STANDARD OPERATING PROCEDURE FOR:

MANAGEMENT OF INVESTIGATION-DERIVED WASTE

TVA-KIF-SOP-12

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for
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1.0 PURPOSE

This Standard Operating Procedure (SOP) describes the requirements for managing investigation-derived waste (IDW) associated with field investigation activities forTVA's Kingston Fossil Plant (KIF) Ash Recovery Project. As part of field investigation activities, various types of IDW are generated including both standard municipal refuse (such as cardboard, plastic, and paper) and solid (such as ash, soil, and sediments) and liquid (such as decontamination fluids and purge water from groundwater sampling) wastes. This procedure identifies the various waste streams expected to be generated as well as procedures for the management of these waste streams. If additional waste streams are identified during field investigation activities, appropriate actions shall be taken to ensure that proper waste management requirements are followed and guidance documents are updated accordingly.

As new field investigation events are initiated, IDW management shall be discussed during the project planning phases, including the pre-job briefing. This discussion ensures that the Project Team is aware of IDW streams to be generated and the proper IDW management practices to be followed. In the event that there are questions about a particular IDW stream, proper technical resources (such as materials and waste management and/or regulatory compliance specialists) shall be consulted. If there is a concern that generated IDW may be hazardous waste under Resource Conservation and Recovery Act of 1976 (RCRA), TVA policy is to manage such wastes as "hazardous pending analysis."

2.0 GENERAL CONSIDERATIONS

Potential hazards associated with the planned tasks shall be thoroughly evaluated prior to conducting field activities. Refer to the *Site-Wide Safety and Health Plan* (SWSHP) for a description of potential hazards and associated safety and control measures.

Prior to commencing the investigation program, the Field Team Leader shall select a secure area for storing IDW in consultation with TVA Project Manager. Additionally, the Field Team Leader shall ensure that appropriate containers (type and number of containers) are available for managing proposed IDW to be generated. Care shall be taken to confirm that IDW storage containers are compatible with the IDW to be generated and stored. The appropriate level of personal protection equipment (PPE) is worn at all times.

It is preferable for the staging area to have an impervious floor (concrete or paved) and to be roofed. Also, IDW is stored in an area where damage to the containers is unlikely (such as away from vehicle/equipment high-traffic areas).

Totes or drums containing IDW are to be stored in rows with labels facing outward for identification purposes. For multiple rows of containers, a 2.5-foot minimum aisle space is

required for access. Drums shall not be stored more than two high on a pallet. In some cases, 55-gallon drums may not be necessary; in these cases, smaller waste containers may be substituted for drums. Management of IDW shall also be consistent with the guidelines provided in U.S. Environmental Protection Agency (EPA) *Management of Investigation Derived Waste* (2007).

3.0 PROCEDURES

Procedures for pre-job preparation, operational management of IDW, and documentation are presented in this SOP. Any variation in these procedures must be approved by the Project Manager and Quality Assurance/Quality Control (QA/QC) Lead and must be fully documented. Field work cannot progress until deviations are approved or resolved.

3.1 Pre-Job Preparation

The Project Manager is responsible for overall implementation of this SOP and ensuring that the SOP complies with current regulations and standards as these are subject to change. The Project Manager is also responsible for the following activities:

a. Estimate the number and type of U.S. Department of Transportation (DOT) approved drums or other suitable containers that are required to containerize IDW generated during investigation activities.

b. Obtain the required supplies as listed on the example checklist on Table 1 of this SOP.

3.2 Management of Investigation-Derived Materials (Operation)

Table 2 presents the different IDW streams expected to be generated during field investigation activities in support of the KIF Ash Release Project and disposition pathways.

Different IDM media (such as soil and water) are not normally containerized together; therefore, separate containers are used for each IDM stream. IDM with similar levels of contamination (based on field screening or previous analytical results) may be containerized together.

To determine if suspected impacts to IDW are present, the following evaluation procedure is used.

a. Evaluate previous analytical results, if available.

b. Inspect the material for visual evidence of impacts. Note any olfactory observations, but do not directly sniff any waste material.

c. Field-screen the material with a photoionization detector (PID) to determine if volatile organic compounds (VOCs) are present and to determine their relative concentrations (if present), if applicable.

d. Utilize additional field tests (such as pH, color, and other chemical or physical characterizations) to the extent possible.

e. Utilize generator knowledge to help characterize the IDW to the extent possible.

3.3 Documentation

Field logbooks are maintained by the Field Team Leader to record daily activities. In addition to the minimum requirements discussed in the *Field Documentation* SOP (TVA-KIF-SOP-06), the field logbooks document those waste management activities specific to this SOP and as defined in the applicable project work control documents.

The Field Team Leader and/or designee review the field logbook entries on a weekly basis at a minimum (daily review is preferred) for completeness and accuracy and indicate this review by initialing the entries. The Field Team Leader is also responsible for the completion of required data collection forms.

3.3.1 Drum and Container Labeling

Drums and containers are appropriately labeled with the following information:

- Site name and address
- Type of material
  - Soil
  - Sediment
  - Groundwater
  - Decontamination Rinsate
  - Fly Ash
  - Unknown Chemicals
  - Other
- Accumulation date(s)
- Additional Comments
- Site contact name and phone number

In addition, a "Hazardous Waste" label is used with the notation of "pending analysis," if applicable. The outside of the drums may need to be cleaned prior to labeling.

If the waste is to be transported across or onto public roadways, DOT-applicable labeling and shipping papers are required.

3.3.2 Weekly Inspection

While field personnel are on site, drummed or stored IDM should be inspected on a weekly basis. Results of these inspections should be documented in the field logbook.

4.0 REFERENCES

- Tennessee Valley Authority (TVA). *Field Documentation* SOP (TVA-KIF-SOP-06), 2009.
- TVA. *Site-Wide Safety and Health Plan for the TVA Kingston Fossil Plant Ash Release Response* (SWSHP), Jacobs, 2010.
- U. S. Environmental Protection Agency (EPA) Region 4. *Management of Investigation Derived Waste*. Document Number SESDPROC-202-R1, November 2007.

Table 1: Management of IDW Equipment & Material Checklist	
Item Description	**Check**
Health & Safety	
Nitrile gloves	
Hard hat	
Steel-toed boots	
Hearing protection	
Field first-aid kit	
Eyewash	
Safety glasses	
Respirator and cartridges (if necessary)	
Saranex™/Tyvek® suits and booties (if necessary)	
IDW Management Equipment	
DOT-approved drums/containers	
Other appropriate containers	
Plastic sheeting	
Drum liners	
Digital camera	
Field logbook	
Paint markers and permanent pens	
"Non-hazardous" waste labels	
"Hazardous Pending Analysis" waste labels	
DOT labels	
Drum opening tools	

Table 2: IDM Streams and Disposition Pathways

IDW Stream	Disposition Pathway
General refuse (paper, plastic bags, cardboard, *etc*.)	Municipal trash or recycle as appropriate.
PPE (nitrile gloves, Tyvek®, *etc*.)	Municipal trash for routine activities (*i.e.* surface water sampling) unless expected to be contaminated with hazardous materials (then containerized pending analytical results of associated IDM stream related to such as soil results).
Ash obtained from river characterization activities	Containerize in plastic bucket, tub, *etc*., and return to KIF site for disposition in ash management system (*i.e.,* Ash Processing Area).
Ash obtained during on-land characterization activities	Leave in place if in active ash management area. If obtained during characterization activities on non-TVA property, containerize in 5-gallon bucket, drum, *etc*., and return to KIF site for disposition in ash management system (*i.e*., Ash Processing Area).
Soils generated during drilling or Geoprobe® activities	Leave in place if in active ash management area; otherwise, containerize pending characterization.
Sediments (native) obtained during river/stream characterization activities	Return small volumes to the river where the sampling occurred. Larger volumes (> 1 gallon) should be containerized and stored appropriately on land pending characterization.
Solids (generated sludges) from equipment decontamination (*i.e*., decontamination of drilling equipment)	If drilling occurs in the exclusion zone, the equipment should be decontaminated at one of the two truck wash locations. If drilling occurs outside of the exclusion zone, an evaluation should be made as to the proper protocol based on knowledge of anticipated contaminants. When decontamination is performed on private property, liquids and solids must be containerized.
Groundwater	Containerize groundwater in 55-gallon drums pending analysis. Following receipt of analytical results, an informed decision can be made for final disposition (*i.e.,* off-site transportation and disposal or on-site disposal in the Ash Processing Area).
Decontamination Fluids	Containerize in 55-gallon drums or appropriate containers pending laboratory analysis (dependent on user's knowledge of the investigative activities and anticipated chain of custodies). Decontamination fluids from ash sampling activities can be disposed of in the Ash Processing Area.

End of Procedure