

Benefits of a Full Waste Cost Recovery Program - 16322

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ABSTRACT

A full waste cost recovery program has been established at the INL in order to fund disposition of all newly-generated hazardous, radioactive, and mixed waste at the INL. Significant improvements have resulted from implementation of this program at the INL, and it is anticipated that others could benefit from using a similar approach.

The INL Waste Management Program (WMP) administers two site-wide service centers that collect revenue from programs and projects in order to pay waste disposition costs. These service centers are administered separately due to their unique scope and functions.

The combination of these service centers provides the INL with a fully functional cost recovery program for all newly generated waste. This cost recovery program ensures that funding is available for disposition of all waste types and that waste costs are paid for by the generating programs or facilities. The implementation of these service centers in Fiscal Year 2014 has resulting in several significant improvements in waste disposition, including a substantial increase in awareness and emphasis on waste minimization and segregation. The service centers have virtually eliminated funding shortfalls from projects that end and have not budgeted for dispositioning waste.

INTRODUCTION

The INL was designated by the DOE-Office of Nuclear Energy (NE) as the nation's lead nuclear laboratory with an overall mission of safe, efficient, and effective research in nuclear energy development. The vision for the INL is to be the preeminent nuclear energy laboratory with synergistic, world-class, multi-program capabilities and partnerships. Realization of this vision requires a sound radioactive waste management strategy, implemented through a broad-based WMP that makes full use of the existing waste management facilities and developments of improved waste management capabilities.

The INL WMP is a service organization that is responsible for establishing and maintaining cost-effective disposition paths for waste generated by INL activities. The program is responsible for assisting INL generators with dispositioning newly generated and legacy waste located at its facilities. The full waste cost recovery program developed and implemented in Fiscal Year 2014 is one of ways that the INL WMP is effectively assisting generators with waste deposition both now and in the future.

DESCRIPTION

Prior to Fiscal Year 2014, disposition of remote handled (RH) waste was covered by a variety of funding sources. Essentially, no lab-wide annual cost recovery plan for waste had been established and the needed funds were not always immediately

available to dispose of all newly generated RH waste. The management and disposal costs of newly generated contact-handled (CH) waste by Waste Generator Services (WGS) has been successful at recovering all contact-handled waste costs, and WGS has continued this service separate from the RH portion of the full waste cost recovery program. Beginning in Fiscal Year 2014 a full waste cost recovery program was implemented at the INL. The two service centers that make up the full waste cost recovery program are the WGS Service Center and the RH Waste Service Center.

INL WGS Service Center

The INL WGS Service Center collects revenue and pays disposition costs for waste with a readily available disposition path. For the purposes of this service center, the term "waste with a readily available disposition path" is defined as waste that can be:

- Readily shipped to a treatment facility, or series of treatment facilities, and any resulting waste meets the waste acceptance criteria of a disposal facility
- Readily shipped to a disposal facility and the characteristics of the waste meet the waste acceptance criteria of the disposal facility without treatment

The term "readily available" indicates that no significant conditions exist that would prevent cradle-to-grave disposition of the waste. The following would not be considered significant conditions for defining the disposition path as "not readily available":

- Lack of funding to disposition waste
- Internal operational priorities within INL facilities

The large majority of newly-generated hazardous, radioactive, and mixed waste at the INL is dispositioned using the WGS Service Center.

Operation of the INL WGS Service Center

The INL WGS Service Center collects revenue and pays disposition costs for waste with a readily available disposition path. Waste dispositioned under this service center can be categorized as historically generated or newly generated waste. The revenue for dispositioning historically generated waste typically is collected from special projects that are established to clean out facilities or locations that previously were operated by programs and projects that did not disposition waste prior to close out. The revenue for dispositioning newly generated waste is collected from the programs and projects currently generating the waste. This service center collects revenue for dispositioning the following categories of waste^a:

- Hazardous waste
- Industrial waste
- Universal waste

^a Until recently, the WGS service center collected revenue to disposition CH transuranic (TRU) waste. The disposition path for CH transuranic waste is not readily available at this time, due to curtailed operations at WIPP, but should become available within the next few years.

- Contact-handled (CH) low-level waste (LLW)
- Remote-handled (RH) LLW
- CH mixed LLW (MLLW)
- RH-MLLW

INL RH Waste Service Center

The INL RH Waste Service Center collects revenue for newly generated RH waste without a readily available disposition path. For the purposes of this service center, the term “waste without a readily available disposition path” is defined as waste that cannot be readily shipped to a treatment or disposal facility due to significant constraints that are in place at this time. One example involves the CPP-666 facility that is operated by another contractor at the INL Site. The CPP-666 facility is the only facility at the INL Site that has the capability to repackage and certify INL RH TRU waste that is currently stored in canisters. Repackaging is the first step in preparing the waste for disposal. The facility currently is operating at full capacity to meet a regulatory deadline associated with the Idaho Settlement Agreement (ISA). The facility has the technical capability to repackage INL RH-TRU waste canisters, but the capability is not readily available to INL due to the ISA backlog. The waste cannot be shipped offsite in its current configuration; therefore, the INL RH-TRU waste stored in canisters does not have a readily available disposition path.

The term “waste without a readily available disposition path” is not equivalent to the term “waste streams with no identified path to disposal.” If an INL waste stream has “no identified path to disposal,” formal notification must be made to DOE and several actions must be taken to ensure a path to disposal is being developed. All waste without a readily available disposition path has an identified path to disposal.

The revenue is held in reserve account until a disposition path becomes available. The waste is appropriately managed in accordance with all DOE Orders and environmental regulations while awaiting disposition.

Operation of the INL RH Waste Service Center

Service center allocations for RH waste are based on types of waste generated and waste quantity. Unit costs per waste type are charged to the waste generating customers based on volume of waste generated. The funds collected are placed in a holding account that can only be used for waste disposition costs. A small portion of the holding account funding is used to pay for operation of the service center and other costs associated with waste storage. The remainder of the holding account funding is reserved for estimable and reasonably certain cost of disposition. The funds for future period costs are held in a holding account. As subcontractor and disposal activity costs are incurred in the future from waste shipments, the financial liability of the waste will be reduced.

Service center funds may be used for waste activities once the waste has been placed in an accumulation container and the generator charged the RH waste unit cost. All activities prior to placement of the waste into an accumulation container are deemed to be project-related and are charged to project charge numbers.

Programs are provided an annual estimated cost target which they budget for on an annual basis for waste management. These estimated cost targets are based on historical waste generation as well as projected volumes for new projects. Assigning costs at this level has driven programs to enhance waste minimization and segregation techniques, thus reducing annual waste management costs to the individual programs. Quarterly meetings are typically held with research and facility leads to fully understand what RH wastes have been recently generated and what is expected to be generated in the coming years.

This service center focuses on the high-cost, low-volume RH-type wastes that require a high level of attention as they are generated in the hot cells because of the potential budget impacts their generation can cause on programs and facilities. Implementation of the RH Waste Service Center has allowed the INL to accumulate funds as the waste is generated reducing the impact to budgets in the future through the use of previously accumulated funds.

Annual administrative costs for managing the service center are distributed into the unit rates. They include bi-monthly tracking, monthly reporting & accruals, quarterly assessments of estimates to actual costs, and status reporting of cost recovery metrics.

Benchmarking was performed to determine how other DOE national laboratories perform waste cost recovery. Waste and finance personnel were contacted at PNNL and ORNL. Both of these laboratories charge programs at the point the service center manager accepts the waste. Charges are based on the types of waste generated and the expected unit cost for waste disposal. The INL modeled its RH Waste Service Center in a similar manner to the PNNL and ORNL programs. For RH wastes, INL charges programs at the time waste is identified prior to project closeout.

Lessons Learned and Recommendations

Operation of the RH Service Center for the initial two years has provided valuable information that has been used to influence the current operation of the RH Service Center. The primary lesson learned was that revenues and waste generated were significantly lower than had been expected prior to the implementation of the service center. The lower revenues were directly related to a lower-than-estimated generation of RH waste without a disposition path. The difference between the actual revenue and the estimated budget can be primarily attributed to the following:

- Improved segregation techniques implemented for RH-TRU waste resulted in a reduction of RH-TRU generation and a higher than anticipated generation of RH-LLW. The RH-LLW that was generated had a readily available disposition path. The waste was dispositioned at NNSS through the WGS Service Center at a cost of approximately \$60/ft³ instead of the RH-TRU rate for FY 2015 of \$75,190, for future disposition through RSWF, CPP-666, and CPP-659 before being sent to WIPP. The advantages of dispositioning the waste at NNSS outweighed any drawbacks associated with the shortcomings associated with the financial performance of the service center regarding revenue and budget. All newly generated RH waste was

either shipped offsite for disposal or funds have been collected for future disposition.

- Programs and projects also placed increased attention on generating RH-LLW that could be dispositional at NNSS instead of being stored in RSWF, awaiting disposition at the INL RH LLWDF sometime after FY 2018. This waste was dispositioned through the WGS Service Center at a cost of approximately \$60/ft³ instead of the RH-LLW rate of \$31,980 for future disposition at RDF. Again, the advantages of dispositioning the waste at NNSS outweighed any drawbacks associated with the shortcomings associated with the financial performance of the service center and all newly generated RH waste was either shipped offsite for disposal or has the funds needed for future disposition.

The generation rates for RH waste without a readily available disposition path were overestimated for a number of facilities. However, the service center was in its first years of operation and the generation estimates were based on historical generation and predictions by programs and projects. The impacts of waste minimization and segregation can explain the lower generation rates in some cases but cannot completely explain the lower generation rates in all facilities. The lessons learned in FY 2015 influenced the estimated generation rates and service center budget for FY 2106, and the estimated generation quantities have been reduced.

Several recommendations have been identified for management consideration of the INL Sitewide service centers in the future and include the following:

- The curtailment of operations at WIPP has closed the disposition path for CH-TRU waste. Ensure programs and projects reserve funds for future disposition of CH-TRU waste at approximately \$1,839 per ft³.
- Be aware of the cost recovery approach that has been implemented at INL to promote new business needs. Business volume is expected to increase over the next few years, which will likely increase waste generation. New programs and projects need to be aware of waste costs and to budget for waste disposition as part of their overall project cost.
- Address the cost recovery approach for the Advanced Test Reactor (ATR) beryllium blocks and shims that will be generated during the next ATR core internals change-out. Discussions should continue in FY 2016 to ensure adequate planning is in place for the core internals change-out planned for FY 2018.
- Assess the potential to adjust the billing process to account for the delay between when waste is generated and when it is placed in a waste container. In some facilities there is a significant delay between generation and waste placement due to operational constraints. Adjusting the billing process would allow funds to be collected prior to the closeout of project charge numbers.
- Modify the billing process to reduce reliance on manual controls and human performance. Accuracy of the billing process relies completely on the Service Center Administrator. Adjustments should be made so that the process is better documented, which would prevent duplicate billing or lack of billing if the Administrator is absent.

- Improve the process to differentiate legacy from newly generated waste. Currently, if a container that includes both legacy and newly generated waste is moved or prepared for shipment/disposition, the Administrator must use the material tracking database to manually examine every item description in an effort to determine what is legacy and what is newly generated. Due to the way the data is captured, a report cannot be generated to provide this information.

CONCLUSIONS

Two INL Sitewide service centers began operation in FY 2014 to support current and future disposition of waste. The WGS Service Center collects revenue and dispositions waste with available disposition paths. The RH Waste Service Center collects revenue to ensure newly generated waste can be dispositioned when a disposition path becomes readily available in the future. The high costs associated with generating RH waste have driven waste minimization and segregation efforts over the past year. The performance of the service centers has been evaluated and the lessons learned during FY 2014 and FY 2015 have been incorporated into the cost recovery approach that will be used in FY 2016. Safe and effective disposition of radioactive waste is a key factor in demonstrating INL's commitment to responsible development and application of advanced nuclear science and technologies.