for RCRA Toxicity Characteristics.			If regulated levels are present, explain how those constituents are excluded from the final waste form.
RCRA organics	Present	Not present	If present, identify expected concentrations of each RCRA constituent. If not present, document basis.
RCRA pesticides	Present	Not present	If present, identify expected concentrations of each RCRA constituent. If not present, document basis.
RCRA metals	Present	Not present	If present, identify expected concentrations of each RCRA constituent. If not present, document basis.

<p>Use MSDS, manufacturer's knowledge, generator knowledge of ingredients and their percentages, and/or prior analyses as basis. Sample and analyze for any properties/constituents where PK basis is weak.</p>			<p>Identify manufacturer's and/or generator record location if applicable:</p> <p>List Sample/Results No. on Attachment Z, T1.</p>
<p>Is there a RCRA exemption/exclusion for the waste (e.g., fly ash, special nuclear material, empty container, UST spill clean up wastes or TSCA-regulated dielectric fluid)?</p>	<p>Yes</p>	<p>No</p>	<p>If yes, give reg. cite.</p>