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PROFILE NAME: Construction/Demolition Waste

Profile No.: S-010

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UCOR waste generators shall manage and dispose of Construction/Demolition waste intended for disposal in the ORR Landfills, in accordance with the requirements presented in this profile and following documents:

- *UCOR Waste Management Program Plan, PPD-WM-2400*
- *URS /CH2M Oak Ridge LLC Waste Certification Program Plan, Oak Ridge, Tennessee, UCOR-4187*

Proper characterization of waste is the responsibility of the generator. Signature of the UCN-2109 form (or equivalent, hereinafter referred to as UCN-2109 or 2109) is certification by the Waste Generator that sufficient controls are in place to mitigate the potential for non-conformances against this profile. This certification includes future generated waste where a blanket UCN-2109 is utilized.

A. Material Description

Construction/demolition wastes are wastes, other than special wastes, resulting from construction, remodeling, repair and demolition of structures, and from road building or repair. Such wastes include, but are not limited to bricks, concrete and other masonry materials, soil, rock, lumber, road spoils, rebar, and paving materials.

Construction/demolition wastes are **not** radioactive and not regulated under RCRA or TSCA.

Acceptable routine wastes include:

- Brick
- Masonry materials
- Rock
- Lumber and pallets
- Rebar (embedded in concrete)
- Vitrified clay materials (tile, pipe, block, etc.)
- Polyethylene sheeting
- Roofing materials
- Concrete
- Soil
- Gravel
- Road spoils
- Paving materials
- PVC pipe
- Sheetrock/gypsum board
- Insulation materials (fiberglass¹, rockwool, styrofoam)
- Paneling
- Miscellaneous metals associated with building demolition
- Miscellaneous building demolition materials
- Window and door glass associated with building demolition

Construction/Demolition waste from the demolition of an industrial process or treatment process, or resulting from a CERCLA action may require special waste evaluation and approval by TDEC. Refer to Waste Profile S-040, "Special Waste" for guidance regarding acceptance and disposal of special wastes.

¹ Fiberglass with loose fibers that is a respiratory hazard shall be disposed as a special waste (see waste profile S-040).

B. Chemical Constituent Limitations

Wastes shall **not** exhibit characteristics of, or be listed as, hazardous waste as identified in the RCRA regulations, and cannot be subject to any RCRA Land Disposal Restrictions.

Wastes shall **not** be a PCB-detectable waste. PCB concentrations shall be less than 2 ppm. Wastes containing PCBs in concentrations exceeding 2 ppm may be acceptable as a special waste under the provisions of Waste Profile S-040.

C. Radiological Constituent Limitations

The wastes shall meet the following criteria established with TDEC:

- 1) Specific activity < 35 picocuries of total uranium per gram of waste, or
- 2) Material that meets the off-site guidelines established in Figure IV-1 of DOE Order 5400.5, "Radiation Protection of the Public and the Environment," or
- 3) Wastes that are known to be nonradioactive by process knowledge (refer to Appendix A for guidance concerning the use of process knowledge).

Wastes exceeding radiological surface release criteria are prohibited from acceptance under this profile. Reference DOE Order 5400.5, "Radiation Protection of the Public and the Environment," Figure IV-1, Surface Contamination Guidelines.

Radioactive wastes are not acceptable for disposal. Wastes containing residual levels of radionuclides other than uranium may be candidates for landfill disposal under the guidelines of waste profile S-040.

D. Physical Parameter Limitations

- 1) No free liquids²
- 2) The waste form shall have the consistency to be managed and compacted by landfill heavy equipment.
- 3) Bulky items, i.e., pipe, concrete foundations, structural steel, etc., should be sized to be less than 8 feet in length to permit safe handling with landfill equipment. For guidance on bulky wastes, the generator should consult with the Landfill Waste Acceptance Manager or the Landfill Facility Manager.
- 4) Minimize the mixing of waste across the various waste types, i.e., mixing gravel with lumber and pallets.

E. Characterization Parameters and Methodology

Process knowledge and/or sampling and analysis may be used for categorizing and characterizing solid waste. Process knowledge may include knowledge and historical information of the areas and buildings from which the waste stream was generated, operations/processes that were performed in the areas/buildings from which the waste stream was generated, materials/contaminants that were used/processed/stored in the areas/buildings from which the waste stream was generated, and whether the waste was stored in radiologically contaminated and/or uncontaminated buildings/areas.

Sampling and analysis, if used, must identify and quantify the contaminants that are present in the waste. Analyses may be conducted for TCLP constituents, ignitability, corrosivity, reactivity, PCBs, radiological contaminants, and free liquids. If there are other suspected contaminants in the waste stream, the generator must analyze for these as

² Any waste material that is determined to contain "free liquids" as defined by Method 9095 (Paint and Filter Liquids Test), as described in "Test Methods for Evaluating Solids Wastes, Physical/Chemical Methods" (Environmental Protection Agency [EPA] pub. No. SW-846).

well. -Sampling and analysis of the waste shall conform to the requirements of EPA document SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", or other nationally recognized standards.

In reference to volumetric contamination, uranium is the only radionuclide with volumetric criteria established with TDEC for on-site landfill disposal using this profile. Radionuclide data must be reported in picocuries per gram of waste. (dry weight basis) Quantification of uranium isotopes may be accomplished at a TDEC reviewed NDA facility.

In regard to the disposal of waste in the on-site landfills, use of TDEC reviewed NDA facilities for surveying waste is only intended for providing verification that waste believed to meet radiological constituent limitations (see Section C) is suitable for disposal in the on-site landfills. Wastes that are known to be low level radioactive waste or radioactive material through process knowledge, radiological survey, or analytical data must not be sent directly or indirectly (i.e. through a TDEC reviewed NDA facility) to the landfill for disposal.

F. Prohibited Items

If prohibited materials are observed/detected in wastes delivered to the landfill, the waste generator will be notified so that they can retrieve the materials. Prohibited materials will not be accepted. Items prohibited under this profile include:

- Classified wastes
- RCRA Hazardous wastes
- PCB wastes
- Radioactive wastes
- Friable asbestos
- Liquid wastes
- Garbage and other putrescible materials
- Waste containing free liquids
- Waste contaminated with mercury, beryllium, PCBs, or petroleum products, or other chemicals
- Tires
- Lead acid batteries
- Untreated/treated medical wastes
- Refrigeration equipment not complying with 40 CFR 82.156
- Bulk metals
- Bulk paper
- Municipal wastes (All solid waste of or relating to being generated by city or local government, or private ownership be it business or personal.)
- Industrial wastes (Solid waste produced in, or generated by, industrial or manufacturing processes. This term does not include commercial, domestic, mining, or hazardous waste regulated under Subtitle C of RCRA, or oil and gas waste.)
- Institutional wastes (All solid waste which are not special waste, emanating from institutions such as, but not limited to, hospitals, health care facilities, nursing homes, laboratories, orphanages, correctional institutions, schools, and universities.)
- Unapproved special wastes
- Wastes that are not generated by DOE activities in the Oak Ridge area
- Drums
- Paint and adhesive containers
- Laboratory chemicals
- Commercial products manufactured with radioactive materials, i.e., smoke detectors, thoriated welding rods, etc.
- Landscaping or land clearing wastes

G. Packaging Requirements

Packaging and labeling shall comply with the applicable Department of Transportation (49 CFR) requirements. Every waste delivery to the ORR Landfills must be accompanied by a UCN-2109 form, which has been reviewed

and approved by the Landfill Facility Manager or the Waste Acceptance Manager. If waste generators have questions regarding delivery of waste to the landfill, contact the Landfill Waste Acceptance Manager or Landfill Facility Manager.

Any dumpsters used to deliver waste to the landfill shall have identification numbers or bar codes, and those identification numbers/bar codes shall be clearly reflected on the corresponding UCN-2109 forms.

The waste generator shall contact the Landfill Facility Manager if there are questions regarding personal protective equipment and training requirements for delivery personnel.

The waste generator shall size and load the waste into the waste delivery vehicles in such a manner to prevent the waste from becoming lodged in waste delivery vehicles and containers (i.e., dump truck beds, roll-off containers) during the dumping operations. The waste generator/transporter shall be responsible for safely removing and clearing lodged materials from the waste delivery vehicles/containers and all associated costs.

Waste delivery vehicles shall not leak fluids.

It is highly recommended that waste generators deliver wastes in vehicles that are self-dumping/unloading. If it is necessary to deliver wastes on flatbed trucks or flatbed trailers, the waste will be palletized if possible and the generator shall perform advance coordination with the Landfill Facility Manager to confirm that forklift support will be available.

Dump trailers (framed and frameless) are prohibited.

H. Additional Requirements

Notification is required at least one working day prior to delivery of new waste streams with new UCN-2109 forms from large construction/demolition projects and prior to non-routine deliveries. Notification must include a UCN-2109 form, associated documentation, and delivery schedules prior to shipping to the landfills. The delivery schedule must be agreed to by the Landfill Operations personnel.

All wastes delivered to the landfill must pass through the Vehicle Portal Monitor and will be subject to random inspection and radiological survey. The waste generator should contact the Waste Acceptance Manager or Landfill Facility Manager prior to delivery if the waste has elevated levels of naturally occurring radioactivity.

Any waste delivered to the landfill is subject to rejection by the landfill operator. If waste is rejected, the reason for rejection will be furnished to the waste generator. In addition, if advance notification of waste delivery is required for the waste and the notification is not provided to the ORR Landfill staff, the waste will be subject to rejection. If waste is rejected, the reason for rejection will be furnished to the waste generator. The waste generator will be responsible for the cost of retrieval, management, and proper disposition of all prohibited wastes delivered to the landfill.

If non-conforming/prohibited waste is dumped into the landfill, the waste generator shall be responsible for removal, packaging, transportation, and disposition of non-conforming/prohibited wastes, and all associated costs. The waste generator shall remove all non-conforming/prohibited waste from the ORR Landfills on the same day the non-conforming/prohibited waste is delivered to the ORR Landfills.

I. Required Documentation (as applies)

Specific requirements are stated for form UCN-2109, *Waste Item Description*, and UCOR Form 398, *Process Knowledge Documentation*. These requirements also apply to the corresponding forms UCN-21941, *Request for Landfill Disposal*, and UCN-21395, *Process Knowledge Documentation*, which are used by the Y-12 National Nuclear Security Complex, and the *ORR Landfill Shipping Form*, which is used by UCOR.

1. Completed and signed form UCN-2109, "Waste Item Description." Every waste delivery to the ORR Landfills must be accompanied by a UCN-2109 form, which has been reviewed and approved by the Landfill Facility Manager or the Landfill Waste Acceptance Manager. The UCN-2109 form shall comply with the following requirements:
 - 1.1. Information on UCN-2109 forms must accurately represent the waste and must be current, complete, and correct.
 - 1.2. If there is a change in the generating company, the UCN-2109 form must be modified to identify the correct company and correct generator information and be re-signed by the waste generator, unless otherwise approved by the Waste Acceptance Manager.
 - 1.3. If a radiological "green tag" is used to support the disposition of waste, the waste generator must provide the green tag number on the UCN-2109 form when the green tag number becomes available or attach the green tag to the 2109.
 - 1.4. Any Special Handling Instructions must be clearly noted on the UCN-2109 form.
2. Completed Form 398 (or equivalent), "Process Knowledge Documentation".
3. Radiological "green tag", or Process Knowledge Documentation Form 398 (or equivalent), or analytical data to clearly show the waste is not a radiological waste.
4. Sampling plans, laboratory data, statistical evaluation of the data, and/or other information that characterizes the waste.

APPENDIX A

USE OF PROCESS KNOWLEDGE FOR RADIOLOGICAL RELEASE OF MATERIAL TO U. S. DEPARTMENT OF ENERGY (DOE) LANDFILLS

Process knowledge (PK) is a tool used to aid the characterization of waste generated by DOE activities in the Oak Ridge area. PK is not used as a stand alone process. PK is one input into the evaluation of a material. Only a trained member of the radiological organization with input from trained waste generator can determine if an item is releasable from a radiological perspective. The radiological representative will use the signed PK form as an input to the evaluation for release of the material. The following points emphasize how PK is used in the evaluation for the release of materials to the DOE landfills:

- PK is not used for the release of materials to DOE landfills if those materials have been generated, used, or stored within radiologically contaminated areas. All materials released from contaminated areas are surveyed prior to release. Inaccessible internal surfaces that are physically prevented from coming into contact with radiological contamination—such as the internal surfaces of compressed cylinders or aerosol cans—are not required to be surveyed provided all accessible surfaces are found to meet the release criteria.
- Materials released to landfills from within radiologically controlled areas must be appropriately characterized to demonstrate compliance with applicable release criteria prior to release to the landfills. Radiological surveys and/or sampling are the primary means of characterization even for those materials for which the potential for contamination is known to be very low. However, for those materials not originating from radiological contamination areas and for which the potential for contamination is known to be insignificantly small, PK may be used as the basis for releasing these materials to the DOE landfills.
- PK requires an equipment or material owner to certify by signature that equipment or material could not possibly be contaminated based on personal and specific knowledge about the history of the item including its origin, use, and locations of use.
- PK may be used to help the Health Physicist or Radiological Engineer determine if equipment and material may be potentially contaminated. PK does not relieve the Health Physicist or Radiological Engineer from accountability for assuring the material or equipment meets the release limits.