

THE USE OF ELECTRONIC DATA TRANSFER TO MANIFEST WASTE

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ABSTRACT

Envirocare has implemented the use electronic data transfer to submit manifest information. The presentation will describe Envirocare's manifesting requirements. It will include: software operating requirements; how to fill out NRC 540, 541 and 542 forms; signature requirements and a description of those instances where paper forms are still required.

INTRODUCTION

This paper discusses the advantages and requirements of electronic waste manifests for radioactive waste shipments, as it applies to Envirocare of Utah, Inc. Envirocare has been integrating a single, site wide electronic data base to manage all aspects of waste processing. Due to the diversity of the types of waste Envirocare's customers and the management requirements of the same waste, the design of a single electronic data system that will handle all situations has been challenging. Envirocare has been successful in implementing and upgrading a diversified electronic data managing system.

Currently Envirocare uses an ORICAL based electronic data management system. This is an upgrade from the FOXPRO electronic data based initially used by Envirocare. ORICAL has greater capabilities for expansion of data processing. Shipment acceptance, onsite chemistry analysis, waste storage, waste disposal, waste treatment tracking data has been consolidated into the data base. Envirocare is integrating the use of bar coding for improved tracking of waste. Also, the system is scheduled for expansion to include employee training, bioassay, Radiation Work Permits, and worker access into restricted areas.

The Envirocare's data base is capable of managing all incoming waste information required of the generator. It is compatible with the Low-Level Radioactive Waste Inventory Management System (Low-Track), a computer data base developed by Lockheed Martin Idaho Technologies Company. The use of electronic data greatly increases the efficiency and accuracy of Envirocare's ability to manage waste.

With the assistance of generators, sending information electronically will greatly increase ability of Envirocare to manage their shipments. The advantage of electronic manifests are:

- Eliminates clerical errors when transferring information into electronic system,
- Decreases review time with the ability to generate reports,

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- And increases the ability to perform QC checks with programs that perform calculations such as Class A checks.

DISCUSSION

General Requirements

With the management of hazardous waste in accordance with all regulatory requirements, Envirocare requires its customers certain documentation and time frames for the documentation for timely processing of waste. In general this is the required documentation required for management of waste at Envirocare:

Pre-Shipment Analysis: Prior to shipping of waste to Envirocare, the generator must characterize the waste chemically, physically, and radionuclides present. This is done by using a Utah certified lab and sending a sample set to Envirocare. Utah's Division of Environmental Quality requires Envirocare to sample incoming waste shipments and compare the analysis to the generator's waste characterization.

Note: Ensure a representative sample is sent, otherwise there may be unnecessary failures of samples of incoming shipments.

Waste Profile Record: Prior to shipping waste to Envirocare, the generator is required to complete a Waste Profile Record of each waste stream intended for shipping and disposal at Envirocare. The WPR is used for approval of waste streams that are within license limits. Envirocare also uses the WPR for worker and environmental protection.

Note: The more detail provided and accurate the ranges, the more efficient the design of the management of the waste.

Notice to Transport: As required by the Department of Transportation, a current Notice to Transport must be maintained by those intending to transport hazardous waste on federal highways. The state of Utah like many other states have similar requirements on state roads.

Note: For Mixed Waste, waste that is both radioactive and hazardous, the Notice to Transport must be updated at least annually to be current.

PCB Certification: Prior to shipping waste to Envirocare, generators with PCB waste must send a PCB certification to Envirocare.

Hazardous Waste Manifest: Required when hazardous waste meets requirements of the EPA. This form is required to accompany the shipment with the exception of rail shipments. This form is specifically requires a handwritten signature of the consignee.

Uniform Low-Level Radioactive Waste Manifest: Required by the NRC for radioactive shipments. The manifest includes:

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- Forms 540 and 540A is the Shipping Paper of the Uniform Low-Level Radioactive Waste Manifest. It is based on the Department of Transportation regulations requirements found in the Code of Federal Regulations Title 49. Form 540A is the continuation page(s), used as needed.
- 541 and 541A is the container and waste description of the Uniform Low-Level Waste Manifest. Form 541A is the continuation page(s), used as needed.
- 542 and 542A is the manifest index and Regional Compact Tabulation of the Uniform Low-Level Waste Manifest. The completion of this portion is required for processors and collectors of low-level radioactive waste who are shipping waste attributed to others for ultimate disposal at a licensed land disposal facility. Form 542A is the continuation page(s), used as needed.

Radionuclide Shipment Summary: Currently required by Envirocare for shipments with multiple containers. This is a list of radionuclides in the shipment, the total activities and concentrations. Both SI (Bq) and standard (mCi) units are requested. This information is used for general review of the shipment.

SNM Exemption: Requirements given in Envirocare's Radioactive Materials License. The form accompanies the Uniform Low-Level Radioactive Waste Manifest for shipments with enriched Uranium or Plutonium. Reviewed for completeness.

Form 741 (SNM inventory): While use of this form is not required by Envirocare, NRC requires inventories to be maintained by non-DOE generators with SNM. DOE generators follow requirements as required by the DOE. Envirocare will receive and sign form to be returned to generator.

The time frame of Envirocare for the generator is to have Pre-shipment analysis, WPR, and Notice to Transport well in advance of shipment. The WPR is reviewed by the Director of Operations, Corporate Radiation Safety Officer, and the Environmental Compliance Officer for accuracy, license compliance and management concerns. Upon approval of WPR, the generator is required to notify Envirocare at least five days in advance of intent to ship waste to Envirocare. This allows time for review and preparation of the facility for management of the waste.

Next, a three day advance manifest is requested from the generator. Manifests sent electronically is encouraged. This manifest does not require signature but, requires accuracy to help in process of shipment.

Truck shipments require to have a hard copy of the manifest in the cab of the truck. Envirocare will use this manifest to compare to information already received. Rail shipments do not require to have a hard copy of the manifest. In these cases either the

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generator manually mails manifest to Envirocare prior to arrival of the shipment or, arranges agreement to use electronic mail and electronic signature for authorization of the shipment.

Requirements and Use of The Uniform Low-Level Radioactive Waste Manifest:

When completing the Uniform Low-Level Radioactive Waste Manifest, shippers of hazardous waste should keep in mind the regulations requirements. Below are several references for regulatory requirements:

- NUREG/BR-0204, Instructions for Completing NRC's Uniform Low-Level Radioactive Waste Manifest, instructs the reader step by step in completion of forms 540, 541, and 542.
- Code of Federal Regulations Title 20, Part 10, Appendix G gives NRC's general regulatory requirements for shipping radioactive waste and use of the Uniform Low-Level Radioactive Waste Manifest.
- Code of Federal Regulations Title 49, gives DOT's requirements for Hazardous Waste shipping. This Title does not discuss the Uniform Low-Level Radioactive Waste Manifest but, gives the requirements for use of proper shipping name, labeling and placard requirements, radiation dose limits, and other shipping requirements.
- Code of Federal Regulations Title 10, Part 61 gives the NRC's requirements for near surface disposal facilities that include acceptance and reporting of incoming waste shipments.
- Code of Federal Regulations Title 40 applies to shipment and management of hazardous waste as required by the EPA.
- The State of Utah Regulations Part 19 gives requirements for shipments arriving at Envirocare. The majority of the requirements are identical to federal regulations. The generator should be aware of the State of Utah regulatory requirements.
- Compact Requirements that include reporting and restrictions.

Note that State or Compact manifesting requirements may encompass shipments beyond those defined by the NRC.

When completing manifest for shipment of radioactive waste, the use of the 540, 541, and 542 satisfies the requirements of the 49 CFR. As required by 10 CFR 20 Appendix G, Envirocare must sign the 540 and return to generator within 7 days. This is to indicate to the generator that the shipment has been received.

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Envirocare's Radioactive Materials License requires Envirocare to evaluate waste received on a container level, with acceptance limits based on activity concentration per container. Envirocare is not permitted to accept B or C Class waste as defined in 10CFR61. The NRC gives guidance on the allowance for mixing and classification of waste. Envirocare reviews carefully waste that is mixed and models are used to investigate the probability of a mixed shipment that has other than class A.

Envirocare by 10CFR61 is required to keep records of problems with shipments which the NRC review routinely.

The Use of Electronic Manifests:

Envirocare encourages generators to use electronic manifests. This increases the efficiency of the processing of information. But, one item of concern has been the use of electronic signatures.

The 49 CFR allows for manual and mechanical signatures for certifications of shipments, with the requirement of legibility. But for hazardous waste, the use of hand written signature is required on the Hazardous Waste Manifest.

The 10 CFR 20 appendix G, lists the 541, 542, and continuation pages approved for electronic submittal. This may be done upon agreement between the generator and the consignee. Electronic transmittal of the 540 form is not discussed in Appendix G.

Upon discussion with the NRC, permission was granted that the authorization signature may be manually or mechanically entered on the 540 form. Modifications to the MIMMS Low Track program is scheduled to allow for mechanical signatures. This may be done as long as a copy of the manifest is maintained by the generator with a hand written signature.

Envirocare is working on permission to have this also be a mechanical signature and use electronic notification with generators. There will have to regulatory review and security to ensure approval steps can not be bypassed.

Electronic assistance is available at the following web sites:

MIMMS Low Track – www.lowtrack.com

Free down load manifest program. Envirocare currently uses this program to download manifests for hard copy printing.

RADMAN – www.wmginc.com/index.html

Generates form and calculates scaling factors when manifesting waste activities. Several generators have used this program with positive results.

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MIMMS - mims.inel.gov

Contains information on low-level radioactive waste shipments received at Barnwell, Beatty, Richland, and Envirocare.

Envirocare's Home Page – www.envirocareutah.com

Describes the requirements for shipping radioactive and mixed waste to Envirocare, has forms that can be downloaded for profiling and manifesting, and links to other useful sites.

Recommendations for manifesting waste shipments to Envirocare:

The following is recommendations for generators when preparing manifests. By following these recommendations, Envirocare will be able to process information more efficiently. Thus, the generator will avoid unwanted delays in acceptance of their shipments.

When manifesting natural, depleted, or enriched uranium, ensure activity concentrations are correct for the classification. When manifesting uranium isotopes, do not manifest U-238 by itself.

Manifest surface radiation of the container. It is difficult when surveying containers for acceptance trying to find 800 mrem/hr hot spots when it is inside the container. If using a scaling program, ensure that the actual external dose level is the same as the calculated.

Note: Identification of radiation dose greater than 80 mrem/hr inside containers are very useful for Health Physics group with assessing radiation protection controls.

When using data bases other than Low Track, contact our Information Systems Specialist. An assessment of the compatibility of the data base and Envirocare's ORICAL system will be made.

One manifest per MC file. When more than one manifest is electronically transmitted, the downloading of the manifests is time consuming at times create computer crash.

Use standard input names and spaces, if names for same item is slightly modified, or spaces added, the electronic system will recognize the fields as a new entry.

When transmitting manifests, ensure that transmittal is legible. Use of 8 pt. Generally does not fax very well. Also, handwritten information often is not readable after a fax.

If corrections are made, use single line out, sign, and date. Corrections must be traceable. The generator may give permission to Envirocare to perform changes but, must do so by written memo. This memo will be attached to the manifest.

CONCLUSION

Envirocare of Utah, Inc. is committed to the safe and efficient management of radioactive and mixed waste. One management tool Envirocare is developing is the use of electronic filing system for waste management. With the use of the electronic filing system, the proper use of electronic manifest greatly improves the processing of waste shipments. To facilitate proper profiling and manifesting, Envirocare will assist generators by providing information on capabilities and requirements of shipping waste to Envirocare of Utah, Inc.

REFERENCES

1. NUREG/BR-204, Instructions for Completing NRC's Uniform Low-Level Radioactive Waste Manifest.
2. Code of Federal Regulations, Title 20
3. Code of Federal Regulations, Title 40
4. Code of Federal Regulations, Title 49