Containerized Waste Facility Waste Acceptance Criteria (CWF WAC)

Revision 5

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- ☒ Revision
- ☐ Rewrite
- ☐ Cancellation

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1 PURPOSE AND SCOPE

1.1 Purpose

This procedure is designed to establish a consistent method for assuring that receipt of containerized Class A, Low-Level Radioactive Waste (LLRW) is in accordance with Radioactive Materials License (RML) UT 2300249.

1.2 Scope

This procedure applies to Energy*Solutions* Certified Generators shipping containerized Class A, LLRW to Energy*Solutions*' Containerized Waste Facility (CWF). Customer's responsibilities include obtaining a Disposal Agreement, providing Compact Export Approval, waste profiling, manifesting, packaging, scheduling, shipping/transporting, delivery and all associated required documentation submitted through the Energy*Solutions* online Customer Portal accessible at www.energysolutions.com. This document provides additional information for the Customer(s) concerning Energy*Solutions* support, contacts and schedules. Any deviation from the requirements of this procedure must be approved in accordance with Attachment 5.2, WAC Variance Request Form.

This procedure does not provide the guidance for obtaining Certified Generator status with Energy*Solutions.*

2 REFERENCES

2.1 Energy*Solutions'* ALARA Program, as amended

2.2 CL-CW-PR-001, Containerized Waste Facility Incoming Shipment Acceptance

2.3 Utah Administrative Code (UAC) R313-15, Standards for Protection from Radiation

2.4 NRC Branch Technical Position on Waste Classification, May 1983

2.5 NRC Branch Technical Position on Concentration Averaging and Encapsulation, as amended

2.6 49 CFR, Transportation

2.7 NRC Information Notice No. 83-10: Clarification of Several Aspects Relating to Use of NRC-Certified Transport Packages

2.8 Radioactive Material License UT 2300249, as amended

2.9 10 CFR 71, Packaging and Transportation of Radioactive Material

2.10 Ground Water Quality Discharge Permit UGW450005

2.11 29 CFR 1910, Occupational Safety and Health Standards

2.12 CL-CW-PR-202, Generator Certification

2.13 NUREG/BR- 0204, Instructions for Completing NRC's Low-Level Radioactive Waste Manifest, as amended

2.14 40 CFR 61, NESHAPs

2.15 40 CFR 261, Identification and Listing of Hazardous Waste

2.16 40 CFR 761, PCB Manufacturing, Processing, Distribution in Commerce and Use Prohibitions

2.17 NRC Regulatory Guide 1.86, Termination of Operating Licenses for Operating Reactors

2.18 10 CFR 61, Licensing Requirements for Land Disposal of Radioactive Waste

2.19 10 CFR 20, Standards for Protection Against Radiation

2.20 ES-AD-PR-008, Condition Reports

2.21 Division of Waste Management and Radiation Control (DWMRC) letter dated April 11, 2012, granting a conditional variance for the disposal of sealed sources

3 GENERAL

3.1 Definitions

3.1.1 *Certificate of Compliance* – Document issued by the Utah Division of Waste Management and Radiation Control (DWMRC) specifying a container's approval to be used for transport or disposal.

3.1.2 *Certified Generator* – A generator who has successfully completed Energy*Solutions*' generator certification review process.

3.1.3 *Certified Containerized Waste* – Each waste type (e.g., Dry Active Waste (DAW), resin, solidified waste) identified by a Certified Generator as being generated and managed in accordance with the processes, procedures, and quality assurance controls specified in the generator certification review.

3.1.4 *Certified Containerized Waste Profile Record(C-WPR), CL-CW-PR-202 F1* – The C-WPR describes the waste types subject to the Certified Generator Approval for disposal in the CWF.

3.1.4.1 The C-WPR also provides the generator with a checklist of documents to be submitted for Energy*Solutions*' review.

3.1.4.2 This form also contains a statement that the generator will comply with applicable regulations, Energy*Solutions*' RML and this procedure for shipments to the CWF.

3.1.5 *Class A Low-Level Radioactive Waste (LLRW)* – Radioactive waste that meets both of the following requirements:

3.1.5.1 Meets the classification requirement as stated in UAC R313-15-1009, and

3.1.5.2 Is not high-level radioactive waste, spent nuclear fuel or byproduct material [11e.(2)].

3.1.6 *Compact Export Approval Letter* – Approval required from the low-level radioactive waste compact of origin (including the Northwest Compact), or for

states unaffiliated with a low-level radioactive waste compact, the state of origin, to the extent a state can exercise such approval. Prior to receiving an initial, low-level radioactive waste shipment for disposal from a generator, Energy*Solutions* shall receive documentation that the waste has been approved for export.

3.1.7 *Containerized Waste Facility* – The CWF is a distinct area within the footprint of Energy*Solutions*' Class "A" LLRW Disposal Cell that will be used to dispose of containerized waste.

3.1.8 *Customer Portal* – Energy*Solutions* online system for waste profiling, submitting shipment schedule requests, and validating/uploading manifests prior to shipment. The Customer Portal is accessible at www.energysolutions.com.

3.1.9 *Customer Disposal Agreement* – A contractual agreement between a Customer and Energy*Solutions* to dispose of waste.

3.1.10 *Encapsulation* – The process of centering a waste mass, such as a discrete item, within an approved Utah DWMRC solidification agent (Attachment 5.5) so the classification may be based on the overall volume or mass of the final solidified waste.

3.1.11 *EnergySolutions' Uniform Low-Level Radioactive Waste Manifest* – Documentation that must be completed by a waste generator, collector or processor who transports or offers for transportation, low-level radioactive waste intended for ultimate disposal at a licensed low-level radioactive waste disposal facility. Energy*Solutions* has its own distinct version as defined in Step 4.13. This consists of:

3.1.11.1 NRC Form 540 – Shipping Papers.

3.1.11.2 NRC Form 541 – Container and waste description.

3.1.11.3 NRC Form 542 – Manifest Index and Regional Compact Tabulation, if applicable.

3.1.11.4 Energy*Solutions*' electronic manifest is a CWF-approved manifesting format compatible with Energy*Solutions*' electronic waste tracking system.

3.1.12 *Heavy-duty Closure Device* – Bolts having 5/8 inch or larger diameter.

3.1.13 *High Integrity Container (HIC)* – A container commonly designed to meet the structural stability requirements of UAC R313-15-1009 and to meet Department of Transportation requirements for a Type A package. HICs shall be processed or handled as a liner if the package is not intended to provide stability as prescribed in UAC R313-15-1009.

3.1.14 *Liner* – Cylindrical strong tight container for packaging of radioactive waste. HICs shall be processed or handled as a liner if the package is not intended to provide stability as required in UAC R313-15-1009.

3.1.15 *Non-conforming Shipment* – A non-conforming shipment includes any violation of Energy*Solutions*' license, State or Federal regulations, or this WAC.

3.1.16 *Notice to Transport* – The Notice to Transport (CL-CW-PR-202 F3) is issued via

the Customer Portal to the Customer after Energy*Solutions*' review of the C-WPR has been satisfactorily completed. The generator may begin to schedule shipments only after receipt of a Notice to Transport. The Notice to Transport is generator/site specific.

3.1.17 *Residual Waste* – Low-level radioactive waste resulting from processing or decontamination activities that cannot be easily separated into distinct batches attributable to specific waste generators. This waste is attributable to the processor or decontamination facility, as applicable.

3.1.18 *Shipment Identification (ID) Number* – The Shipment ID Number is assigned by Energy*Solutions* after the review and acceptance of the generator's Advanced Shipment Notification Form, CL-CW-PR-203-F2 (Attachment 5.3) and is accessible within the Customer Portal for the specific shipment.

3.1.19 *Solidified* – Waste that is solidified by a Utah DWMRC-approved solidification agent is a free-standing monolith and has no more than 0.5% of the waste volume as free liquids. (See Attachment 5.5 for a list of approved solidification agents)

3.1.20 *Source Material* – Means: (1) Uranium or thorium, or any combination thereof, in any physical or chemical form, or (2) ores which contain by weight one-twentieth of one percent (0.05%) or more of: (i) uranium, (ii) thorium, or (iii) any combination thereof. Source material does not include special nuclear material.

3.1.21 *Special Nuclear Material (SNM)* – Plutonium, Uranium-233, or uranium enriched in the isotope 233 or in the isotope 235.

3.1.22 *Special Shipment* – Non-routine shipment that requires special handling.

3.1.23 *Stable* - Denotes the term used to describe a waste's structural stability.

3.1.24 *Unstable* – Term which denotes the waste's structural stability. The waste is in a form or a container that is not approved by the Utah DWMRC to meet stability requirements in accordance with the requirements of UAC R313-15-1009(2)(b) and the U.S. Nuclear Regulatory Commission Branch Technical Position on Waste Form.

3.1.25 *Unusual Hazard* – Unusual hazards include, but are not limited to, the presence of neutron emitters in the shipment, spills in or on shipping containers or vehicles, any damage which has occurred to a disposal container or lifting device, airborne or breathing hazard during unloading, etc. Contact Technical Services for specific questions.

3.1.26 *Void* – Spaces within the waste and between the waste and its packaging reduced to the maximum extent practicable.

3.1.27 *Void Remediation* – Containers with voids exceeding the limits specified in Section 4.15.4 shall require void remediation. Void remediation is accomplished by filling the container voids with grout.

3.1.28 *Waste Collector* – An entity, operating under a Commission or Agreement State license, whose principal purpose is to collect and consolidate waste generated by others, and to transfer this waste, without processing or repackaging the collected waste, to another licensed waste collector, licensed waste processor, or licensed

land disposal facility.

3.1.29 *Waste Generator* – An entity, operating under a Commission or Agreement State license, who (1) possesses any material or component that contains radioactivity or is radioactively contaminated for which the licensee foresees no further use, and (2) transfers this material or component to a licensed land disposal facility or to a licensed waste collector or processor for handling or treatment prior to disposal. A licensee performing processing or decontamination services may be a "waste generator" if the transfer of low-level radioactive waste from its facility is defined as "residual waste."

3.1.30 *Waste Processor* – An entity, operating under a Commission or Agreement State license, whose principal purpose is to process, repackage, or otherwise treat low-level radioactive material or waste generated by others prior to eventual transfer of waste to a licensed low-level radioactive waste land disposal facility.

3.2 **Responsibilities**

3.2.1 Business Development – Department within Energy*Solutions* responsible for Customer Disposal Agreements.

3.2.2 CWF Operations Department – Responsible for overall site operations, including, waste handling and disposal. The CWF Operations department is managed by the Operations Manager.

3.2.3 Operations Manager – Responsible for the overall CWF site operations in compliance with Federal and State regulations and Energy*Solutions*' RML.

3.2.4 Radiation Safety Officer (RSO) – Responsible for the overall site environmental and radiological operations and training in compliance with Federal and State regulations and Energy*Solutions*' RML. All Radiation Safety Technicians report to the RSO.

3.2.5 Technical Service Personnel – Technical interface between Energy*Solutions* and the generator. Coordinates generator certification submittals and internal review/evaluation of information. Issues the Notice to Transport once the generator is certified.

3.2.6 Radiation Safety Technicians (RST) – Responsible to the RSO for performing radiological surveys, monitoring personnel and removing all incoming shipping labels and placing outgoing shipping labels

3.2.7 Information Systems Manager – Manager of Energy*Solutions*' Information Systems department responsible for the proper operation of computers, software, hardware and the Energy*Solutions'* Waste Tracking System.

3.2.8 Shipping and Receiving Department – Responsible for the shipping and receiving of radioactive materials, and scheduling of all waste shipments.

3.2.9 Safety and Health Department – Responsible for all site training programs.

3.3 **Records**

None.

4 REQUIREMENTS AND GUIDANCE

4.1 CWF Contact Information

4.1.1 The telephone numbers and e-mail addresses for contacts that are necessary for disposing of radioactive waste at the CWF are provided in Attachment 5.1.

4.1.2 Unless otherwise described in this document, the Technical Services department should be the main point of contact.

4.2 Normal Hours of Operation

4.2.1 The normal hours of site operations are Monday through Friday, 6:30 a.m. to 4:00 p.m. Mountain Time. Energy*Solutions* has a light shift on Wednesdays and requests shipments not arrive on Wednesday's if possible; however, if necessary, accommodations will be made.

4.2.1.1 Deviations from this must be scheduled through the Customer Portal using the revision process, which circulates the change through the Shipping and Receiving and CWF Operations departments.

4.2.2 Corporate Office hours are between 8:00 a.m. to 5:00 p.m., Monday through Friday.

4.2.3 Shipment Acceptance Hours – All shipments, unless previously approved by the Operations Manager, should try to arrive before noon to get unloaded on the day of arrival. If the shipment does not arrive before noon, efforts will be made to unload that day, but it may need to be rescheduled to the next working day. This is necessary to ensure that the shipment can be safely and compliantly offloaded during daylight working hours.

4.3 Holidays

Energy*Solutions* normally observes the following holidays and will be closed for business on the indicated dates or as specifically noted in separate correspondence (any of the following holidays occurring on a weekend will be observed either Friday or Monday):

New Year's Day

Presidents Day

Memorial Day

Independence Day

Labor Day

Thanksgiving Day (includes day after)

Christmas Day (includes day after)

4.4 Pre-shipment Requirements

4.4.1 Each shipment containing wastes with activities totaling 16,000 curies or contact dose rates in excess of 200 R/hr shall contact Technical Services.

4.4.2 Before the receipt of any radioactive waste, a contract, in form and substance acceptable to Energy*Solutions*, certifying compliance with this procedure, and any subsequent changes, shall be in the possession of Energy*Solutions*' Contracts department.

4.4.3 "Collect" freight shipments shall not be accepted at the CWF, unless prior agreement has been made between Energy*Solutions*' Business Development department and the Customer. Demurrage charges, associated with shipments that do not arrive as scheduled, are not the responsibility of Energy*Solutions.*

4.4.4 All Customers who ship waste to the CWF shall be Certified Generators in accordance with CL-CW-PR-202.

4.4.5 All waste shippers shall obtain a Shipment ID Number from the Shipping and Receiving department prior to shipment of waste. The Shipment ID Number is accessible using the Customer Portal.

4.4.6 Radioactive waste shipments that arrive at the CWF without a Shipment ID Number shall be a non-conforming shipment and processed in accordance with Section 4.23.

4.4.7 All shipments shall meet the requirements of 49 CFR and 10 CFR 20, 61 and 71, as applicable.

4.4.8 Individual waste containers may be inspected by Energy*Solutions* upon receipt to determine content and/or physical form.

4.4.9 Rigging (slings, etc.) and other lifting devices, which are attached to packages, must be rated for that package and in good operating condition. Prior to shipping, rigging equipment must be inspected and found to be in compliance with requirements in 29 CFR 1910.184.

4.4.10 When a shipment contains any of the below-listed radionuclides, the Shipping and Receiving department shall be notified by the generator during shipment scheduling:

- Aluminum-26
- Berkelium-247
- Calcium-41
- Californium-250
- Chlorine-36
- Rhenium-187
- Am-241 (in excess of 16.2 Ci)
- Am-241/Be in excess of (16.2 Ci)
- Am-242 (in excess of 16.2 Ci)
- Cf-252 (in excess of 5.4 Ci)
- Cm-244 (in excess of 13.5 Ci)

- Co-60 (in excess of 8.1 Ci)
- Cs-137 (in excess of 27 Ci)
- Gd-153 (in excess of 270.2 Ci)
- Ir-192 (in excess of 21.6 Ci)
- Pm-147 (in excess of 10,810.8 Ci)
- Pu-238 (in excess of 16.2 Ci)
- Pu-239/Be (in excess of 16.2 Ci)
- Ra-226 (in excess of 10.8 Ci)
- Se-75 (in excess of 54.1 Ci)
- Tm-170 (in excess of 5,405.4 Ci)
- Yb-169 (in excess of 81.1 Ci)

4.4.11 Any package exceeding 331 ft^3 or a weight of 20,000 pounds shall have prior approval before shipment.

4.4.12 Energy*Solutions* shall not accept radioactive waste shipments delivered by common carrier (i.e., FedEx) unless prior approval is given (contact Technical Services) and the waste is shipped under Exclusive Use controls.

4.4.13 When a shipment to the CWF accompanies a shipment to the BWF on the same transportation vehicle, note the BWF shipment on the Advanced Notification in the Customer Portal (e.g., "This shipment will be delivered on the same vehicle as BWF Shipment XXXX-YY-ZZZZ"). Waste cannot be shipped in this manner without prior approval from the Shipping and Receiving and Radiation Safety departments. The approval process will begin when the request is completed in the Customer Portal.

4.5 Shipment Documentation

4.5.1 Energy*Solutions*' Uniform Low-Level Radioactive Waste Manifest includes NRC Forms 540/540A, 541/541A and 542/542A, as appropriate. (See Section 4.13).

Note: Waste Collectors and Waste Processors shall submit Form 542.

Note: If waste from multiple generators has been blended during processing (e.g., incineration), the waste must have attribution sheet(s) accompanying the shipment to properly document the generators, and states, to which the waste should be attributed. Any export approvals for these states must be included as well.

4.5.2 The Customer shall include the following with the Shipping Papers:

4.5.2.1 A written statement of any unusual hazards and/or precautions that must be taken, as appropriate. (Step 4.21.10)

4.5.2.2 DOE/NRC Form 741 for Special Nuclear Material (SNM), as appropriate.

4.5.2.3 Conveyance radiological survey.

Note: A copy of the Survey shall be loaded into the Customer Portal (in the attachments tab) prior to shipment departure.

4.6 Off-Loading Schedule

4.6.1 Arriving shipments should be off loaded in the order of arrival, unless conditions require alternative arrangements.

4.6.2 Special shipments should be off loaded in accordance with contractual or other arrangements made in advance.

4.6.3 Casks and other shipments that require non-routine operations for off-loading (such as for ALARA or SNM considerations) may be deferred to an appropriate time for commencement of handling. Generators shall keep the Shipping and Receiving department and Technical Services informed of changes to minimize the impact on scheduling in the Customer Portal.

4.6.4 License and criteria limitations, weather or site ground conditions and equipment availability are all key items that may cause delays or rearrangements of shipments in off-loading.

4.7 Driver Check-in Procedure

4.7.1 Check in with the Security Guard at the Administration Building and park vehicle as directed by security personnel.

4.7.2 Complete required security documentation.

4.7.3 Security will issue a Truck Driver's Badge.

4.7.4 The driver must stay with the waste shipment until it is accepted by Shipping and Receiving and CWF personnel (do not drop the trailer and leave).

4.7.5 The Shipping and Receiving Coordinator will collect the shipping manifest from the driver.

4.7.6 The Shipping and Receiving Coordinator will instruct the driver of the disposal process

4.8 Delays

4.8.1 Energy*Solutions* shall not be responsible for transport equipment detention or special equipment demurrage charges assessed by the carrier. Payment of detention/demurrage charges shall be the responsibility of the Customer.

4.8.2 Energy*Solutions* assumes no responsibility for transport equipment delays or special detention charges assessed by the carrier due to weather delays, improper paperwork, special casks, non-routine off loads, decontaminating vehicles or containers, violation of Federal and/or State requirements or other shipment discrepancies.

4.8.3 Waste received in casks shall remain in the cask until it can be directly disposed with the exception of waste packages that have been identified as needing to be void remediated.

4.9 Radiological Surveys

4.9.1 The Radiation Safety Department will perform dose rate surveys on waste packages and conveyances.

4.9.2 If the manifest and supporting radiological data show a significant difference from that measured on receipt, Energy*Solutions* will contact the generator to determine the reason for the difference.

4.9.3 For comparison purposes, it is recommended that generators shipping to the CWF for disposal use Geiger Mueller instrumentation for waste/transportation dose rate surveys.

4.10 Waste Radiological Analysis MDL/LLD

4.10.1 Energy*Solutions* will require manifests to list radionuclides specified in 10 CFR 20, Appendix G and the NRC's Branch Technical Position for Waste Classification. In addition, Energy*Solutions* requests that generators list any radionuclides, which are statistically significant, even though they may not meet the below criteria:

4.10.1.1 H-3, C-14, I-129, Tc-99

4.10.1.2 Any significant radionuclide listed on UAC R313-15-1009, waste classification tables. Significant being defined as 0.01 times the concentration of that radionuclide listed on Table I or 0.01 times the smallest concentration of that radionuclide listed in Table II. (See Attachment 5.6)

4.10.1.3 Those radionuclides with concentrations greater than 7 uCi/cc, if not listed on Table I or II.

4.11 Waste Scheduling

4.11.1 Shipments are scheduled via the Customer Portal. An Advanced Shipment Notification Form, CL-CW-PR-203-F1, Attachment 5.3 is automatically generated when the schedule request is submitted via the Customer Portal for the generator's records and can be found in the attachments tab of the shipment in the Customer Portal.

4.11.2 The Shipping and Receiving department or Technical Services shall contact the Customer with any questions. The Shipping and Receiving department will review and approve the shipment request via the Customer Portal. Once the shipment schedule request is approved, the CWF Shipment ID Number is provided in the Customer Portal.

Note: The information in the Customer Portal scheduling screens and on the Advanced Shipment Notification Form are used for planning purposes. Delays may occur if the actual shipment deviates significantly from the estimate.

4.11.3 Customers shall update the Shipping and Receiving department of any changes to the information provided in accordance with Step 4.11.1 (e.g., cancellations or other pertinent changes). Updating is done by revising the shipment scheduling information in the Customer Portal.

4.12 Shipment Departure Notification

4.12.1 It is assumed that the shipment will leave the customers site, in a timely manner, to arrive at the site as scheduled in the Customer Portal. If this is not the case, the customer shall notify the Shipping and Receiving department and update the information in the Customer Portal.

4.13 Energy*Solutions*' Uniform LLRW Manifest Forms

4.13.1 The Shipping and Receiving department is required to review manifests for discrepancies. Shipping and Receiving will also use the manifest to prepare disposal plan paperwork. These tasks are accomplished using an advanced copy of Energy*Solutions*' Uniform Low-Level Radioactive Waste (LLRW) Manifest Form 540/541. Generators should upload and verify the 540/541 manifest, in the Customer Portal, upon shipment departure.

4.13.2 Prior to shipment approval the Advanced Shipment Notification Form (CL-CW-PR-203-F20) shall be reviewed and approved by Radiation Safety and CWF Operations.

4.13.3 A signed copy of Energy*Solutions*' Uniform LLRW Manifest shall be uploaded into the Customer Portal in the shipment attachments and a hard copy returned to the shipper within seven days via electronic mail after the shipment has been accepted for disposal.

4.13.4 A letter indicating that the shipment has been received will be sent to the shipper within seven days should acceptance be delayed (e.g., inclement weather, etc.).

4.13.5 Instructions:

The Uniform LLRW Manifest Forms authorized for shipment to Energy*Solutions*' CWF have been modified and are not identical to the NRC's generic Uniform LLRW Manifest. At receipt of waste, the shipper's copy of the manifest (official copy) shall be as described below.

4.13.5.1 Complete Energy*Solutions*' Uniform LLRW Manifest in accordance with NUREG-BR-0204, Rev. 3 Instructions for Completing NRC's LLRW Manifest. Differences are listed below.

FORM 540

4.13.5.2 Block 5:

- Shipment ID Number– Energy*Solutions*-generated number given to the shipper during scheduling.
- Utah Generator Site Access Permit No.–Enter generator-specific site access permit number as issued by the Utah

DWMRC. The Generator Site Access Permit Number must agree with the "Shipper- Name and Facility" listed in Block 5.

4.13.5.3 Block 8, Manifest Number:

Example: XXXX-C-ZZZZ

- XXXX- Generator number
- C- Containerized Waste Facility
- ZZZZ- Shipment number, starting with 0001 and incrementing by one for each additional shipment.

4.13.5.4 Block 9, Consignee: In addition to other instructions, the shipper shall identify the waste is being shipped for disposal to the CWF.

4.13.5.5 Block 9, Contact: Security department.

4.13.5.6 Block 9, Telephone Number: (801) 649-2175

4.13.5.7 Block 16, Total Package Activity: In addition to SI units, units of millicuries are also required.

4.13.5.8 Block 18, Identification Number of Package: This ID number is mandatory and must be identical and readily visible on the waste package.

FORM 541

4.13.5.9 Block 5, Container ID Number/Generator ID Number(s): Unique disposal container identification number, which agrees with the identification number on the disposal container. The container identification number may include both numbers and letters and shall not exceed 15 characters in length. Also indicate identification number(s) of the generator(s) contributing waste to the disposal container. For Waste Collectors and Processors, a unique identification number shall be listed as the first entry in Block 5 (after the container identification number) that specifically identifies the Waste Generator. The generator identification number may include both numbers and letters and shall not exceed 15 characters in length.

Example: 123XYZ/456ABC

- 123XYZ – Container ID Number
- 456ABC – Generator ID Number

4.13.5.10 Block 12, Waste Descriptor: Annotate percent of waste volume of each type of waste material. It is only necessary to list a waste volume that will significantly affect the container density. This is used to calculate an effective density of the container. For example:

- paper, plastic 50%
- metal 25%
- concrete rubble 25%
- resin 25%

Note: **Waste percentages do not need to be listed if the waste package will require void remediation by Energy*Solutions* prior to disposal (refer to Section 4.15.4).**

- When it is not possible to add this information electronically through the manifest generating software application, the shipper shall record the information on the "Additional Notes" page of the manifest. In all cases, this information shall be considered an integral part of the manifest and the certification in Block 10 of Form 540 applies to the information

4.13.5.11 Block 13, Container Waste Volume: Ensure that volume is actual waste volume in the container. Block 13 cannot be the same volume as listed in Block 7, Volume.

4.13.5.12 Block 16, Radiological Description: In addition to other requirements, list significant radionuclides followed by their respective activities

4.13.5.13 Some of the notes at the bottom of the Form 541, such as container types, solidification agents, etc., are not applicable or allowed at the CWF. In those cases, the license and/or WAC must be referenced for approved containers, etc.

FORM 542

4.13.5.14 Block 1, Identification Number: Enter Utah Generator Site Access Permit Number as issued by the Utah DWMRC. This should agree with Block 5 of the Form 540.

4.13.5.15 Block 6A, Waste Description (Nomenclature): Fill in with waste description, as applicable (i.e., resin, soil, concrete, etc.).

4.13.5.16 Block 11.E, Waste Weight: List weight of material attributed to that generator.

4.13.5.17 Block 11.F, Maximum Package Radiation Level: This information is not required by Energy*Solutions*. Either insert "N/A" in the individual generator block or insert the maximum package radiation level. Insert "N/A" for the total at the bottom of the page.

4.14 Special Considerations

4.14.1 All package activity totals and similar information shown on Energy*Solutions*' Uniform LLRW Manifest shall match all accompanying paperwork for a given shipment.

4.14.2 All disposal volume, weights, radiation levels, activities, etc., shall be accurate when the shipment is received for disposal. The activities and weights on the continuation sheets shall equal the totals listed on the manifest cover sheet.

4.14.3 The weights and volumes listed on Energy*Solutions*' Uniform LLRW Manifest must be as accurate as possible. This information is used by CWF personnel to select the proper off-loading equipment for the particular package. Failure to list correct weights (+/- 10%) could result in personnel injury, and/or equipment damage, and/or Utah DWMRC investigation. Discrepancies of this type could result in a substantial penalty charge.

4.14.4 Energy*Solutions* performs random checks of packages (free standing liquids, weight, volume, dose rate, etc.) to determine accuracy of measurements recorded by shippers. Any discrepancies found could result in a Condition Report and/or violation

4.14.5 The Customer shall provide a written statement on or attached to Energy*Solutions*' Uniform LLRW Manifest listing any unusual hazards. (See Step 4.21.10)

Note: **<u>Prior to shipment</u>, notification of unusual hazards shall be made to Technical Services. This information shall be entered during scheduling in the Customer Portal, under the Unusual Hazards field.**

4.14.6 The Customer shall provide a notification and instructions for management for special inserts used as blocking and bracing (shoring) contained within cask shipments. This information shall be entered into the Customer Portal order under the Special Requirements field (or Additional comments / instructions).

4.15 Waste Classification and Packaging

4.15.1 All shipments received at the CWF shall be properly classified and marked in accordance with UAC R313-15-1009 (see Tables I and II Attachment 5.6), the NRC Branch Technical Position on Radioactive Waste Classification, as amended and the NRC Branch Technical Position on Concentration Averaging and Encapsulation, as amended.

Note: **UAC R313-15-1009 is essentially equivalent to 10 CFR 61.55 through 57. The generator must confirm with the latest revision of UAC R313-15-1009 since Utah is an Agreement State.**

4.15.2 Each package shall be durably marked on top of the disposal container (e.g., Class A– unstable or AU).

4.15.3 The Energy*Solutions* Uniform LLRW Manifest shall indicate the waste class for each disposal package listed as marked on the individual package.

4.15.4 All waste containers shall be filled to the maximum extent practical. In addition, voids within the package shall not exceed the limits specified in this section unless approved by Energy*Solutions* for void remediation at the disposal facility.

- 15 percent of container internal volume for containers up to 215 cubic feet external volume;
- 10 percent of container internal volume for containers greater than 215 cubic feet to 331 cubic feet external volume;
- Containers greater than 331 cubic feet external volume require special approval.

4.15.4.1 Containers with voids exceeding the limits specified above shall require void remediation. Energy*Solutions* shall approve of shipments requiring void remediation via the Customer Portal during the scheduling process (refer to Section 4.11).

Note: The volume or mass of non-radioactive material added to meet void requirements shall not be used in the classification determination.

4.15.5 LLRW containing SNM shall comply with Section 4.21.9.

4.15.6 The package identification and other required marking and labeling shall be clearly visible on the shipping package. Special emphasis should be directed to this when wrapping material is placed on the shipping package.

4.15.7 Cardboard boxes, corrugated paper drums and wooden packages are not acceptable containers for disposal at the CWF.

4.15.8 LLRW shall be contained in metal, fiberglass, or plastic/poly containers or Utah DWMRC-approved HICs unless otherwise approved via a WAC Variance Request Form, CL-CW-PR-202-F1 (Attachment 5.2).

4.15.9 Disposal containers shall not be corroded to the point of container degradation. Containers having minor surface rust are acceptable but shall meet, at a minimum, the general packaging requirements of 49 CFR.

Note: Packages that have rust will be susceptible to further inspection.

4.15.10 All boxes must be equipped with skids or non-returnable lifting devices. The use of 2 x 4 boards nailed together is acceptable.

4.15.11 Drums or other containers filled with non-radioactive materials shall not be used for shielding, but may be used for dunnage. All containers of non-radioactive material shall be properly marked and described in the scheduling notes. A statement should be made in the notes that these containers are not waste.

4.15.12 Any supplemental shielding, interior or exterior to the shipping containers, shall be approved by the CWF Operations department (generators should document supplemental shielding during the scheduling process in the

Customer Portal, prior to shipping).

Note: This does not include shielded vans or cask shipments.

4.15.13 A van is not considered a shipping container.

4.16 Van Shipments

4.16.1 Vans with hydraulic lift gates are not acceptable.

4.16.2 Drums

4.16.2.1 Closed vans are the preferred method for a shipment of drums.

4.16.2.2 Drums weighing 1,000 pounds or less shall not be shipped on pallets without prior approval.

4.16.2.3 Drums exceeding 1,000 pounds shall be provided with appropriate lifting devices, which have been approved by the CWF Operations department (document during the scheduling process in the Customer Portal before shipment).

4.16.2.4 Drums weighing greater than 1,000 pounds with the appropriate lifting devices shall be segregated within the same shipment from drums weighing less than 1,000 pounds. Drums of different sizes shall also be segregated within the same shipment.

4.16.2.5 Drums shall not be shipped on their sides.

4.16.2.6 Drum rings and bolts shall be secured properly and be structurally strong enough to support the weight of the drum while offloading.

4.16.2.7 Drums shall comply with 49 CFR. Bulging lids exceeding the height of the closure ring or bulging bottoms extending below the bottom ring of drum shall not be shipped.

4.16.2.8 Drums may be double stacked with proper bracing, provided the heavier drums are on the bottom. Prior approval will be required to ship waste in this manner, contact Technical Services.

4.16.2.9 Each package shall have a top clearance of at least twelve inches in a closed van at the minimum vertical distance.

4.16.3 Packages Weighing Less Than or Equal to 6,000 Pounds

4.16.3.1 Each package shall have a minimum clearance of three inches from the van walls.

4.16.3.2 Packages shall be elevated with skids from the van floor and accessible to a forklift. The use of 2 x 4 boards nailed together is acceptable.

4.16.3.3 Each package shall have a top clearance of at least twelve inches in a closed van at the minimum vertical distance.

4.16.3.4 Steps 4.16.3.1 through 4.16.3.2 are not applicable to drums

4.16.3.5 Dunnage used to establish spacing is typically considered sacrificial. If the generator would like dunnage returned, this needs to be noted prior to shipment. This should be written in the notes section in the Customer Portal scheduling process.

4.16.4 Packages Weighing More Than 6,000 Pounds

4.16.4.1 Packages in excess of 6,000 pounds shall not be shipped in closed, hard top vehicles.

4.16.4.2 Open-topped vans (e.g., covered wagon) or equivalent, including a "box cask," can be used provided lifting devices designed for the package are secured to the top of packages and readily available for easy access.

4.16.4.3 Each package shall have a minimum clearance of three inches from the van walls.

4.16.4.4 Lifting devices shall have prior approval by the CWF Operations department (document during the scheduling process in the Customer Portal before shipping).

4.16.5 Mixed Shipments (Drums, Boxes, Liners)

4.16.5.1 Mixed shipments shall comply with Steps 4.16.2 through 4.16.4, as applicable.

4.16.5.2 Do not stack drums on boxes or boxes on drums.

4.16.5.3 Drums or boxes may be loaded in the forward section of the van with definite segregation of the two types of containers. (ALARA should dictate the placement of containers.)

4.16.5.4 Improperly mixed shipments shall result in an additional off-loading charge or refusal of the shipment.

4.17 Flatbed Trailer Shipments

4.17.1 Flatbed shipments shall comply with Section 4.16, as applicable.

4.17.2 Packages with attached lifting devices are not required to have bottom clearance.

4.17.3 Boxes less than 6,000 pounds and/or drums shipped on flatbed trailers must be loaded in such a manner that they may be off loaded from the side using a forklift.

4.18 Cask Shipments

4.18.1 Failure to observe appropriate requirements shall result in the submission of noncompliance information to the appropriate regulatory agency.

4.18.2 All drums, boxes, liners or HICs shall have appropriate lifting devices.

4.18.2.1 Disposal containers and/or pallets shall have the lifting devices secured at the top of the container or pallet. This is to prevent the cable from becoming caught under or between the

container(s) or pallet(s).

4.18.2.2 Lifting slings, cables, etc. shall be of equal sufficient length (e.g., overlap when lying on the top of the container) so cask-operating personnel can reach the lifting device with a remote operating tool from one side of the cask without direct exposure to the waste package(s).

4.18.2.3 When using pallets, the containers shall be positioned to remain balanced and stable on the pallet when lifted clear of the cask.

4.18.2.4 When tall, slender containers (e.g., demineralizers) are loaded on a pallet inside the cask, the containers shall be tied or secured together at the top to prevent containers from falling off the pallets during offloading.

4.18.2.5 A shipment consisting of individual disposal containers, not on pallets, shall have attached to each container a lifting device that will allow off-loading by a single lift.

Example: Four demineralizers without a pallet would require the use of a "D" ring with a 4-part spreader (spider). Each leg of the spider would be attached to one of the disposal containers' lifting slings.

4.18.2.6 Lifting slings or pallets attached to disposal containers are considered sacrificial and may not be returnable, unless annotated otherwise.

4.18.3 If at all possible, waste classification marking should be placed on the top of the container(s) so it can be observed prior to removing the container from the cask. In special circumstances if the marking is unable to be placed on top of the package (due to ALARA or other reasons) approval for placement on the conveyance must be obtained from the Radiation Safety department prior to shipment (contact Technical Services to obtain this approval).

4.18.4 Disposal containers within casks and internal surfaces of casks may have loose surface contamination levels up to 50,000 dpm/100 cm^2 beta-gamma without prior approval (contact Technical Services to obtain this approval).

4.18.5 During winter months or when ice can form on top or around cask, the shipper should wrap the cask with a rain cover to prevent ice from forming on the working surfaces of the cask.

4.18.6 Drums

A cask shipment containing drum(s) are categorized as follows:

4.18.6.1 Drum(s) with maximum one-meter dose rate less than 500 mrem/hr:

4.18.6.1.1 Prepare drum(s) in accordance with Step 4.18.2. The drum pallet will be returned to the customer.

4.18.6.2 Drum(s) with maximum one meter dose rate equal to or greater than 500 mrem/hr:

4.18.6.2.1 Place drum(s) on drum pallet.

4.18.6.2.2 If there are not enough drums to justify a drum pallet, contact Technical Service for further discussion.

4.19 Contamination Limits of Packages/Vehicle

4.19.1 The receipt of excessive surface contamination on containers in casks or otherwise, is very undesirable from the standpoint of ALARA and contamination control. Customers should use reasonable means to ship containers with minimal surface contamination to the maximum extent practical. Shipping packages shall not contain waste material outside of the disposal package. Waste packages may be wrapped for contamination control with prior approval from the Radiation Safety department. If this option is needed, contact Technical Services to obtain this approval before loading the package into the cask,

4.19.1.1 With the exception of cask shipments (see Step 4.18.4), all packages and vehicles received at the CWF shall comply with the contamination control limits of 2,400 dpm/100 cm^2 beta-gamma and 240 dpm/100 cm^2 alpha, without prior approval.

4.19.1.2 Loose surface contamination on and between packages that may be obscured by various barriers (e.g., impact limiters, base plates) shall be considered. Contamination limits for the package, the barrier and the vehicle shall comply with 49 CFR and Reference 2.7.

4.19.1.3 In general, containers with loose surface contamination can be received. Contact the Shipping and Receiving department prior to shipment of any smearable contamination in excess of Step 4.19.1.1 on the disposal container(s).

Note: **E-mail is preferred for this contact at cwf@energysolutions.com**

4.19.1.4 Disposal containers that have been wrapped to prevent spread of loose contamination shall have approval from the Shipping and Receiving department (document during the scheduling process in the Customer Portal).

4.19.1.5 The Customer shall notify the Shipping and Receiving department, prior to departure, of any shipment that has the potential for causing airborne contamination under normal handling conditions and/or has contamination exceeding the limits specified in 49 CFR.

Note: **E-mail is preferred for this contact at cwf@energysolutions.com**

4.19.2 Floor Covering

Plywood or other materials that are placed over the transport vehicle's flooring for contamination control shall be considered sacrificial.

4.20 Contamination Release Limits for Vehicles Exiting the CWF

4.20.1 In accordance with 49 CFR 173.443(d), enclosed vehicles used solely for the transport of radioactive materials (Exclusive Use) and properly marked "For Radioactive Materials Use Only," in accordance with 49 CFR.

4.20.1.1 Fixed contamination shall not exceed 10 mrem/hr on contact with the interior surface or 2 mrem/hr at one meter from the interior surface.

4.20.1.2 Removable contamination shall not exceed 240 dpm/100 cm^2 alpha and 2,400 dpm/100 cm^2 beta-gamma in the interior or on the exterior of the vehicle.

4.20.2 In accordance with 49 CFR 173.443, enclosed vehicles used solely for transport of radioactive material (Exclusive Use) and NOT marked according to Step 4.20.1:

4.20.2.1 Fixed contamination shall not exceed 0.5 mrem/hr at any accessible surface

4.20.2.2 Removable contamination for beta-gamma shall not exceed 2,400 dpm/100 cm^2.

4.20.2.3 Removable contamination for alpha shall not exceed 240 dpm/100 cm^2.

4.20.3 In accordance with 49 CFR 173.428, empty cask (Empty packaging, UN 2908)

4.20.3.1 Fixed contamination shall not exceed 0.5 mrem/hr at any exterior surface.

4.20.3.2 Removable external contamination for beta-gamma shall not exceed 2,400 dpm/100 cm^2 beta-gamma or 240 dpm/100 cm^2 alpha.

4.20.3.3 Internal contamination shall not exceed 240,000 dpm/100 cm^2 beta-gamma and 24,000 dpm/100cm^2 alpha.

4.20.4 Conveyances that cannot be released as stated above may be delayed and the Customer may incur additional charges.

4.21 Special Categories

4.21.1 Dry Active Waste (DAW)

4.21.1.1 DAW consists of paper, plastic, contaminated metals, building rubble, air filters, etc.

4.21.1.2 DAW must be packaged and classified for disposal in accordance with Energy*Solutions* RML UT 2300249 and Section 4.15.

4.21.2 Biological, Pathogenic or Infectious Contaminated Material

4.21.2.1 Animals and by-products, including dried blood, are considered biological material. Glassware, sharps, lab equipment or any material that at one time was subjected to or contained these materials may also be considered biological, pathogenic or infectious contaminated material.

4.21.2.2 Untreated biological, pathogenic or infectious material is prohibited from disposal within the CWF.

4.21.2.3 Animal remains, with the exception of skeletal remains only, are prohibited from disposal at the CWF.

4.21.2.4 The generator shall document (certify) the treatment of the waste and its efficacy or provide explanation and certification of why the radioactive waste does not require treatment. This will be completed as part of the Generator Certification process.

4.21.3 Sealed Sources

Sealed source disposal at the CWF is prohibited as specified in RML condition 16. Attachment 5.7. contains a flowchart that provides further guidance on determining when items should be considered a sealed source for disposal purposes.

4.21.4 Liquid Radioactive Waste (solidified)

Liquid radioactive waste shall be solidified with a Utah DWMRC-approved solidification agent with no liquid exceeding 0.5% of the volume of the waste. The waste must contain as little free standing and non-corrosive liquid as is reasonably achievable.

4.21.5 Solid Wastes Containing Free Standing Liquids

4.21.5.1 Solid waste containing liquid shall contain as little free standing and non-corrosive liquid as is reasonably achievable, but in no case shall the liquid exceed 1% of the waste volume.

4.21.5.2 Absorbent material may be placed in packages of dry, solid waste to absorb unintentional and incidental amounts of liquids.

4.21.6 Scintillation Products and Containers

4.21.6.1 Scintillation products that are characteristic or listed hazardous wastes as defined by RCRA are prohibited at the CWF.

4.21.6.2 Solidified or processed scintillation products that are no longer characteristic hazardous waste, but were prior to solidification/processing, are also prohibited at the CWF.

4.21.6.3 Non-hazardous scintillation products shall be solidified prior to shipment.

4.21.7 Oil

4.21.7.1 Petroleum-based oils, regardless of waste form, are not acceptable for disposal at the CWF.

4.21.7.2 Waste containing incidental or trace amounts of absorbed oil are acceptable, providing they do not exceed one percent (1%) of the waste volume in a container. Waste streams cannot be blended or mixed to obtain compliance.

4.21.8 Pyrophoric Materials or Flammable Solids

4.21.8.1 Pyrophoric materials and flammable solids are prohibited from disposal at the CWF.

4.21.9 Special Nuclear Material

4.21.9.1 The maximum amount of SNM that Energy*Solutions*' CWF may possess, undisposed of at any one time, shall not exceed 350 grams U-235, 200 grams U-233 and 200 grams Pu, or any combination of them in accordance with the following formula:

$$\frac{\text{grams U-235}}{350} + \frac{\text{grams U-233}}{200} + \frac{\text{grams Pu}}{200} \text{ not to exceed } 1$$

4.21.9.2 Annotate the quantity of SNM on the scheduling form within the Customer Portal as described in Step 4.11.

4.21.10 Unusual Hazards

4.21.10.1 Unusual hazards include, but are not limited to, spills in or on shipping containers or vehicles, any damage that has occurred to a disposal container or lifting device, etc.

4.21.10.2 The Shipping and Receiving department and the CWF Operations department approval is required prior to departure of any shipment with unusual hazards to the site. This approval shall be documented in the Customer Portal. See the note on Step 4.14.5 regarding the required notification for unusual hazards.

4.21.10.3 The shipper shall provide a written statement on or attached to Energy*Solutions*' Uniform LLRW Manifest containing information as to unusual hazards.

4.21.10.4 Wind, weather or other site hazards may delay off-loading this type of shipment.

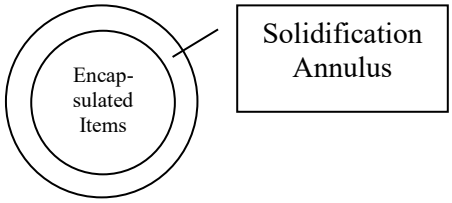
4.21.11 High Integrity Containers

4.21.11.1 All ion exchange resins, liquid filters and/or liquid filter media and sludges shall contain as little free standing and non-corrosive liquid as is reasonably achievable, but in no case shall the liquid

contained be in excess of 1% of the waste volume. This shall be accomplished by dewatering or by using Utah DWMRC-approved solidification agents (Attachment 5.5).

4.21.11.2 Liquid cartridge filters and other acceptable discrete items may be encapsulated and classified by concentration averaging in accordance with the NRC Branch Technical Position on Concentration Averaging and Encapsulation, as amended.

4.21.11.2.1 The discrete item(s) must be encapsulated on all sides by a Utah DWMRC-approved solidification agent (see Attachment 5.5), and reasonably centered within the container. A minimum of one inch of solidification agent must encapsulate the item(s) within the disposal container. This may be accomplished by placing a smaller container inside a larger container with one-inch of solidified media at the bottom of the container and then placing the solidified agent around (including top) and inside the inner container as shown below.



4.21.11.3 Use of absorbents is only allowed for incidental and unintentional liquids only.

4.21.11.4 Resins can only be disposed in HICs or liners and must meet the void criteria in Step 4.15.4. HICs shall be processed or handled as a liner if the package is not intended to provide stability as required in UAC R313-15-1009.

Note: Resin can only be used as fill material in HICs or liners.

4.21.12 Chelating Agents

In accordance with Energy*Solutions*' Ground Water Quality Discharge Permit, waste containing chelating agents in excess of 0.1% by weight are prohibited for disposal at the CWF.

4.21.13 Lead

Lead used as shielding, an integral part of the waste component, or as waste itself is prohibited for disposal at the CWF.

4.21.14 Mixed Waste

4.21.14.1 Hazardous waste as defined by RCRA, including characteristic

or listed wastes, are prohibited from disposal at the CWF.

4.21.14.2 Characteristic hazardous waste, which has been treated for the characteristic hazard is prohibited from disposal at the CWF.

4.21.15 Polychlorinated Biphenyls (PCBs)

Waste containing PCBs, as outlined in 40 CFR 761, is prohibited from disposal at the CWF.

4.21.16 Asbestos

Containers which contain asbestos shall comply with 29 CFR 1910.1001 and 40 CFR 61.

4.21.17 Radium Wastes

4.21.17.1 Radium waste must be classified in accordance with Section 4.15.

4.21.17.2 Radium contained in self-luminous dials, hand dials, timepieces, compasses and electron tubes are not acceptable at this time.

4.21.17.3 Radium sources are not acceptable for disposal at this time.

4.21.18 Incinerator Ash

4.21.18.1 Incinerator ash waste shall be solidified or treated in such a manner as to be rendered non-dispersible in air, exclusive of packaging.

4.21.19 Gaseous Waste

4.21.19.1 Gaseous waste will be considered for disposal on a case-by-case basis. Contact Technical Services for information regarding compliance with the internal pressure and maximum permitted void requirements stated in RML UT2300249, as amended.

4.22 Nonconforming Shipments

4.22.1 The Customer shall be notified of any non-conformance.

4.22.2 The Utah DWMRC shall be notified of any nonconforming shipments that violate applicable regulations or license conditions.

4.22.3 Depending on the severity of the non-compliance, the generator's Notice to Transport may be rescinded and the Customer may be required to submit a Corrective Action Plan.

4.22.4 When deemed necessary, the shipment may be returned to the Customer.

4.22.5 The Customer shall be billed for any special services, detention, and additional handling charges on nonconforming shipments.

4.22.6 Energy*Solutions* shall follow procedure ES-AD-PR-008, Condition Reports.

4.23 WAC Variance Request Form

4.23.1 The generator shall complete the WAC Variance Request Form (CL-CW-PR-202-F1) when a waste shipment or package does not comply with one or more conditions required by the WAC. This form shall be submitted to Technical Services.

4.23.2 Technical Services reviews and obtains signatures from the RSO, Operations Manager, Director of Quality Assurance and the Shipping and Receiving Manager.

4.23.3 Technical Services submits the signed form to the generator and Document Control with the approval or denial information completed.

5 ATTACHMENTS AND FORMS

5.1 CWF Contact Information

5.2 WAC Variance Request Form (CL-CW-PR-203-F1, Example)

5.3 Advanced Shipment Notification Form (CL-CW-PR-203-F2, Example)

Note: Form for example only. The form is created when shipment is completed in the Customer Portal and can be found in the attachments tab.

5.4 Instruction for Completing the Advanced Shipment Notification Form in the Customer Portal.

5.5 CWF Approved Solidification Agent List

5.6 Classification Tables from UAC R313-15-1009

5.7 Sealed Source Flowchart

Attachment 5.1 -CWF Contact Information

Energy*Solutions* Clive Site Security Phone	801-649-2175
Energy*Solutions* Corporate Phone	801-649-2000
Technical Services:	
Tim Orton, Director of Technical Services	801-649-2144
Jake Gardner, VP of Technical Services	801-836-1555
Veronica Pitts, Technical Services Customer Specialist	801-649-2139
CWF e-mail address	clivecwf@energysolutions.com
Customer Portal Access	www.energysolutions.com (Customer Portal button in upper right)
Utah DWMRC – Site Access Permit	801-536-0200
Utah DWMRC Fax	801-536-0222
Utah DWMRC Web Sites	https://deq.utah.gov/division-waste-management-radiation-control or https://secure.utah.gov/gsapa/index.html

Attachment 5.2 -WAC Variance Request Form (CL-CW-PR-203-F1, Example)

ENERGYSOLUTIONS

CL-CW-PR-203 F1
Revision 2

WAC Variance Request

1.0 Generator Information*

Generator Name _____

Generator No. _____

Utah Generator Site Access Permit No. _____

Contact Name/Email Address _____

Contact Phone/Fax Number _____

Submittal Date _____

2.0 Variance Information*

Section/Step of WAC _____

Description of Variance _____

Reason or Justification for Variance _____

Submit completed form to Technical Services Manager.
* Required information by generator.

3.0 Energy*Solutions* Review

License Amendment Required: Y ☐ N ☐ _____
RSO

4.0 Energy*Solutions* Variance Response

Approved	☐	Manager, Waste Disposal Operations	_____	Date	_____
Denied	☐	Comments			
Approved	☐	Quality Assurance Manager	_____	Date	_____
Denied	☐	Comments			
Approved	☐	Radiation Safety Officer	_____	Date	_____
Denied	☐	Comments			
Approved	☐	Sr Vice President of Technical Services	_____	Date	_____
Denied	☐	Comments			

Attachment 5.3 - Advanced Shipment Notification Form (CL-CW-PR-203-F2, Example)

ENERGYSOLUTIONS

CL-CW-PR-203 F2
Revision 2

Advance Shipment Notification

1.0 Generator Information

Generator Name _____
Shipment No. _____
*Utah Generator Site Access Permit No. _____
Contact Name/Email Address _____
Contact Phone/Fax No. _____
Submittal Date _____

2.0 Shipment Information

Requested Delivery Date _____ ☐ Highway ☐ Rail
Total Activity (mCi or curies) _____
Maximum Contact Package Dose Rate (mR/hr or R/hr - if more than one package, highest individual dose rate) _____
Percent of Each Waste Descriptor by Volume (Refer to CWF WAC Section 4.13.4.10) _____
Disposal Volume (ft^3) _____
Container Gross Weight (lbs) (if more than one pkg, list highest individual gross wt and total number of disposal packages) _____
Cask Model Number (if applicable) _____
HIC or Liner Model Number (if applicable) _____ ☐ Grapple ☐ Slings
Conveyance Type (e.g., van) _____
Void Remediation Required at CWF (See Section 4.15.4 of CWF WAC) No ☐ Yes ☐
Any Special Isotopes** (list) _____
SNM (grams) _____
Unusual Hazards*** _____
Special Requirements (Describe) _____
Cask or Conveyance Return Address (if applicable) - List company name, address,and phone number) _____

* As listed in Block 5 of Form 540.
** See Section 4.4.10 of the CWF WAC; in addition, list any activated metal isotopes (C-14, Ni-59, Nb-94, Ni-63)
*** See Section 4.21.10 of the Waste Acceptance Criteria.

3.0 For Energy*Solutions* Use Only

Shipment ID No. _____
Scheduled Delivery Date _____
CWF Operations Approval _____ Date _____
RSO Approval _____ Date _____

Attachment 5.4 - Instruction for Completing the Advanced Shipment Notification Form

1.0 Generator Information

Generator Name	Provide the company name of the Certified Waste Generator
Shipment No.	Provide the Certified Waste Generator Shipment Number (e.g. 1090-C-0001)
*Utah Generator Site Access Permit No.	Provide the Utah Generator Site Access Permit Number
Contact Name/Email Address	Provide the name and email address of an individual to be contacted for questions regarding this shipment.
Contact Phone/Fax No.	Provide the phone and fax number of the individual to be contacted
Submittal Date	Provide the date on which this form is submitted to Energy*Solutions*

2.0 Shipment Information

Requested Delivery Date	Indicate the date on which the shipment will arrive at Energy*Solutions* (The shipment must arrive prior to 09:00 AM). Also, indicate by checking the appropriate box the mode of transport. ☐ Highway ☐ Rail
Total Activity (mCi or curies)	Provide the total activity for the shipment and the appropriate units
Maximum Contact Package Dose Rate (mR/hr or R/hr) (if more than one package, highest individual dose rate)	Provide the Maximum contact dose rate for any package in the shipment
Percent of Each Waste Descriptor by Volume (Refer to CWF WAC Section 4.13.4.10)	Provide the percentage of each waste type
Disposal Volume (ft^3)	Provide the disposal volume of the waste/container
Container Gross Weight (lbs) (if more than one pkg, list highest individual gross wt and total number of disposal packages)	Provide the highest individual container gross weight. For multiple container shipments provide the number of containers.
Cask Model Number (if applicable)	Provide cask model number (e.g. 8-120B)
HIC or Liner Model Number (if applicable)	Provide the liner model number. ☐ Grapple ☐ Slings
Conveyance Type (e.g., van)	Provide the conveyance type (e.g. van, flatbed, etc)
Void Remediation Required at CWF (See Section 4.15.4 of CWF WAC) With prior approval, EnergySolutions will remediate container void space for disposal containers not meeting the specified void criteria.	
Any Special Isotopes** (list)	See Section 5.4.10 of the Waste Acceptance Criteria; in addition, list any activated metal isotopes (C-14, Ni-59, Nb-94, Ni-63)
SNM (grams)	List the total grams of U-235, U-233 and Pu
Unusual Hazards***	See Section 6.10.10 of the Waste Acceptance Criteria.
Special Requirements (Describe)	Describe any special requirements for the shipment.
Cask or Conveyance Return Address (if applicable) - List company name, address, and phone number)	List company name, address, and phone number) where cask is to be returned

* As listed in Block 5 of Form 540.

** See Section 4.4.10 of the Waste Acceptance Criteria; in addition, list any activated metal isotopes (C-14, Ni-59, Nb-94, Ni-63)

*** **See Section 4.21.10 of the Waste Acceptance Criteria.**

3.0 For Energy*Solutions* Use Only

Shipment ID No.			
Scheduled Delivery Date			
CWF Operations Approval		Date	
RSO Approval		Date	

Attachment 5.5 - CWF Approved Solidification Agent List

1. Aquaset I and II
2. Aztech (General Electric)
3. Bitumen(Waste Chem and ATI)
4. Concrete (structural)
5. Vinyl Ester Styrene (VES)
6. Veri Solidification Process
7. Envirostone
8. Portland cement
9. Petroset I and II
10. Safe T Set
11. Petroset- H
12. Aquaset- H
13. Advanced Polymer

Attachment 5.6 - Classification Tables from UAC R313-15-1009

Table I

Radionuclide	Ci/m^3	nCi/g
C-14	**8**	**n/a**
C-14 in activated metal	**80**	**n/a**
Ni-59 in activated metal	**220**	**n/a**
Nb-94 in activated metal	**0.2**	**n/a**
Tc-99	**3**	**n/a**
I-129	**0.08**	**n/a**
Alpha-emitting transuranics		**n/a**
> 5 year T 1/2	**n/a**	**100**
Pu-241	**n/a**	**3,500**
Cm-242	**n/a**	**20,000**
Ra-226	**n/a**	**100**

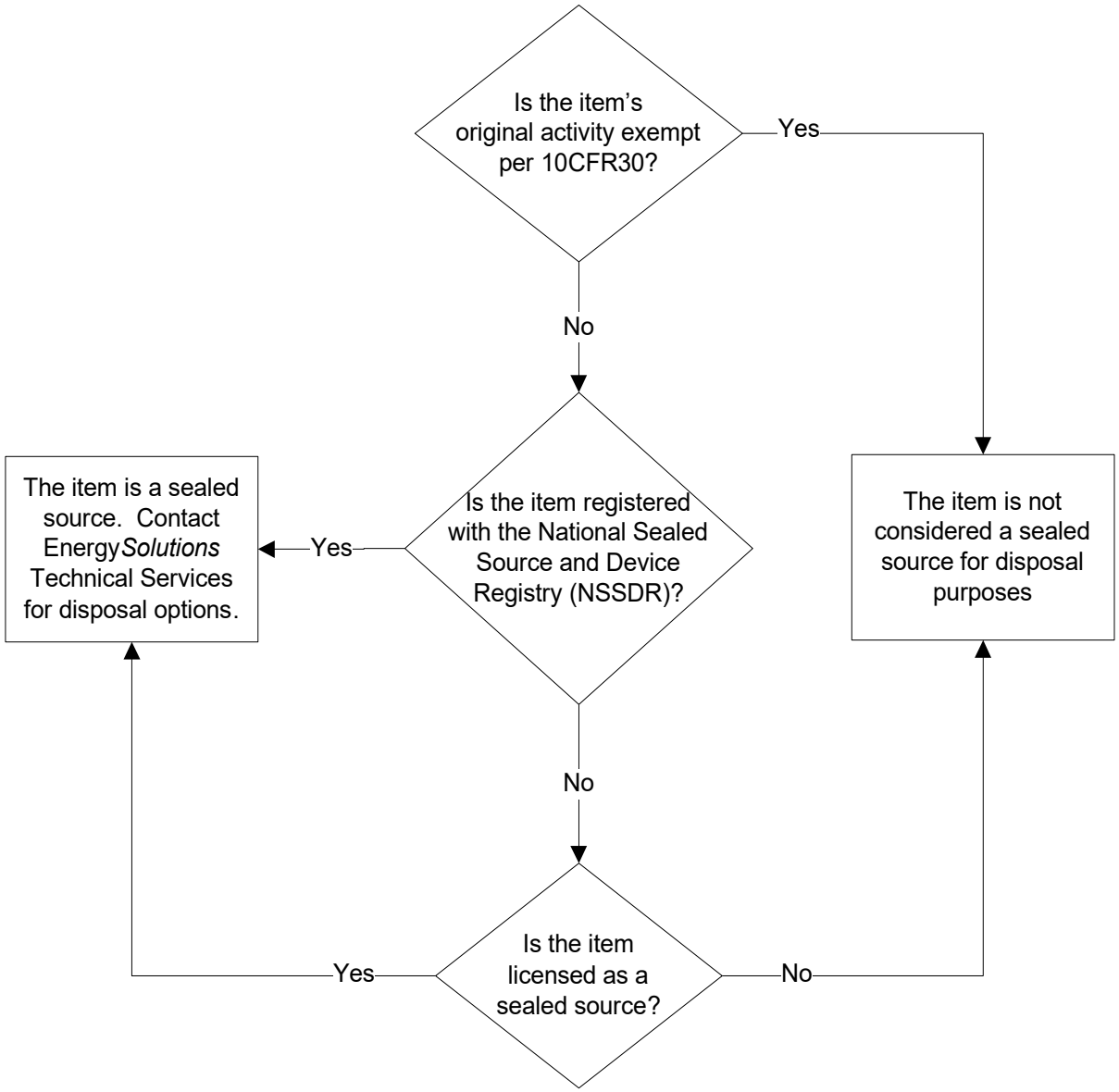
Table II

Radionuclide	Column 1 Ci/m^3	Column 2 Ci/m^3	Column 3 Ci/m^3
Total of all radionuclides		n/a	n/a
<5 year T 1/2	700		
H-3	40	n/a	n/a
Co-60	700	n/a	n/a
Ni-63	3.5	70	700
Ni-63 in activated metal	35	700	7,000
Sr-90	0.04	150	7,000
Cs-137	1	44	4,600

Attachment 5.7 - Sealed Source Determination Flowchart

5.7.1 Utah Administrative Code R313-12-3 defines a “sealed source" as a radioactive material that is permanently bonded or fixed in a capsule or matrix designed to prevent release and dispersal of the radioactive material under the most severe conditions which are likely to be encountered in normal use and handling.

5.7.2 The following flowchart provides further guidance on determining when items should be considered a sealed source for disposal purposes.



CL-AD-PR-004, F3

DOCUMENT SUMMARY FORM FOR WASTE ACCEPTANCE CRITERIA ONLY

Please provide the following information for new/revised documents.
Forward the completed form to Document Control once signatures are obtained.

Document No.: **CL-CW-PR-203** Revision No.: **5**

Title: **Containerized Waste Facility Waste Acceptance Criteria (CWF WAC)**

Special Status (i.e. Restricted; SSI; etc.): **none**

If special status is applicable, please note any special distribution/handling requirements:

Summary of changes (if this is a revision):
The revision was made to update current titles and address shipments being processed through Customer Portal. Points of contact were also clarified. In addition, a thorough review of the procedure was completed, resulting in rephrasing and reformatting sections for clarification and the removal of items and/or processes that no longer occur in CWF or are detailed in other procedures (e.g., Large Components, Unrestricted Release, etc.).

Notified By: Veronica Pitts Date: 2022.12.12 14:44:10 -07'00'
Veronica Pitts, Technical Service Customer Specialist — Date

Notification Received by: Timothy L. Orton Digitally signed by Timothy L. Orton Date: 2022.12.08 15:57:55 -07'00'
Tim Orton, Director of Technical Services — Date