



Team Product Document

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| Distribution | | | Abstract | | |
| * | Name | Mail Addr. | | This document provides a cross check between the NNSSWAC requirements and the SSFL implementing documents. | |
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| * Complete Document No Asterisk, Title Page/Summary or Change Page Only. | | | Reserved for Proprietary/Legal Notice | | |

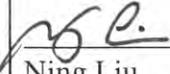
Supporting Document Summary of Change

No.
Page 2 of 22

| Rev. | Summary of Change | Approvals and Date |
|------|--|--|
| A | <p>3.1.15 (cells D-E/65-72)</p> <ul style="list-style-type: none"> ▪ updated to include requirements for ALLW <p>3.2.10 (cell D/122)</p> <ul style="list-style-type: none"> ▪ deleted "redline" <p>Appendix F (cell D/361)</p> <ul style="list-style-type: none"> ▪ deleted "redline" <p>5.7 (cells D/278-280, 282, 283)</p> <ul style="list-style-type: none"> ▪ replaced "HB-11" with "QA-00007" <p>3.3 (cell D/130)</p> <ul style="list-style-type: none"> ▪ added "(except ALLW, see 3.1.15)" <p>(cells E/xx)</p> <ul style="list-style-type: none"> ▪ replaced SHEA with EHS throughout document <p>NOTE: Cell identifiers refer to the Excel Spreadsheet file that is the body of this document.</p> | <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: right;">John Vargo</p> <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: right;">Ravness Amar</p> |
| B | <p>Section 3.3 revised to incorporate Mixed Waste procedures. This section was previously DNA</p> | <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: right;">John Vargo</p> <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: right;">Ravness Amar</p> |
| C | <p>Updated to incorporate NTSWAC Rev 7 requirements and NIC Rev 7 template.</p> | <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: right;">John Vargo</p> <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: right;">Ravness Amar</p> |
| D | <p>Updated to incorporate NTSWAC Rev 7-01 requirements and to reflect changes made in SSFL PPM.</p> | <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: right;">Ning Liu</p> <hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: right;">Phil Rutherford</p> |

Supporting Document Summary of Change

No.
Page 3 of 22

| Rev. | Summary of Change | Approvals and Date |
|------|---|---|
| E | Updated to incorporate NNSSWAC Rev 8-01 requirements and NIC Rev 8-01 template. |  Ning Liu  Phil Rutherford |

Nevada National Security Site Waste Acceptance Criteria
Implementation Crosswalk (NIC), Revision 8-01

Generator / Site: The Boeing Company - SSFL

The purpose of the NNSWAC Implementation Crosswalk (NIC) is to demonstrate that an evaluation of programmatic compliance with specified requirements has been performed. Implementation of our Quality Assurance Program Plan (QAPP) and applicable procedures, processes, or methods referenced herein will ensure compliance with NNSWAC requirements.

A controlled QAPP will be assigned to the Radioactive Waste Acceptance Program (RWAP) Manager. This approved NIC is also provided as evidence of our compliance evaluation. The WCO shall conduct an annual review and submittal of the NIC to ensure referenced data are current.

Approved by:  _____ Date: 8/16/2011
Waste Certification Official (WCO)

Instructions: The crosswalk identifies only key elements of the NNSWAC, Revision 8-01 and should not be considered an all inclusive requirements document. Waste generators are responsible for ensuring their waste certification program satisfy every NNSWAC requirement. The NIC is a tool to assist generators in evaluating their program documents for programmatic compliance with NNSWAC requirements. Determination of applicability for each requirement is provided by the referenced procedure, process, or method.

Annual Reviews: The WCO shall perform an annual review of the NIC based on the last approval date. This signed coversheet can be forwarded to the RWAP Manager as evidence of completing the annual review. Resubmittal of the complete NIC is not required unless changes were made to referenced data.

Header Block Titles: Enter applicable information respectively in Blocks 2, 3, and 4 only.

① **NNSWAC, Section and Requirement:** Identifies specific requirements contained in the NNSWAC that must be satisfied by the generator's waste certification program documents.

② **QAPP Citation:** Enter the applicable QAPP section that describes or is applicable to the requirement.

③ **Procedures / Processes / Methods (PPM):** Enter the applicable procedure(s), process(es), and/or method(s) which controls or describes how the requirement is satisfied (i.e., approved procedure or instruction, inspection checklist, test data, process knowledge, or N/A). If one PPM describes how the entire section is satisfied, then reference that PPM in the section header block (shaded area). If more than one PPM is applicable, list the primary one in the header block, and reference others as they apply to the specific requirement in that section.

If a requirement is "not applicable," enter N/A, and provide a brief justification. RWAP may request additional information, if necessary, to support the N/A determination.

④ **Responsible Organization:** Identify the organization having primary responsibility for implementation in the shaded area. Other organizations may also be referenced, if different than the primary for each requirement, as applicable.

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

| Section | NNSSWAC R/8-01 SECTION / REQUIREMENT | QAPP Citation | Procedure / Process / Method | Resp. Organization |
|------------|---|---------------|--------------------------------|-------------------------------------|
| 2 | Approval Process | | | |
| 2.1 | Generator Document Requirements | | | |
| | 2.1.1 Quality Assurance Program Plan | | | |
| | A controlled copy of the site Quality Assurance Program Plan (QAPP) or NNSSWAC specific Waste Certification Program Plan (WCPP) <i>shall</i> be documented in accordance with Section 5.0 and issued to the RWAP Manager. | | PMP-00003 5.0; QA-00001 I 5.0 | QA / WCO |
| | 2.1.2 NNSSWAC Implementation Crosswalk | | | |
| | The NNSSWAC Implementation Crosswalk (NIC) <i>shall</i> be prepared and submitted annually to RWAP in accordance with Section 5.0 | | PMP-00003 5.0; QA-00001 IV 3.0 | QA / WCO |
| | 2.1.3 Waste Profiles | | | |
| | A Waste Profile (WP) <i>shall</i> be prepared and submitted to NNSA/NSO for each waste stream proposed for disposal. | | EID-04482 10.0 | Eng |
| | 2.1.4 Certification Personnel List | | | |
| | A current list identifying the Waste Certification Officials (WCOs), Alternate WCOs, and Package Certifiers <i>shall</i> be developed and submitted to RWAP in writing. | | Letter # SHEA-107002 to NTS | Prog Mgmt; QA / WCO |
| | 2.1.5 Document and Personnel Changes | | | |
| | Generators <i>shall</i> notify RWAP in writing of any changes to the generators QAPP or WCPP, waste profiles and/or key personnel. | | EID-04482 19.0 | Prog Mgmt |
| | Prior to implementation, the WCO <i>shall</i> immediately notify RWAP in writing of any critical process and/or procedure changes to the approved certification program. | | EID-04482 19.0; QA-00001 I 5.0 | QA / WCO |
| 2.2 | RWAP Review | | | |
| | 2.2.2 Waste Profiles | | | |
| | The WCO <i>shall</i> perform a documented annual review of NNS-approved LLW WPs, based on the current revision date of each profile, to ensure the characterization data, waste stream information, and referenced procedures are current. | | QA-00001 IV 3.0 | QA / WCO |
| 2.3 | Approval | | | |
| | Approved waste generators <i>shall</i> ensure that the following documents are maintained current within the NNSA/NSO RWAP while their approval to ship waste is in effect: <ul style="list-style-type: none"> • Approved list of Authorized Certification Personnel • Latest Approved Waste Profile(s) (Active WPs Only) • Controlled Copy of the QAPP • NIC | | QA-00001; PMP-00003 | Prog Mgmt; Eng; QA / WCO |
| 3.0 | Waste Criteria | | | |
| | Waste accepted at the NNS shall be radioactive and <i>shall</i> meet the waste criteria outlined below. Generators shall ensure waste is handled, stored, and shipped in accordance with applicable DOE, DOT, U.S. Environmental Protection Agency (EPA), state, and local regulations and requirements. | | EID-04482 2.0 | Eng; Ops; Rad Safety; EHS; QA / WCO |
| 3.1 | General Waste Form Criteria | | | |
| | 3.1.1 Transuranics | | | |
| | The concentration of alpha-emitting transuranic nuclides with half-lives greater than 20 years <i>shall</i> not exceed 100 nCi/g. | | EID-04482 6.0 | Rad Safety |
| | The net weight of the waste (excluding the weight of the container and shielding) <i>shall</i> be used to calculate the specific activity of the waste in each container. | | RS-00011 5.3 & App C | Rad Safety |
| | The following isotopes <i>shall</i> be considered when making the transuranic waste determination: ²³⁷ Np, ²³⁸ Pu, ²³⁹ Pu, ²⁴⁰ Pu, ²⁴² Pu, ²⁴⁴ Pu, ²⁴¹ Am, ^{242m} Am, ²⁴³ Am, ²⁴³ Cm, ²⁴⁵ Cm, ²⁴⁶ Cm, ²⁴⁷ Cm, ²⁴⁸ Cm, ²⁵⁰ Cm, ²⁴⁷ Bk, ²⁴⁹ Cf, ²⁵¹ Cf. | | RS-00011 App C | Rad Safety |
| | 3.1.2 Radionuclide Content or Concentration | | | |
| | Radionuclide concentration <i>shall</i> be reported in accordance with Appendix E, "Radionuclide Characterization And Reporting Requirements." | | EID-04482 10.1 | Eng; Rad Safety |
| | 3.1.3 Reserved (No Requirements) | | | |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

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| 3.1.4 Hazardous Waste | | | |
| Waste regulated solely under Title 40 CFR 261-268 and state of Nevada hazardous waste regulations shall not be accepted for disposal. | | EID-04482 6.0 & 8.0 | EHS |
| State of Nevada regulations require that waste regulated as hazardous in the state-of-generation shall be regulated as hazardous when brought into the state of Nevada; therefore, such wastes shall not be accepted for disposal. | | EID-04482 6.0 Item 2 | EHS |
| Environmental media from cleanup activities may be acceptable for disposal if: State of origin makes a "Contained-In Determination" for LLW environmental % media that was in contact with "listed" wastes. The generator shall submit this determination to NNSA/NSO for evaluation, and provide and demonstrate requirements of Section 3.1.4 | | N/A - Ref EID-04482 9.1 | N/A |
| 3.1.5 Free Liquids | | | |
| Liquid waste and waste containing free liquids shall be converted into a form that contains as little freestanding and noncorrosive liquid as is reasonably achievable. | | EID-04482 7.1 | Eng; Ops |
| The free liquid shall not exceed 1 percent of the volume of the waste when the waste is in a disposal container, or 0.5 percent of the volume of the waste processed to a solidified form. | | EID-04482 7.1 | Eng; Ops |
| Waste shall be evaluated to determine its potential to release liquid during handling, storage, and transportation. | | EID-04482 7.1 | Eng; Ops |
| Generators shall document the decision made when characterizing and determining sorbents for high moisture content waste (See paper 11/3/98). | | EID-04482 7.1 | Eng |
| 3.1.6 Particulates | | | |
| Fine particulate wastes shall be immobilized so that the waste package contains no more than 1 weight percent of less-than-10-micrometer-diameter particles, or 15 weight percent of less-than-200-micrometer-diameter particles. | | EID-04482 7.3 | Eng; Ops |
| Waste known to be in a fine particulate form or in a form that could mechanically or chemically be transformed to a particulate during handling and interim storage shall be immobilized. | | EID-04482 7.3 | Eng; Ops |
| 3.1.7 Gases | | N/A, EID-04482 6.0 Item 4 prohibits shipment of Gases to NTS | |
| LLW gases shall be packaged at a pressure that does not exceed 1.5 atmospheres absolute at 20° C. | | N/A | N/A |
| Compressed gases as defined by Title 49 CFR shall not be accepted. | | N/A | N/A |
| 3.1.8 Stabilization | | | |
| Where practical, waste shall be treated to reduce volume and provide a more stable waste form. | | EID-04482 7.4 & 12.0 | Eng; Ops |
| Wastes shall not react with other wastes or the packaging during storage, shipping, handling, and disposal. | | EID-04482 7.4 | Eng; Ops |
| Chemical stability and compatibility shall be demonstrated to ensure that no reactions occur and significant quantities of harmful gases, vapors, or liquids are not generated. | | EID-04482 7.4 | Eng; Ops |
| 3.1.9 Etiologic Agents | | N/A, EID-04482 6.0 Item 5 prohibits shipment of Etiologic Agents to NTS | |
| LLW containing pathogens, infectious waste, or other etiologic agents as defined in Title 49 CFR shall not be accepted. | | N/A | N/A |
| 3.1.10 Chelating Agents | | N/A, EID-04482 6.0 Item 6 prohibits shpmt of Chelating Agents to NTS | |
| LLW packages containing chelating or complexing agents in amounts greater than 1 percent of wastes shall not be accepted unless stabilized or solidified. | | N/A | N/A |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

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| 3.1.11 Polychlorinated Biphenyls | | | |
| LLW containing Polychlorinated Biphenyls (PCBs) that meet the requirements for disposal in a solid waste or permitted hazardous waste landfill as specified in 40 CFR Part 761 and NAC 444.9452 shall be accepted. | | EID-04482 6.0 Item 7 | |
| PCB contaminated LLW shall be packaged, marked, and labeled in accordance with the requirements of Title 40 CFR and Title 49 CFR and meet the applicable shipping requirements for the radioactive content of the package. | | EID-04482 6.0 Item 7 | Ops; EHS |
| LLW containing PCBs that meet the requirements for disposal in a permitted hazardous waste landfill shall be segregated into a separate waste stream and profiled and packaged separately from other waste streams. These types of PCB wastes shall also meet the requirements listed in Section 3.3.5 and 3.3.6.2. | | EID-04482 6.0 Item 7 | Prog Mgmt; Eng |
| Generators shall provide written notice a minimum of 15 days in advance of the first shipment of each waste stream containing PCB remediation waste or bulk product waste. The notices shall be faxed to the NNSS at (702) 295-6852 and should contain information specified in 40 CFR 761.61 for PCB remediation waste and/or 40 CFR 761.62 for PCB Bulk Product Waste. | | EID-04482 6.0 Item 7 | Prog Mgmt; Eng |
| 3.1.12 Explosives | | N/A, EID-04482 6.0 Item 8 prohibits shipment of Explosives to NTS | |
| Waste containing un-reacted explosives shall not be accepted at the NNSS. Such waste may have RCRA characteristics and shall be treated to meet LDRs before being acceptable for disposal at NNSS. | | N/A | N/A |
| 3.1.13 Pyrophorics | | N/A, EID-04482 6.0 Item 8 prohibits shipment of Pyrophorics to NTS | |
| Waste shall not be pyrophoric. | | N/A | N/A |
| Pyrophoric materials contained in the waste shall be treated, prepared, and packaged to be nonflammable. | | N/A | N/A |
| 3.1.14 Sealed Sources | | | |
| Sources containing transuranic nuclides shall be individually evaluated against the transuranic criteria (Section 3.1.1), considering only the mass of the source and any component integral to the source. | | EID-04482 6.0 Item 11 | Rad Safety |
| Sealed sources that have an activity 3.7 Mega (M) Becquerel(s) (Bq) (100 µCi) or greater shall be segregated from the other waste and profiled as a separate waste stream. These sealed sources shall be characterized on an individual basis using the volume or mass of the source to determine the radionuclide concentration. | | EID-04482 6.0 Item 11 | Rad Safety; Ops |
| 3.1.15 Low-Level Waste Containing Regulated Asbestos | | | |
| Regulated Asbestos Low-Level Waste (RALLW) shall be packaged, marked, and labeled in accordance with the requirements of Title 40 CFR, State of Nevada Solid Waste Disposal Site Permit (SW1300001, current revision), state-of-generation, and the NNSS Management Plan for the Disposal of Low-Level Waste with Regulated Asbestos Waste, current revision. | | EID-04482 7.2, 27.11 | Ops |
| Packages containing RALLW shall meet the applicable shipping requirements for the radioactive contents of the package. | | EID-04482 27.0 | Eng; EHS; Rad Safety |
| RALLW shall be wetted with a water and surfactant mixture and packaged in a plastic bag that is not less than 6 mil in thickness, a combination of plastic bags that equal 6 mil in thickness, or a container which is lined with plastic. | | EID-04482 7.2 | Ops |
| If free liquid is present, sorbent shall be added to ensure compliance with the free-liquids criteria. | | EID-04482 7.2 | Ops |
| Sharp edges and corners in the package shall be padded or protected to prevent damage to plastic bag during handling, shipping, and disposal. | | EID-04482 28.15; QA-00002 App A Item 9 | Ops |
| Each container used to dispose of RALLW shall bear a label that contains one of the statements described in the NNSSWAC, Section 3.1.15. | | EID-04482 7.2 | Ops |
| RALLW shall be profiled and segregated into a separate waste stream. | | EID-04482 7.2 | Prog Mgmt; Eng |
| RALLW shall be packaged separately from other waste streams. | | EID-04482 7.2 | Prog Mgmt; Eng |
| RALLW shall not be packaged into soft-sided containers as the only containment. | | EID-04482 7.2 | Prog Mgmt; Eng |
| Pre-shipment notifications shall be faxed (702-295-1153) to NNSA/NSO at least 7 days prior to shipment arrival. | | EID-04482 7.2, 27.1 | Prog Mgmt; Eng |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

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| | 3.1.16 Radioactive Animal Carcasses | | |
| | Animal carcasses containing, or contained in, radioactive materials <i>shall</i> be packaged with the biological material layered with lime and placed in a metal container meeting applicable requirements. | EID-04482 6.0 Item 12 | Eng; Ops |
| | If the resultant waste matrix is capable of gas generation, the containers <i>shall</i> be vented with a carbon composite High-Efficiency Particulate Arresting (HEPA) filtration device. | EID-04482 6.0 Item 12 | Eng; Ops |
| | Animal carcasses preserved with formaldehyde <i>shall not</i> be accepted for disposal. | EID-04482 6.0 Item 12 | Eng; Ops |
| | 3.1.17 Low-Level Beryllium Waste | | |
| | Beryllium-containing waste, and beryllium-contained equipments <i>shall</i> be packaged in sealed, impermeable bags (minimum 6 mil.), containers, or enclosures to prevent the release of beryllium dust during handling and transportation. | EID-04482 6.0 Item 13 | Eng; Ops; EHS |
| | The bags, containers, and enclosures <i>shall</i> be labeled with the following information: "DANGER, CONTAMINATED WITH BERYLLIUM DO NOT REMOVE DUST BY BLOWING OR SHAKING. CANCER AND LUNG DISEASE HAZARD." | EID-04482 6.0 Item 13 | Eng; Ops; EHS |
| | 3.1.18 Classified Waste | N/A, There is no classified waste at SSFL | N/A |
| | Generators <i>shall</i> submit a signed DOE or NNSA Security Authorization for permanent burial without sanitization with their classified waste profile. | N/A | N/A |
| | Classified LLW <i>shall</i> be profiled and segregated into a separate waste stream. | N/A | N/A |
| | Generator's shipping classified waste that requires protection from visual observation, <i>shall</i> submit the "Advance Shipment Notification" form, identified in Appendix C.4, to the RWMC at least seven (7) days prior to shipment arrival. | N/A | N/A |
| | 3.1.19 Petroleum Hydrocarbon Burdened LLW | | |
| | NTS generated hydrocarbon waste <i>shall</i> be packaged separately from other LLW, the containers identified as "HYDROCARBON WASTE" near the bar code labels, and shipped under separate shipping documents (i.e., Bill of Lading, Manifest, Package Shipment Disposal Request [PSDR], Certification Statement, etc.). | EID-04482 6.0 Item 14 | Eng; Ops; EHS |
| 3.2 | Waste Package Criteria | | |
| | Waste packages <i>shall</i> meet applicable DOE Orders, Title 10 CFR, Title 40 CFR, and Title 49 CFR requirements such as design, nuclear safety, radiation levels, activity limits, nuclear heating, and multiple hazards. | EID-04482 15.0 | Eng; Rad Safety; EHS |
| | Waste packages <i>shall</i> be capable of withstanding the stresses associated with the loading, handling, stacking, and shipping of the package. | EID-04482 15.1 - 15.2 | Eng; EHS |
| | 3.2.1 Nuclear Criticality Safety | | |
| | The quantity of fissionable (fissile) material in a waste package <i>shall</i> be limited so that an infinite array of such packages will remain subcritical under "as packaged" conditions and if the array were to be flooded with water to any credible degree. | EID-04482 15.4 | Rad Safety |
| | Waste packages <i>shall</i> comply with the fissile material limits in Appendix E. | EID-04482 15.4 | Rad Safety |
| | 3.2.2 Package Activity Limitation | | |
| | Package Activity limits at the NNSA are based on Plutonium-239 Equivalent grams (PE-g). The total PE-g for either a waste package or a shipment <i>shall</i> be calculated by multiplying the activity of each radionuclide by the PE-g conversion factor (Appendix B) and then adding each radionuclide PE-g to get the total PE-g. | EID-04482 15.4 | Rad Safety |
| | The PE-g limit for all waste packages (e.g., drums, boxes, soft-sided packages, bulk or wrapped objects, etc.) is 300 PE-g total, except for DOT Type B containers for which there is no limit. | | |
| | 3.2.3 Closure | | |
| | Waste package closures <i>shall</i> be designed to ensure they will withstand the effects of changing temperatures, weather, pressures, and/or vibrations under normal handling and shipping conditions and not breach or lose the package contents. | EID-04482 15.2 | Eng; Ops; EHS |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

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| | <p>3.2.4 Lead Shielding</p> <p>Generators shall maintain the following:</p> <ul style="list-style-type: none"> Documentation demonstrating that standard packaging without lead shielding would not reduce the exposure rate to less than 0.005 rem/hr (5 mrem/hr) at 30 centimeters and the shielding is necessary for radiation protection; and, Documentation demonstrating that the amount of lead used for shielding is not excessive for each specific container of LLW. The documentation shall include calculations demonstrating the amount of lead (thickness/quantity) in the container is not excessive by justifying the quantity of lead required in each given container, or on a container-by-container basis. | | <p>N/A, no known current or future need for the use of lead shielding</p> <p>N/A</p> <p>N/A</p> | |
| | <p>3.2.5 Strength</p> <p>The disposal package (packaging and contents) shall be capable of supporting a uniformly distributed load (compressive strength) of 16,477 kg/m² (3,375 lbs./ft²).</p> <p>This requirement does not apply to bulk waste (e.g. supersacks, burrito wraps, unpackaged waste items), waste packaged in steel drums, high integrity containers, cargo transport containers, or roll-off containers. These containers shall be sufficiently strong to ensure they will not breach under normal offloading conditions.7.</p> <p>Bulk waste containers with a reasonable probability of breaching during offloading (i.e., burrito wraps), regardless of the type of transport vehicle (i.e., intermodals), shall meet the package activity limitations of section 3.2.2.</p> <p>3.2.6 Handling</p> <p>Packages exceeding 1 mSv/hr (100 mR/hr) dose rate at 30 centimeters shall be considered for remote handling. Handling procedures and ALARA documentation shall be referenced on the WP for wastes requiring remote handling and made available to the disposal site upon request.</p> <p>Waste packages shall be provided with cleats, offsets, rings, handles, permanently attached or removable skids, or other auxiliary lifting devices to allow handling by means of forklift, cranes, or similar handling equipment.</p> <p>Auxiliary lifting devices for any portion of the package extending from the top of the waste packages shall be no higher than 0.1 m (4 inches) in normal position.</p> <p>Lifting devices shall be designed in accordance with the DOE Hoisting & Rigging Manual, DOE-STD-1090-Current Publication.</p> <p>Lifting devices that are a structural part of the package shall be designed with a minimum safety factor of three-to-one against yielding when used to lift the package to ensure any failure of a lifting attachment under excessive load would not impair the integrity of the package.</p> <p>Any other structural part of the package which could be used to lift the packages shall be capable of being rendered inoperable for lifting the package during transport or shall be designed with strength equivalent to that required for lifting attachments.</p> <p>Rigging devices (e.g., slings, spreader bars, rings, hooks) not permanently attached to the waste package that are provided by the generator for off loading shall have a current load test based on the requirements of the DOE Hoisting & Rigging Manual, DOE-STD-1090-Current Publication.</p> <p>Non-permanently attached rigging devices shall have traceable certifications provided with the shipping documents. They shall not show any signs of corrosion, kinking, birdcaging, or other deterioration.</p> <p>LLW packages that have abnormal centers of gravity shall be clearly marked with the center of gravity.</p> <p>Bulk waste shipments with complex geometries shall be loaded in the most stable configuration.</p> <p>3.2.7 Size</p> <p>Bulk LLW shall meet the requirements of Title 49 CFR.</p> <p>For the transfer of unpackaged bulk material having external contamination, the contamination shall be fixed, covered, or contained sufficiently for safe transfer.</p> | | <p>EID-04482 15.1; EID-04489 3.5</p> <p>EID-04482 15.1</p> <p>EID-04482 15.1</p> <p>EID-04482 15.3</p> <p>EID-04482 15.2; EID-04489 3.6</p> <p>EID-04482 15.2</p> <p>EID-04482 15.0</p> <p>EID-04482 15.1</p> | <p>Eng</p> <p>Eng; Ops</p> <p>Rad Safety; EHS</p> <p>Eng; Rad Safety</p> <p>Eng</p> <p>Eng</p> <p>Eng</p> <p>Ops</p> <p>Ops</p> <p>Ops</p> <p>Ops</p> <p>Ops; Rad Safety; EHS</p> |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

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| 3.2.8 Weight | | | |
| Weight limits for final waste packages shall not exceed the approved packaging design or NTS limits of 4,082 kg (9,000 lbs) per box and 544 kg (1,200 lbs) per drum.2.1 These weight limits do not apply to bulk wastes. | | EID-04482 15.2 | Ops |
| Exception to the specified box weight limit is allowed if each of the following requirements are satisfied: <ul style="list-style-type: none"> • Final weight shall not exceed the approved manufacturer design limits; • Final weight of MLLW shall not exceed the NNSR RTR weight capacity of 11000 lbs; • Each over weight box shall be clearly marked "Overweight Box," and • Shipped on a flatbed trailer and cribbed to a four inch minimum height to allow forklift offloading. | | EID-04482 15.2 | Ops |
| 3.2.9 Loading (Void Space) | | | |
| Waste packages shall be loaded to ensure that the interior volume is as efficiently and compactly loaded as practical to minimize void space. | | EID-04482 11.0 | Ops |
| MW packages shall meet the void space criteria in Section 3.3.6.2. | | N/A - EID-04482 8.0 prohibits shipment of MW to NTS (except ALLW, see NIC 3.1.15) | N/A |
| 3.2.10 Package Protection | | | |
| Methods shall be employed to ensure that the integrity of the in-process waste package is not compromised. | | EID-04482 24.0 | Eng; Ops |
| Once the waste packaging activities have been completed and the container has been sealed, containers shall be stored in a secure area to prevent unauthorized intrusion and protected from the environment to maintain package integrity and prevent deterioration. | | EID-04482 24.16 & 25.7 | Ops |
| Tamper-indicating devices (TIDs), clips, or banding can be used to indicate that the package has not been opened. These devices shall not contain lead. | | EID-04482 24.16 & 25.7 | QA / WCO |
| 3.2.11 Marking and Labeling | | | |
| Each waste package shall be marked and labeled according to Appendix C. | | EID-04482 27.2 | Eng; Ops |
| Markings and labels shall be intact and readable when the shipment arrives at the disposal site. | | EID-04482 27.10 | Ops |
| 3.2.12 Bar Coding | | | |
| The shipment and package numbers shall be bar coded in accordance with standards in Appendix C. | | EID-04482 27.2 & 27.10 | Eng; Ops |
| 3.2.13 Contamination Levels | | | |
| External contamination levels for waste packages and transport vehicles shall meet the release limits specified in Title 10 Code of Federal Regulations, Part 835, Appendix D. | | EID-04482 27.15 | Rad Safety; EHS |
| When internal contamination levels (i.e. internal contamination of a Type B cask for waste removal and return to the generator) are known, this information shall be forwarded to RWMC operations (fax (702) 295-6852 or e-mail to wminfo@nv.doe.gov). | | EID-04482 27.15 | Rad Safety; EHS |
| 3.2.14 Waste Containers and Shipping Configuration | | | |
| Generators shall ensure the following requirements are satisfied to improve transportation safety and off loading at the NNSR: <ul style="list-style-type: none"> • Waste containers used for shipping, at a minimum, will be Industrial Package-1 meeting the requirements of 49 CFR 173.410 and 173.411). • Waste packaged in drums will be palletized and banded. Requirements do not apply to drums in groups of three drums or less. • Wastes packaged in drums from off-site facilities are to be shipped in a closed transport vehicle. • Waste containers not meeting the minimum requirements described above and/or alternative methods for transport of bulk waste items (SCO, LSA equipment, large machinery, etc.) will be approved on a case-by-case basis by the Waste Management Federal Project Director.. | | EID-04482 15.1 | Eng; Ops |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

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| 3.3 | Mixed Waste | | Note: EID-04482 8.0 prohibits shipment of MW to NTS (except ALLW, see NIC 3.1.15) | |
| | MW offered for disposal shall meet the applicable characterization, treatment, packaging, and disposal requirements of the NNSSWAC, Title 40 CFR, state of Nevada, and state-of-generation regulations. | | EID-04482 7.2 & 8.0 | Eng; Ops; Rad Safety; EHS; QA / WCO |
| | 3.3.1 Acceptable Hazardous Waste Numbers | | | |
| R8-01 | MW offered for disposal shall have one or more of the EPA hazardous waste numbers listed in Section 3.3.1 of the NNSSWAC or shall be considered a hazardous waste in the state of generation. | | EID-04482 7.2 | Eng; Ops |
| | 3.3.2 Mixed Waste Treatment Notification | | | |
| | Generators with MW that requires treatment to meet the LDR standards, but the treatment has yet to occur, shall submit to NNSA/NSO the information contained in the "Pre-Treatment Notification Form" found in Appendix G of the NNSSWAC. | | N/A | N/A |
| | If treatment is performed by a commercial facility, it shall have a current DOE Consolidated Accreditation Program (DOE CAP) audit, or equivalent. | | N/A | N/A |
| | 3.3.3 Mixed Waste Profiles | | | |
| | In addition to the NNSSWAC requirements for waste profiles in Section 2.1.1, MWPs shall be profiled and packaged separately from LLW. | | EID-04482 7.2 | Eng |
| | MWPs shall be approved for a finite volume of waste. | | EID-04482 7.2 | Eng |
| | MWPs shall include the number of containers, container sizes, and dose rates at 30 cm for the mixed waste covered by the MWP. | | EID-04482 7.2 | Eng |
| | MWPs have annual expiration dates and shall be recertified annually (based upon the profile revision date) to the NNSA/NSO with the information contained in Appendix G-2. | | EID-04482 7.2 | Eng |
| | 3.3.4 Land Disposal Restrictions | | | |
| | MW shall meet the LDR treatment standard requirements in Nevada Administrative Code (NAC) 444.8632 (incorporating Title 40 CFR 268.40 and 268.45), including standards for underlying hazardous constituents (UHCs). | | N/A | N/A |
| | LDR notifications/certifications shall be made in accordance with Section 6.3.4. | | N/A | N/A |
| | 3.3.4.1 Determinations of Equivalent Technology | | | |
| | MW that have been treated based on a Determination of Equivalent Technology (DET) will require NDEP concurrence on the DET. NDEP will require the DET documentation, including EPA regions' determinations | | N/A | N/A |
| | 3.3.5 Waste Form Criteria / Prohibited Items | | | |
| | MW accepted for disposal shall meet the general waste form criteria as described in Section 3.1 of the NNSSWAC, except as indicated below. | | EID-04482 7.2; Also see NIC 3.1 | Eng |
| | 3.3.5.1 Free Liquids | | | |
| | Free liquids shall be absorbed, stabilized, or otherwise removed from the waste. Containerized free liquids such as ampules, small articles that contain free liquids required for the article to function (e.g., batteries or capacitors), are acceptable. | | EID-04482 7.2 | Eng; Ops |
| | 3.3.5.2 Sorbents | | | |
| | Sorbents shall be non-biodegradable and identified on the MWP. Examples of non-biodegradable sorbents according to Title 40 CFR 264.314(d) and/or 40 CFR 265.314e includes: refer to NNSSWAC. | | EID-04482 7.2 | Eng; Ops |
| | 3.3.5.3 Compatibility | | | |
| | Incompatible wastes, or incompatible wastes and materials shall not be placed in the same container if such placement: <ul style="list-style-type: none"> • Generates extreme heat or pressure, fire or explosion, or violent reaction; • Produces uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health; • Produces uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; • Damages the structural integrity of the device or facility containing the waste; or • Through other like means threaten human health or the environment. | | EID-04482 7.2 | Eng; Ops |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

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| | <p>3.3.6 Mixed Waste Package Criteria In addition to Section 3.2, MW packaged for disposal shall meet the waste package criteria below:</p> | | EID-04482 7.2; Also see NIC 3.2 | Eng; Rad Safety; EHS |
| | <p>3.3.6.1 Marking and Labeling In addition to the marking and labeling requirements in Appendix C, MW packages of 451 liters (119 gallons) or less shall be marked with the following: <ul style="list-style-type: none"> • The words, "HAZARDOUS WASTE – Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority of the U.S. Environmental Protection Agency." • Generator's Name and Address; • Manifest Document Number. </p> | | EID-04482 7.2 | Eng; Ops; EHS |
| | <p>The marking shall be durable, in English, displayed on a background of sharply contrasting color, printed or affixed to the surface of the package; or on a label, tag, or sign unobscured by other labels or attachments, located away from any marking that could substantially reduce its effectiveness.</p> | | EID-04482 27.0 | Ops |
| | <p>Marking and labeling of the waste packages shall be for the hazardous and radioactive characteristics of the waste.</p> | | EID-04482 27.0 | Eng; Rad Safety; EHS |
| | <p>3.3.6.2 Void Space</p> | | | |
| | <p>Containers of MW shall be at least 90 percent full when placed in the landfill.</p> | | EID-04482 7.2 | Ops |
| | <p>3.3.6.3 Package Protection</p> | | | |
| | <p>In addition to the requirements of Section 3.2.10, if a package has been inspected as part of the NNSS verification plan, the TID shall not be removed or altered. The package shall be loaded and transported to protect the TID from damage.</p> | | EID-04482 7.2 | Ops; QA / WCO |
| | <p>3.3.7 Analytical Data</p> | | | |
| | <p>Analytical data used to make MW determinations or LDR certifications shall be from a DOE CAP audited laboratory, or equivalent (i.e., State Certified or Carlsbad Field Office Certified).</p> | | EID-04482 7.2 | Eng |
| | <p>Generators shall document their review and acceptance of the most recent certification audit for analytical laboratory used.</p> | | QA-00007 | QA / WCO |
| | <p>3.3.8 MW Verification</p> | | | |
| | <p>3.3.8.1 MW Verification Frequency</p> | | | |
| | <p>Generators shall provide the necessary authorizations, facilities, and personnel to allow for RWAP personnel to perform MW verification at the generator or treatment facility.</p> | | EID-04482 7.2 | Prog Mgmt |
| | <p>RWAP personnel shall be provided access to containers and facilities to allow for visual inspection of the contents of packaged containers, performing chemical screening on homogeneous samples of the waste, and split sampling.</p> | | EID-04482 7.2 | Prog Mgmt |
| | <p>3.3.8.2 Previously Rejected MW Packages</p> | | | |
| | <p>MW packages (parent packages) previously rejected that are repackaged and/or split into additional MW packages (progeny packages) shall be traceable to the original package number.</p> | | EID-04482 7.2 | Ops; QA / WCO |
| | <p>In addition to the transportation and shipping requirements of Section 6.0, generators shall notify NNSA/NSO prior to shipping previously rejected MW packages (parent and/or progeny) back to NNSS.</p> | | EID-04482 7.2 | Prog Mgmt |
| <p>3.4</p> | <p>NNSSWAC Deviations</p> | | <p>N/A, no exceptions taken</p> | |
| | <p>The following information shall be provided with the WP or as stand alone document approved by the WCO:</p> <ul style="list-style-type: none"> - NNSSWAC requirement that cannot be met. - Justification for not meeting the requirement, include a description of the item(s) and/or process affected. - Duration of the deviation. - Action plan to correct the deviation. | | <p>N/A N/A N/A N/A</p> | <p>N/A N/A N/A N/A</p> |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

| 4.0 | Waste Characterization | | | |
|-----|---|--|--|----------------------------|
| | Generators shall characterize waste destined for disposal at the NNSS. | | EID-04482 9.0 | Eng; Rad Safety |
| | Waste characterized as MW, generators shall demonstrate that the MW meets the applicable Title 40 CFR LDR and NNSWAC. | | N/A - See NIC 3.3 | N/A |
| | When similar requirements are listed in separate regulations, the most stringent shall be met. | | EID-04482 2.0 | Eng; Rad Safety |
| | Generators shall characterize waste with sufficient accuracy to permit proper segregation, treatment, storage, and disposal. | | EID-04482 9.0, 24.0, & 25.0 | Eng; Rad Safety |
| | The characterization methods and procedures employed by the generators shall ensure that the physical, chemical, and radiological characteristics of the waste are recorded and known during all stages of the waste management process. | | EID-04482 24.0 & 25.0 | Eng; Rad Safety |
| | Methods selected by the generator for waste characterization shall undergo a documented peer review. | | Approval process of governing | Eng; Rad Safety |
| | The Data Quality Objectives (DQOs) process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data | | EID-04487 4.0 | Eng; Rad Safety |
| | Generators shall prepare and submit a WP for each waste stream, which provides NNSA/NSO with a summary of waste characterization information. | | EID-04482 10.0 | Prog Mgmt; Eng; |
| | Generators shall provide waste characterization documentation that supports the waste profile to NNSA/NSO for review during facility evaluations or upon NNSA/NSO request. | | Waste characterization documentation is readily available for customer review upon request. | Prog Mgmt |
| | Waste Characterization documentation shall be traceable to the WP and disposal packages. | | EID-04482 24.3 & 25.6 | Ops |
| | Isotopic distributions and corresponding activity concentrations shall be traceable to the package. | | EID-04482 25.5 | Ops |
| | Traceability to a parcel level shall be required if characterization is being conducted at that level (e.g., individual sealed sources, bags, or components characterized on an individual basis but packaged together). | | EID-04482 24.5 | Ops |
| 4.1 | Process Knowledge | | | |
| | When PK relies on living memory, the individual's knowledge shall be documented and signed by interviewer and the interviewee. | | EID-04482 9.1 | Prog Mgmt; Eng; Rad Safety |
| | For telephone interviews, a statement outlining relevant information shall be signed by the interviewer (and interviewee if possible). | | EID-04482 9.1 | Prog Mgmt; Eng; Rad Safety |
| | Generators shall conduct a documented evaluation of compiled PK sources used for waste characterization. | | EID-04482 9.1 | Prog Mgmt; Eng; Rad Safety |
| | The generator's evaluation shall identify uncertainties, inconsistencies, limitations, and usefulness.7.10 | | EID-04482 9.1 | Prog Mgmt; Eng; Rad Safety |
| 4.2 | Sampling and Analysis | | | |
| | Generators shall ensure that all data be scientifically valid, defensible, and of known precision and accuracy to identify the chemical, physical, and radiological properties of waste. | | EID-04482 9.2 | Prog Mgmt; Rad Safety; Eng |
| | When waste streams are characterized by sampling and analysis, the process shall be controlled and documented. | | EID-04482 9.2 | Rad Safety; Eng |
| | Propagation of error throughout the sampling and analytical process shall be evaluated and considered when ascertaining usability of data for characterization of waste. | | EID-04482 9.2 | Rad Safety; Eng |
| | Generators should determine the appropriate analysis (total vs. TCLP) for RCRA hazardous and UHC determinations. These results shall be reported in the waste profile on Table B-1 (page 4-5). | | N/A, EID-04482 8.0 prohibits shipment of hazardous or mixed waste to NTS (except ALLW, see NIC 3.1.15) | Rad Safety; Eng |
| | Generators shall demonstrate that controls are in place to trace each sample number to a specific package number. | | EID-04482 9.2 | Eng; Ops |
| | 4.2.1 Data Validation | | | |
| | Data shall be validated by technically qualified personnel who are independent of those performing the analyses | | EID-04482 9.3 | Rad Safety |
| | When sampling and analysis is used as a method of characterization, data validation shall be conducted on a portion of chemical and radiological data per NNSW waste stream, prior to use of the data for characterization purposes | | EID-04482 9.3 | Rad Safety |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

| 5.0 | QA Requirements for Waste Certification Programs | | | |
|-----|---|--|---|----------------|
| | Generators shall develop, approve, and maintain a Quality Assurance Program Plan (QAPP) demonstrating compliance to the current revision of the NNSSWAC, DOE Order 435.1, Radioactive Waste Management, DOE Order 414.1, Quality Assurance, and/or Title 10 CFR, 830.122, Quality Assurance. | | PMP-00003 2.0; QA-00001 | QA / WCO |
| | A controlled copy of the generators site QAPP or WCPP shall maintained with the RWAP Manager. | | EID-04482 19.0 Item 7 | QA / WCO |
| | Generators shall also complete the NNSSWAC Implementation Crosswalk (NIC) and submit it to the RWAP Manager. | | EID-04482 19.0 Item 7 | QA / WCO |
| | The NIC shall reference the applicable quality-affecting procedures, processes, or methods and the organization or group directly responsible for implementation. | | EID-04482 10.1 QA-00001 IV 3.0 | QA / WCO |
| | The WCO shall perform an annual review of the NIC to ensure that procedures, processes, and methods referenced in the NIC are current. Upon completion of the annual review, the WCO shall sign the NIC cover sheet and submit a copy to the RWAP Manager. | | QA-00001 IV 3.0 | QA / WCO |
| 5.1 | Program | | | |
| | Generators shall develop an organizational chart specific to the waste management and support organizations. | | PMP-00003 4.0. The organization chart is deleted in most recent revision. A description is used to specify responsibilities in a flat, simplified organization. | Prog Mgmt |
| | The organizational chart shall depict the organizational structure, functional responsibilities, levels of authority, and interfaces necessary to manage the waste certification program. | | PMP-00003 4.0. Same as above. | Prog Mgmt |
| | The chart shall identify the organizations that generate, characterize, package, inspect, assess, ship, and perform support functions (i.e., procurement, document control, RCRA oversight, and training). | | PMP-00003 4.0. Same as above. | Prog Mgmt |
| | Each generator shall designate a WCO and alternates), if applicable, who are responsible for verifying implementation of the QAPP or WCPP. | | Letter # SHEA-107002 to NTS | Prog Mgmt |
| | The WCO shall ensure that the waste certification processes, including waste, waste packages, supporting data, and waste shipments, comply with the requirements of the NNSSWAC. | | EID-04482 28.0 | QA / WCO |
| | The Alternate WCO shall report to the primary WCO for certification activities. | | N/A, All WCO functions are performed by the primary WCO | N/A |
| | The organizational structure shall ensure the independence of the WCO, alternates), and package certifiers from the waste generator and allow for direct access to a management level (including the local DOE field office), having sufficient authority and organizational freedom, if necessary, to ensure compliance with the low-level waste program. | | PMP-00003 4.0. | Prog Mgmt |
| | Generators may delegate the responsibility for signing the Package Certification Label (PCL) to Package Certifiers; however, the Package Certifiers shall report directly to the WCO for certification activities. | | N/A, package certification function is performed by the WCO | N/A |
| 5.2 | Personnel Training and Qualification | | | |
| | Personnel shall be trained and qualified to perform their assigned functions and tasks. | | EID-04450 | Prog Mgmt; Ops |
| | The level and type of training shall be evaluated and documented. | | EID-04450 | Prog Mgmt; Ops |
| | Training shall be commensurate with the importance of the task and the activities affecting compliance with the NNSSWAC waste certification activities. | | EID-04450 | Prog Mgmt; Ops |
| | Personnel shall be provided training to ensure job proficiency with established requirements (e.g., processes, procedures, and instructions, etc) is maintained. | | EID-04450 | Prog Mgmt; Ops |
| | Records of training shall be specified and maintained to ensure personnel training is current. | | EID-04450 | Prog Mgmt; Ops |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

| 5.3 | Quality Improvement | | | |
|-----|---|--|--|---------------------|
| | Process controls to detect and prevent quality problems and verify conformance to specified requirements shall be established and implemented. | | QA-00002 | QA / WCO |
| | Performance of quality improvement processes shall be documented. | | QA-00001 II 3.0 | QA / WCO |
| | Control of nonconforming components and processes shall provide for the identification, documentation, evaluation, segregation (when practical), disposition, and notification to the affected organizations, including the WCO. | | This process is currently in a state of transition due to reorganization within Boeing of SSFL activities. Until the new process is finalized, the principles of PRO-5500 are applied. | QA / WCO |
| | Nonconforming components shall be conspicuously labeled, tagged, or otherwise marked to ensure removal from the waste certification process and prevent inadvertent use. | | Same as above | QA / WCO |
| | The disposition of nonconforming components, services, and processes shall be reviewed for technical justification and disposition by authorized personnel. | | Same as above | QA / WCO |
| | When nonconforming conditions are identified that affect the quality of previously shipped waste, NNSA/NSO shall be notified. | | EID-04482 19.0 Item 4; QA-00001 II 3.0 | QA / WCO |
| | A process shall be established for the identification and timely correction of quality problems. | | PRO-6490 | QA / WCO |
| | The root cause, corrective action, action to prevent recurrence, and estimated completion dates shall be documented. | | PRO-6490 | QA / WCO |
| | The WCO and appropriate levels of management shall be involved in the corrective action process. | | QA-00001 II 3.0 | QA / WCO |
| | Corrective action documents shall be tracked until successful resolution can be demonstrated. | | QA-00001 II 3.0 | QA / WCO |
| 5.4 | Documents and Records | | | |
| | Activities affecting the quality of the waste certification program shall be prescribed and performed in accordance with written instructions, procedures, or drawings and available to those performing the work. | | EID-04482 22.0; QA-00002 5.3 | Prog Mgmt; QA / WCO |
| | A document control system shall be established to assure that these documents are prepared, reviewed, approved, controlled, and revised. | | RPA-00091 | Prog Mgmt; QA / WCO |
| | The WCO shall document the review and concurrence of procedures (including revisions) critical to waste certification activities (i.e., generation, packaging, inspection, characterization, certification, etc.). | | RPA-00091 Atch 1 | Prog Mgmt; QA / WCO |
| | The records system shall be defined and implemented in accordance with written instructions, procedures, or other documentation. | | RPA-00091 | Prog Mgmt; QA / WCO |
| | Records documenting compliance with waste certification criteria shall be specified, prepared, reviewed, and signed by authorized personnel. | | EID-04482 24.0 & 25.0 | Prog Mgmt; QA / WCO |
| | Records shall be compiled into a records management system that includes provisions for transmittal, distribution, retention, handling, correction, disposition, and retrievability. | | EID-04486; QA-00002 II 4.0 | Prog Mgmt; QA / WCO |
| | Completed records shall be protected from damage, loss, and deterioration. | | QA-00002 II 4.0 | Prog Mgmt; QA / WCO |
| | The generator shall maintain records for time periods equivalent to on-site records retention requirements, but not less than three years (or for time periods designated by other regulatory authorities). | | QA-00002 II 4.0 | Prog Mgmt; QA / WCO |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

| 5.5 | Work Processes | | | |
|-----|--|--|---|-----------------|
| | Work shall be planned and performed to established technical standards and administrative controls using approved instructions, procedures, or other appropriate means. | | EID004482 22.0; QA-00001 III 1.0 | Ops |
| | Processes important to waste certification activities shall have controls or verification steps identified as part of operating procedures. | | EID-04482 22.0; QA-00002 5.3 | Ops; QA / WCO |
| | Controls shall be established to ensure that the Traceability of waste from the point of generation through shipment is maintained | | EID-04482 24.0 thru 27.0 | Ops; QA / WCO |
| | Waste characterization documentation shall be traceable to the exact package in which waste was placed. | | EID-04482 24.0 | Ops; QA / WCO |
| | Waste containers shall be controlled through the life cycle of the component (e.g., receipt, handling, storage, packaging, and shipping) to prevent damage, loss, or deterioration. | | EID-04482 23.0 thru 27.0 | Ops; QA / WCO |
| | Components used in the certification process such as waste containers, liners, sorbents, and solidifiers shall be controlled to ensure that only correct and acceptable items are used. | | EID-04482 15.5 | Ops; QA / WCO |
| | Identification shall be maintained on items or documents traceable to the items. | | EID-04482 23.0 | Ops; QA / WCO |
| | Measuring and Test Equipment (M&TE) used for process monitoring or data collection shall be uniquely identified, controlled, and calibrated. | | PRO-1087. Note: In house calibration services are no longer performed. All calibration services are currently outsourced. | Rad Safety |
| | Records of calibration shall be maintained, traceable to the equipment, and the equipment suitably marked to indicate calibration status. | | Same as above | Rad Safety |
| | M&TE marking shall include a unique identification, date of calibration, calibration due date, and any limitations | | Same as above | Rad Safety |
| | Calibration equipment for M&TE shall be traceable to a nationally recognized standard or equivalent means to assure accuracy. | | Same as above | Rad Safety |
| | Testing and validation of computer programs and verification of data results from those programs (i.e., PSDR data, radioactivity calculations) shall be conducted and documented. | | EID-04482 9.3 | Eng; Rad Safety |
| 5.6 | Design | | | |
| | Structures, Systems, and Components (SSCs) designed and/or constructed to ensure that waste will satisfy certification requirements shall be designed using sound engineering/scientific principles and standards and performed in accordance with established design processes. | | EID-04482 15.0 | Eng |
| | Design adequacy of SSCs shall be verified or validated by qualified personnel other than those who initiated the design. | | RPA-00091 Attch 1; QA-00001 III 2.0 | Eng |
| | Verification and validation of SSC designs shall be completed and approved prior to implementation of the design or design changes. | | QA-00001 III 2.0 | Eng |
| | Design interfaces shall be identified and controlled. | | QA-00001 III 2.0 | Eng |
| | Waste generators shall document their review of product or process designs (e.g., waste containers, sorbents, waste treatment operations) when performed by others (e.g., suppliers or other generators) to ensure that they conform to established requirements and end-use application. | | EID-04482 15.5 | Eng |
| | Design changes shall be approved commensurate with the same control measures that were applied to the original design. | | RPA-00091 Attch 1 | Eng |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

| 5.7 | Procurement | | | |
|-----|---|--|---|-----------|
| | Components and services critical to the waste certification program shall be procured under a controlled and documented system. | | RPA-00091 6.0; QA-00001 III 3.0 | Prog Mgmt |
| | Procurement documents shall identify applicable technical requirements such as drawings, specifications, codes, standards, regulations, tests, inspection and acceptance criteria, and certification records. | | QA-00001 III 3.0 | Prog Mgmt |
| | Procurement documents shall be reviewed and approved by authorized personnel to ensure that they contain appropriate references and technical requirements. | | QA-00001 III 3.0 | Prog Mgmt |
| | Changes to procurement documents shall receive the same degree of review and approval as the original documents. | | QA-00001 III 3.0 | Prog Mgmt |
| | Selection of suppliers providing components and services critical to the waste certification program shall be evaluated and selected on the basis of specified criteria (e.g., waste packaging, waste treatment services). | | QA-00007 | QA / WCO |
| | The methods of evaluation (i.e., audits, surveillance, source inspection, receipt inspection, third party audits) shall be established and provide adequate confidence that the selected supplier can meet the established requirements. | | QA-00007 | QA / WCO |
| | When third-party audits are used to qualify a supplier, a documented evaluation of the report shall be performed by a qualified Lead Auditor identifying the activities, findings, conclusions, and basis for qualification. | | QA-00007 | QA / WCO |
| | Suppliers of components (e.g., off-the-shelf sorbents) that are tested or verified by the purchasing organization for conformance to technical requirements may not need to be evaluated (audited), provided the testing demonstrates the procured component conforms to design requirements. Conformance testing shall be documented. | | EID-04482 15.5 | QA / WCO |
| | A process to ensure approved suppliers continue to provide acceptable components and/or services shall be established and implemented. | | QA-00007 | QA / WCO |
| | Methods of evaluation shall be specified and documented. | | QA-00007 | QA / WCO |
| 5.8 | Inspection and Acceptance Testing | | | |
| | Inspection and testing of components, services, and processes critical to the waste certification program shall be conducted using established acceptance and performance criteria. | | EID-04482 23.0 thru 27.0; QA-00002 checklist | QA / WCO |
| | In process inspections of waste certification activities shall be performed by qualified personnel having no responsibility for the work process or item being inspected. | | Inspections performed by WCO | QA / WCO |
| | Receipt inspections shall be performed to verify conformance of components received to the procurement documents and design criteria. | | Procurement QA Requirements maintained and performed by WCO | QA / WCO |
| | In-process inspections, including waste container pre-use inspections and waste packaging activities, shall be conducted throughout the waste certification process. | | EID-04482 23.0 thru 27.0 | QA / WCO |
| | Final inspections shall be conducted to verify conformance of the waste, containers, and waste certification process to the NNSWAC prior to shipment of the waste. | | QA-00002 checklist | QA / WCO |
| | Records of inspection shall identify the type of inspection, component, service, or process inspected, date of inspection, inspector, inspection results, and action taken if nonconforming conditions are identified. | | QA-00002 checklist | QA / WCO |
| 5.9 | Management Assessment | | | |
| | Management of Waste Certification Program elements described in this document (i.e., Sections 3.0 through 6.0, etc.) shall periodically assess their management processes to ensure conditions that preclude their organization from achieving objectives are identified and corrected. | | PMP-00001 4.2.3 | Prog Mgmt |
| | Management assessment programs / processes shall ensure results of management assessments are documented in a final report and issued to the appropriate organizations) and the WCO for review. | | PMP-00003 4.0 | Prog Mgmt |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

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| 5.1 | Independent Assessment | | The annual assessment activities have been temporarily suspended as a result of the hold placed on D&D operations | |
| | Assessment activities (audits and surveillances) shall be planned, scheduled, and conducted in accordance with a documented and approved process. | | QA-00004 | QA / WCO |
| | Assessment personnel shall be independent of the assessed areas and have sufficient authority and freedom to effectively carry out the assessment activities. | | Assessment performed by independent Boeing QA personnel trained in audit techniques. | QA / WCO |
| | Waste certification programs shall be independently assessed annually to verify compliance with NNSSWAC program requirements to promote process improvement. | | QA-00001 IV 2.0 | Prog Mgmt; QA / WCO |
| | When surveillances are used as the annual assessment, a final report shall be prepared identifying the assessed program elements / activities, conclusions, findings and corrective actions initiated to resolve them and their status. | | N/A; Annual audit is conducted | QA / WCO |
| | Annual independent assessments and/or surveillance roll-up shall be performed and documented by a qualified Lead Auditor. An approved copy of the annual independent assessment report, including any findings issued, shall be forwarded to the RWAP Manager. | | QA-00004 | QA / WCO |
| | The WCO and/or supporting oversight organizations shall schedule and conduct periodic surveillances of specific activities critical to the waste certification program (e.g., personnel training, waste packaging, receipt inspection, control of M&TE, etc.). Personnel performing surveillances shall be qualified in the surveillance process and knowledgeable of the areas being assessed. | | QA-00004 | QA / WCO |
| | Results of assessment activities (audits and surveillances) shall be documented, approved, and reported to responsible management, including the WCO. | | QA-00001 IV 2.0 | QA / WCO |
| | Deficiencies identified during an assessment activity shall be tracked until acceptable resolution is achieved and verified. | | QA-00001 IV 2.0 | QA / WCO |
| 6.0 | Waste Transportation & Receipt Information | | | |
| 6.2 | Shipping Arrangements | | | |
| | 6.2.1 Waste Receipt and Handling at NNS | | | |
| | To expedite waste receipt and handling at NNS, waste generators shall , at a minimum, comply with the following: <ul style="list-style-type: none"> • Prior to departure of a waste shipment to the NNS, attach security seals to the shipping trailer's door latches or to each package if not enclosed in a trailer. • Instruct transport driver on the importance of fully completing the "Drivers Questionnaire" at the NNS before leaving the RWMC. • Enter the following pre-notification information on the HAZTRAK database. (Refer to NNSWAC section for specific communication requirements.) <ul style="list-style-type: none"> - Date and time shipment departed generator site - Estimated date and time of arrival (ETA) at NNS - Shipment number, shipper's name, shipper's contact number - Carrier, driver's name (shall be a U.S. Citizen), driver's license number and state (information shall be legible) - Trailer number, seal number(s), DOT "Proper Shipping Name(s)" - Number of packages, package type (boxes, drums, cargo containers, burrito wraps, etc.) and gross weight - Waste stream number and description of waste | | EID-04482 27.18 & 19.0 | Eng; EHS |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

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| 6.3 | Shipping Documentation | | |
| | 6.3.1 Accountable or Special Nuclear Material Shipments | | |
| | For accountable, or special nuclear material shipments, a "Nuclear Material Transaction Report" (DOE/U.S. Nuclear Regulatory Commission [NRC] Form 741) shall be completed for transfers of nuclear material between facilities having different Reporting Identification Symbols. | N/A, Waste streams do not include materials which would require a form 741 | N/A |
| | The original Nuclear Material Transaction Reports shall accompany the shipment paperwork or submitted via e-mail to wminfo@nv.doe.gov prior to shipment arrival. | Same as above | N/A |
| | Generators shipping waste that require a DOE/NRC Form 741 shall also complete and fax a "Nevada National Security Site – Waste RIS VAB Accountable Nuclear Materials Authorization to Ship Waste" form to (702) 295-4125 seven or e-mail (klamanda@nv.doe.gov or pricem@nv.doe.gov) days prior to shipment. | Same as above | N/A |
| | Generators shall obtain authorization to ship from NNSS Material Control & Accountability (MC&A) prior to shipping the waste to the NNSS. | Same as above | N/A |
| | Applicable shipment numbers shall be included on both the Nuclear Material Transaction Report (DOE/NRC Form 741) and on the Nevada National Security Site – Waste RIS VAB Accountable Nuclear Materials Authorization to Ship Waste Form. | Same as above | N/A |
| | 6.3.2 DOT Regulated Shipments | | |
| | For material regulated by DOT, complete shipping papers with shipper's certification, as required by Title 49 CFR shall accompany each shipment. | EID-04482 27.18 | EHS |
| | A "Uniform Hazardous Waste Manifest" or equivalent state-of-generation manifest, accompanied by the appropriate documentation, shall be used when shipping MW. | N/A, EID-04482 8.0 prohibits shipment of MW to NTS | N/A |
| | 6.3.3 PSDR Submittal | | |
| | The original completed and signed Package Shipment and Disposal Request (PSDR), or the original of an equivalent, shall accompany each shipment. | EID-04482 27.18 | EHS |
| | An electronic version of the PSDR shall be transmitted to NNSS Operations prior to shipment arrival (E-mail address: wldata@nv.doe.gov). Shipments shall not be accepted if an electronic PSDR is not on file. | EID-04482 27.8 | Eng |
| | 6.3.4 Additional Certification Statements | | |
| | An appropriate LLW or LDR Certification Statement shall be signed by an authorized WCO or Alternate WCO for LLW and MW (see 40 CFR 268.7 and page 6-5 for examples). | EID-04482 28.17 | QA / WCO |
| | An appropriate LDR Certification Statement shall be signed by knowledgeable authorized individual, which may include the WCO or Alternate WCO for MW (see Title 40 CFR 268.7 for information required to be included in an LDR certification / notification). The LDR certification/notification is required for the initial shipment of the waste stream or when the waste profile/LDR information changes. | N/A, EID-04482 8.0 prohibits shipment of MW to NTS | N/A |
| 6.4 | Waste Transportation | | |
| | Waste shipments consigned to NNSS shall be made in accordance with applicable DOE, DOT, EPA, state, and local hazardous waste regulations and requirements. | EID-04482 27.7 | EHS |
| | Waste shipments to the NNSS shall be made by "exclusive-use vehicles" only. Sharing of conveyances with other DOE waste generators shipping directly to the NNSS is acceptable. | EID-04482 14.0 | EHS |
| | NNSA/NSO shall be notified when 1) the motor carrier(s) is being evaluated; 2) the motor carrier route selection is being reviewed; 3) a motor carrier discrepancy, noncompliance, or inadequate performance has been identified; or 4) there is a transportation incident or emergency situation. | EID-04482 19.0 Item 5 | EHS; QA / WCO |
| | Generators shall ensure a National Environmental Policy Act (NEPA) analysis (10 CFR 1021) of the potential waste transportation impacts is completed prior to waste shipment. | DOE/EIS-0200-F "Final Waste Management Programmatic Environmental Impact Statement" | Prog Mgmt |
| R8-01 | Radioactive waste transportation to the NNSS, regardless of DOT classification, shall avoid the Hoover Dam Bypass Bridge and Las Vegas. | EID-04482 27.18 | EHS |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

| APP. C | Marking and Labeling | | | |
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| | <p>C.1 Bar Code</p> <p>Barcodes (see Figure C-1) used on packages shall meet the following standards:</p> <ul style="list-style-type: none"> • Code 39 • Low-density to medium-density; low-density preferred. • 1-inch high bar code not to exceed 6 inches wide. • Human readable interpretation (HRI) ½ inch high, printed below the bar code. • Spacing between bar code and HRI will be 1/10 of an inch. • Minimum left and right margin (quiet zones) will be at least 1/25 inch. • Bar codes and HRI will be stacked with a minimum separation of ½ inch and in the following order: shipment number, container number. • A total of two bar code labels shall be placed on each package near the top and on opposite sides. Drums shall have a total of two bar code labels, one on top of the drum lid and one on the side near the top. • Labels shall be <ul style="list-style-type: none"> • Securely attached and able to withstand shipping conditions • Weatherproof and not deform when wet or fade in the sun • Resistant to tearing, peeling, and cracking • Print shall be with permanent indelible ink and legible | | EID-04482 27.2 | Eng; Ops |
| | <p>C.2 Marking & Labeling</p> <p>Packages shall have the following markings and labels:</p> <ul style="list-style-type: none"> • Marking and labeling as required in Title 49 CFR; • For additional asbestos labeling, see Section 3.1.15. • For additional beryllium labeling, see Section 3.1.17. • For additional MW labeling, see Section 3.3.6.1 • Package Certification Label (PCL) (see Figure C-2), signed by the WCO or package certifier. If the waste is unpackaged bulk, a signed PCL shall accompany the shipment papers. • Shipment number in the following sequence: Two alpha character generator-site-designator codes assigned by NNSA/NSO/WMP (see Section C-3); one alpha character for type of waste (L for LLW, M for MW); two numerical characters for current fiscal year; three alpha numerical characters for shipment sequence. This number shall be on the bar code. • Package number shall be six characters (alpha, numeric, or combination) with no duplication within the shipment.7.6 This number shall be on the bar code. • Package weight in units of kilograms and pounds shall be included on the side of each waste package. | | EID-04482 27.0 & 28.0 | Eng; Ops |
| App. D | <p>Package Shipment and Disposal Request (PSDR)</p> <p>The activity of each nuclide in a waste package as documented on the Package Shipment and Disposal Request (PSDR) shall not exceed the corresponding maximum radionuclide concentration specified on the waste profile.</p> | | EID-04482 27.3 & 27.10 | Eng |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

| App. E | Radiological Waste Characterization and Reporting | | |
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| E.1 | Radionuclide Reporting | | |
| | Any radionuclides reported on the PSDR shall also be identified on the WP. (See Appendices D for examples of PSDR.) | EID-04482 27.3 | Eng |
| | Determination of activity concentrations reported on the waste profile (Sections D.5 and D.6) and the PSDR shall be documented and available for review. | RS-00011; EID-04482 25.5 | Rad Safety; Ops |
| | Verification of calculations used to determine the radionuclide concentrations (data results) shall be conducted and documented. | RS-00011; EID-04482 25.5 | Rad Safety |
| | E.1.A Reportable Radionuclides | | |
| | Radionuclides known or reasonably expected to be present in a waste stream shall be reported as follows: | See Below | Eng |
| | 1. The activity concentration of the radionuclides in the final waste form exceeds 1 percent of the Action Level (Table E-1). These radionuclides require rigorous waste characterization and shall be reported on the PSDR and the WP. | EID-04482 10.1 & 27.3 | Eng |
| | 2. Radionuclides that are alpha-emitting and transuranic with a half-life greater than 20 years, that exceed 10pCi/g shall be reported on the WP. The waste mass shall be determined as described in Section E.4. Transuranic waste radionuclides with concentrations that exceed 1 nCi/g require rigorous waste characterization methods and shall be reported on the PSDR and the WP. | EID-04482 10.1 & 27.3 | Eng |
| | 3. Activity concentrations in the final waste form that exceed 1 percent of the total activity concentrations shall be reported on the PSDR and section E.4 of the WP. The total activity concentrations shall include the activity of all radionuclides except for those that are exempt from the reporting requirements as specified below. For these radionuclides and for those present at a level less than the detection limit of industry-accepted characterization methods, Process Knowledge (PK) should be sufficient for characterization. | EID-04482 10.1 & 27.3 | Eng |
| E.3 | Radiological Characterization Methods | | |
| | E.3.B Gross Radiation Measurements | | |
| | Generators using gross radiation measurements shall ensure that measurements correlate with activity concentration on a consistent basis. | RS-00011 App. C | Rad Safety |
| | Radionuclide distributions in the waste stream shall be initially determined and periodically verified through direct measurements or sampling and analysis. | RS-00011 App. C | Rad Safety |
| | Generators shall document all methods used to develop scaling factors which relate gross radiation measurements to the activity concentration. | RS-00011 App. C | Rad Safety |
| | When developing scaling factors, generators shall consider the waste package and detector geometry; shielding and attenuation effects; and the energy spectra and decay schemes of radionuclides in the waste. | RS-00011 App. C | Rad Safety |
| | E.3.D Sampling and Analysis | | |
| | Radiological characterization using sampling and analysis, including swipes taken for characterization, shall be controlled. | RS-00011 5.0 | Rad Safety |
| E.4 | Determination of Waste Volume | | |
| | Waste activity concentration shall be determined based on the volume of the final waste form as offered for disposal. | EID-04482 24.0 & RS-00011 App. C | Ops; Rad Safety |
| | When these conditions are not met, for example when the package contains significant void space or contains irregularly shaped equipment or components, the volume shall be taken as the volume occupied by the waste in the container. | RS-00011 App. C | Ops; Rad Safety |
| | The activity concentration of transuranic radionuclides in units of nCi/g shall be based on the mass of the contents of a single waste container, excluding the mass of the container and any shielding present. | RS-00011 App. C | Ops; Rad Safety |

NEVADA NATIONAL SECURITY SITE WASTE ACCEPTANCE CRITERIA, IMPLEMENTATION CROSSWALK (NIC), REVISION 8-01

| E.7 | Fissile Material Limits | | | |
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| | <p>The quantity of fissile material in a waste package acceptable for disposal shall be demonstrated to meet any of the following:</p> <p>1. Meets criteria specified in 49 CFR 173.453, Fissile Material - Exceptions.</p> | | N/A, Waste stream does not include any enriched U-235 in excess of specified limits | N/A |
| | <p>2. Does not exceed 350 grams of ²³⁵U FGE per package nor does it exceed 2 g of ²³⁵U FGE per kilogram of waste (mass of the package is not included in the mass of the waste)(graphite and beryllium shall not exceed 1% by mass of the waste). FGE is determined by completing Table E.3. Both limits shall not be exceeded. This criteria applies to 55-gallon metal drums or larger containers (i.e., 85-gallon drums, 4x4x6ft metal boxes) and is not applicable to drums <55- gallon or soft sided, wood, plastic containers.</p> <p>3. Does not exceed the limits and the waste package meets the conditions as specified in Table E.4.</p> <p>4. Does not exceed the limits and the waste package meets the conditions as specified in Tables E.5 and E.6.</p> <p>If the waste stream contains enriched uranium . . . effective enrichment is required to be reported with the profile by completing Table E.3 for each enrichment range. The waste shall not exceed the total FGE as specified for the effective enrichment.</p> | | N/A | N/A |
| | | | N/A | N/A |
| | | | N/A | N/A |
| App. F Requirements for Intermodal (Roll-Off Boxes) LLW Disposal | | | | |
| | <p>These requirements are specific to intermodal roll-off containers that will be emptied and returned to the generator facility. Intermodal (roll-offs) containers used for disposal of bulk LLW shall meet applicable NNSSWAC requirements and the following:</p> <ul style="list-style-type: none"> • Prohibited Waste Types: (see Appendix F) <ul style="list-style-type: none"> • Acceptable Waste Types: • Dose rates and Radiological Concerns • Radionuclide Activities • Size, Weight, and Loading • Weights • Liners – Waste shall be placed in a liner within the roll-off container • Marking and Labeling • Container Design • Off-Loading | | EID-04482 15.1 | Eng; Ops; Rad Safety |