NEVADA NATIONAL SECURITY SITE
WASTE PROFILE SHEET INSTRUCTIONS

General Instructions

The Waste Profile Sheet is the primary means by which Nevada National Security Site (NNSS) Storage and Disposal units obtain data about each waste stream. These data are required to ensure that a waste stream can be managed in compliance with the Facility's permit conditions, safety basis and operational requirements. The profile must provide a clear picture of the waste stream's radiological and physical/chemical characteristics, its regulatory classification, and packaging methods to be used. Any relevant background information, documents, and analytical data should be referenced or attached. Attached materials should be listed in Section F.3. Information provided with the profile should be concise.

The term "waste acceptance criteria" as used in these instructions means the current version of the Nevada National Security Site Waste Acceptance Criteria (DOE/NV-325), as applicable. Please contact the Radioactive Waste Acceptance Program if you have any questions concerning this form and how to complete it.

Profile Approval

After review and resolution of comments on the Waste Profile Sheet, the NNSS acceptance organization may approve the waste stream. Notification of approval status will be provided. Approved profiles shall be reevaluated by the generator annually, and the profile amended as needed. Profiles must be changed if the generating process, supporting documentation or characteristics of the waste changes.

Highly Variable Wastes

Profile should fully describe a waste stream. However, some waste streams, such as certain laboratory process wastes, may be highly variable in nature. Waste codes, physical/chemical characteristics, and radiological characteristics may vary substantially from one container to another. In the case of highly variable waste streams, the profile may not fully describe the characteristics of each waste container.

In these cases, the profile should provide general information on the characterization strategies used for the waste stream. Generators can check the applicable boxes and describe the expected bounding values or ranges of values and the characterization strategies to be used on the waste stream in lieu of more specific data. If procedures, sampling and analysis plans, or similar documents are available for the waste stream, these should be referenced and attached.

Detailed Instructions

Answers must be provided for all items. The Waste Profile Sheet is provided as a Microsoft Word template, which is the preferred format for submittal. Generators who cannot use this format should contact the RWAP Manager for alternate formats or assistance in completing the form. If additional space is needed, indicate on the form that additional information is attached and attach the information to the Waste Profile Sheet.

The following are itemized descriptions of the information required on the Waste Profile Sheet.

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Send completed Waste Profile Sheets to: RWAP Manager
National Security Technologies, LLC (NSTec)
2621 Losee Road, (FED EX address)
North Las Vegas, NV 89030
P.O. Box 98521, M/S NLV 022 (US Postal Service address)
Las Vegas, NV 89193-8521
Attn: Gregg Geisinger
Email: geisinrg@nv.doe.gov

A.1 **Company name:** Enter the name of the company responsible for the waste.

A.2 **Address:** Enter the address of the facility generating the waste.

A.3 **Generator facility:** Enter the specific facility generating the waste.

A.4 **Primary Technical Contact:** Enter the name, email address, phone number, and FAX number of the primary technical contact at the waste generator's facility.

A.5 **DOE Contact:** Enter the name, email address, phone number and FAX number of the responsible DOE contact for the waste generator's facility.

A.6 **Waste Certification Official:** Enter the name, email address, phone number and FAX number of the generator's waste certification official that certifies the waste.

A.7 Generator's **EPA Identification Number:** For waste streams that involve hazardous waste, enter the waste generator's EPA Identification Number.

A.8 **Additional processing/treatment facility:** When the waste is being processed/ treated/ shipped from a facility other than the Generator's Facility; enter the company name and address, and the name, email address, phone number and FAX number of the primary technical contact for that facility. If the waste being processed involves mixed low-level waste, also enter that facility's EPA Identification Number.

B.1 **Waste stream name:** Write a common name used by the generator to describe this waste stream. Check the appropriate box for new or revised waste profiles.

B.2.a **Waste stream number:** Is a unique two-part, 13-character alphanumeric code. The first four characters are alphanumeric code for the facility found in NNSSWAC Appendix C, page C-4. The second part is a generator determined nine-character alphanumeric code for the waste stream (e.g., USAA000000001, where USAA is the facility code for Aberdeen Proving Ground and 000000001 is the Aberdeen Proving Ground assigned waste stream code). Include the Profile revision number and date. For new profiles, the revision number is 0.

B.2.b **Profile revisions:** Describe and list all changes made to the profile. If any part of the generating, packaging, characterization, or certification process has changed, list all process changes.

B.3 **Waste generating process description:** Describe the process generating the waste in sufficient detail to provide context for evaluation of data provided elsewhere on the profile sheet. It is very important to fully describe the process that generated the waste. Failure to adequately describe the generating process can lead to delays in approval of profile sheets. If there is a separate document that describes the generating process, please provide a very brief description of the process, reference the document, and include the document as an attachment. Flow charts and other materials may be attached for clarity.

B.4 **Waste management services requested:** Mark the specific services requested.

B.5 **Waste Category:** Check all of the applicable boxes for the waste stream. Since low-level and mixed low-level waste must be segregated, only one of these two boxes may be checked. Accountable nuclear material is required to be identified due to specific criteria identified in Section 6.3.1 of the NNSSWAC. Classified waste is waste containing material that is classified for security reasons.

B.5.a **Security Authorization:** If any of the classified waste boxes in Section B.5. are checked, a copy of the signed DOE or NNSA Security Authorization for permanent burial without sanitization must be attached to the waste profile.

B.6 **Estimated volume:** Provide an estimate of the projected volume in cubic meters for ongoing waste streams. Provide the total remaining volume to be shipped.

B.7 **Estimated frequency of shipments:** Describe the anticipated shipment frequency (e.g., monthly, quarterly). If the waste will only be generated and shipped once, enter "one-time".

B.8 **Total number of containers:** For mixed waste profiles only – provide the total number of containers for the waste stream. This is a finite number and cannot be changed with subsequent revisions to the waste profile. The number of packages is used in calculating verification percentages for mixed waste profiles.

C.1 **Physical/chemical process knowledge:** Check the applicable boxes and provide the additional detail requested. If process knowledge is a major source of the chemical characterization of the waste stream, it is important to thoroughly describe that knowledge and reference any applicable documents, procedures, historical data, etc. When Process knowledge (PK) is used to make Underlying Hazardous Constituent determinations for the Land Disposal Restrictions of 40 CFR 268.48, the PK must be described here. If the waste is highly variable, check the box and describe the characterization strategy or methods used for the waste stream.

C.2 **Physical/chemical analysis:** Check the appropriate box (es) describing the type of sampling and analysis performed to characterize the waste. If field screening or laboratory analysis data is used, describe in detail the sampling and analytical methods used and attach a copy of the analytical results from a representative sample or sample set. If the laboratory analysis box is checked, a completed Table B-1 and data validation summary report must be attached.

C.3 **Regulatory status:** Check all of the boxes that apply, as defined by the referenced regulations. When asked for waste codes, type all waste codes that could apply to the waste stream. Waste codes that may apply to some containers but not others should be entered in parentheses.

C.4 Federal **Land disposal restrictions:** Mark the box or boxes that describe the status of the waste with respect to the federal land disposal restrictions of 40 CFR Part 268. If the waste has been treated to meet any federal LDR requirements, describe the methods used to meet the LDR requirements. You may also provide an example LDR Notification/Certification form for the waste.

C.5 **Physical state:** Indicate the physical state of the waste by marking the applicable box or boxes.

C.6 **Liquid form:** If the waste contains liquids, check the appropriate box and identify describe the nature of the liquids by checking the appropriate box or boxes.

C.6.a **Liquid evaluation:** Describe the evaluations performed on the high moisture content or absorbed or stabilized liquid portion of the waste stream to ensure that the requirements of the NNSSWAC Section 3.1.5 are being fulfilled.

C.7 **Other contents:** Check all applicable boxes for other components of the waste listed. For all checked boxes, list the procedure that provides controls to ensure the waste form meets NNSSWAC criteria or provide a description of how the waste acceptance criteria for each are met.

C.8 **Waste Composition:** List the typical chemical constituents and waste components comprising the waste and the typical range in weight percent of the waste matrix (as generated). Do not include the contribution of waste packaging materials, such as liners, shielding, sorbents added for packaging, void fillers, blocking and bracing materials or rigging. For inert components in LLW, general terms may be entered (soil, building rubble, nonhazardous metal debris, nonhazardous compactable debris, etc).

For chemical compounds, enter the chemical name and the CAS number for the constituent. Do not use trade names. All chemical compounds that are a substantial portion of the waste matrix (greater than 1%) must be reported. In addition all chemical compounds that cause (or contribute to) a waste being regulated must be entered in this section. Trace chemical compounds (i.e., less than 1%) that do not cause a waste to be regulated do not need to be reported.

The following chemical constituents must be entered:

- Chemical constituents that cause the waste to be a listed waste.
- Chemical constituents that cause or contribute to the waste exhibiting a RCRA characteristic (i.e., ignitable, corrosive, reactive constituents and toxicity characteristic constituents).
- PCBs in regulated concentrations (either under 40 CFR Part 761 or 268).
- Underlying hazardous constituents and any other constituents that have concentration-based treatment standards under 40 CFR Part 268.

D.1 **Radiological process knowledge:** Describe the radioactive material or sources of radiological contamination in this waste stream (e.g., waste is contaminated soil and equipment generated from the D&D of a uranium enrichment facility). Describe the available knowledge used to determine the major radionuclides present. If there are documents available that describe the radiological process knowledge of this waste, they may be referenced or attached.

D.2 **Radiological characterization methods:** Check all of the applicable boxes. For each box checked, provide a brief but specific description of the methods used. If the laboratory analysis was used as a characterization method, a data validation summary report must be attached.

D.2.a **Multiple radiological characterization methods:** Where multiple characterization methods are checked (e.g., nondestructive assay and scaling factors), briefly describe how these methods are used together to establish the radiological inventory of the waste.

D.3 **Estimated Radiation Dose:** Provide estimated external radiation dose readings at the package surface, at 30-cm from the package, and at 1-meter from the package.

D.4 **Fissile material:** If waste contains enriched uranium (^{235}U wt% > 0.90), ^{233}U, ^{239}Pu, ^{241}Pu, ^{242m}Am, ^{243}Cm, ^{245}Cm, ^{247}Cm, ^{249}Cf, or ^{251}Cf; check the limits that are used for compliance with the criticality safety criteria of the NNSSWAC. For example if the package contains 15 g of ^{235}U or less, then that is the only block that should be checked. *Note: Natural and depleted uranium should not be reported here, regardless of quantity, as exempted by waste acceptance criteria.*

D.4.1 **Effective ^{235}U Enrichment:** If the waste stream contains enriched uranium (^{235}U wt% > 0.90), ^{233}U, ^{239}Pu, ^{241}Pu, ^{242m}Am, ^{243}Cm, ^{245}Cm, ^{247}Cm, ^{249}Cf, or ^{251}Cf, attach completed NNSSWAC, Appendix E, Table E.3, ^{235}U FGE and ^{235}U Effective Enrichment, for each enrichment level or range.

D.5 **Reportable radionuclides:** Report the major radionuclides anticipated in the waste stream. Reportable radionuclides are those isotopes determined to be major radionuclides as described in the Appendix E.1, Radionuclide Reporting, of the NNSSWAC. Report both the highest activity concentration and the activity representative of the final waste form concentration for each reportable radionuclide in the packaged waste. Activities should be reported in Becquerel/cubic meter. For revised waste profiles, highlight all changes in the table.

D.6 **Alpha emitting transuranic radionuclides:** If the waste stream contains any reportable alpha-emitting transuranic nuclides with half-lives greater than twenty years as required by Appendix E.A.2 of the NNSSWAC, check the appropriate box and list the nuclides. Report both the highest activity and the activity representative of the final waste form for each reportable transuranic radionuclide in the packaged waste. Activities should be reported in nanocuries/gram. For revised waste profiles, highlight all changes in the table.

D.7 **Plutonium Equivalent Gram limits:** If any packages in this waste stream exceed the Plutonium Equivalent Gram (PE-g) limits specified in NNSSWAC, Section 3.2.2, check the appropriate box. Provide supporting PE-g calculations in the table provided.

E.1 **Packaging used:** Check the applicable boxes and provide the additional detail requested about the sizes and types of the containers. Use external dimensions when identifying the container size. Typical container sizes can be provided as long as the maximum size is indicated in section E.2. Provide detail on surface contaminated objects (SCO) and shielding. If a Type B package is used, please attach a copy of the Certificate of Compliance (CoC) to the waste profile. For mixed waste packages, type of absorbent must be indicated in the space provided. Provide detail on waste radiologically stabilized by the generator to meet waste acceptance criteria.

E.2 **Maximum container size:** Enter the maximum external dimensions of the container. For rectangular packages, enter length, width, and height of the waste package in that order. For cylindrical packages (e.g., drums) enter diameter and length in that order.

E.3 **Maximum container gross weight:** List the maximum anticipated container gross weight in kg. Mark this section N/A for bulk waste.

E.4 **Liners and/or protective coatings:** Describe the liners and/or protective coatings used for contamination control and for compatibility of the container with the waste.

E.5 **Package Criteria:** Check “Yes” box if waste meets NNSSWAC package criteria. If “No” box is checked, complete an Exception or Deviation Request to the waste acceptance criteria (Section F.2 of the Waste Profile Form) that explains why criteria are not met. Section 3.4 of the NNSSWAC details requirements for completing a Deviation Request.

E.6 **Returned containers:** Specify any containers previously identified that will be returned to the generator’s facility.

E.7 **ALARA and Special Handling Instructions:** List any special handling requirement such as remote handled, odd packaging configurations, etc… and list any special handling procedures or ALARA documentation necessary for shipping or receiving the waste.

E.8 **Internal Contamination:** Is internal contamination (i.e. internal contamination of a Type B cask for waste removal and cask return) anticipated? Check the appropriate box and if contamination is present, provide details on the expected contamination levels.

E.9 **Radon generation:** If radon is expected to be generated during storage, handling and transportation of the waste stream please check the appropriate box.

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F.1 **Comments:** This section may be used to provide any additional information about the waste.

F.2 **Exception request to waste acceptance criteria:** Complete this section if the waste stream requires an exception to any of the waste acceptance criteria. Instructions for completing an exception or deviation to the acceptance criteria are provided in section 3.4 of the NNSSWAC.

F.3 **Attachments:** Number and list the attachments provided with this Waste Profile Sheet. All attachments must be submitted with the waste profile. Generally, waste characterization documents should be listed as references, not attachments. Attachments should include PE-g calculations, Table B-1 (if required), data validation summary reports (if required), Table E-3 (if required).

G. **Generator Certification Signature:** An authorized representative of the generator must sign and date the certification statement regarding the waste stream and the information provided on the form and attachments.