

From: [Miller, Fred](#)
To: [Kline, Kenneth](#); [Naquin, Ty](#)
Subject: RE: NIST RAIs
Date: Friday, January 24, 2020 9:30:58 AM

Ken/Ty,

Sorry for the delay. I concur on the RAIs to NIST.

Fred R. Miller, Chief
Financial Assessment Branch
Division of Rulemaking, Environmental, and Financial Support
Office of Nuclear Material Safety and Safeguards
U. S. Nuclear Regulatory Commission
(301) 415-6765

From: Kline, Kenneth
Sent: Friday, January 24, 2020 9:25 AM
To: Miller, Fred <Fred.Miller@nrc.gov>
Cc: Naquin, Ty <Tyrone.Naquin@nrc.gov>
Subject: FW: NIST RAIs

Fred, the site PM for NIST, Ty Naquin, is looking for concurrence on the attached. It is a succinct version of the earlier RAI 1 below.

Ken

From: Kline, Kenneth
Sent: Friday, January 17, 2020 12:02 PM
To: Miller, Fred <Fred.Miller@nrc.gov>
Subject: FW: NIST RAIs

Fred, the PM for NIST is requesting your concurrence on RAI 1 below.

Ken

From: Naquin, Ty
Sent: Friday, January 17, 2020 8:42 AM
To: Kline, Kenneth <Kenneth.Kline@nrc.gov>
Subject: RE: NIST RAIs

I'll docket and send you the accession number for the NIST response.

If there are no changes to the draft language, I will begin formalizing the RAI, but my branch chief will want to receive it formally, ensuring your BC buys in. This also clears the path for us to issue the RAI without having to get your concurrence. My BC will make sure the language matches what you send over.

I'll get the accession number to you this morning for the NIST response.

Thanks

Ty

T. D. Naquin, CHP
NMSS/DFM/FFLB
(301) 415-7352



From: Kline, Kenneth
Sent: Friday, January 17, 2020 8:30 AM
To: Naquin, Ty <Tyrone.Naquin@nrc.gov>
Subject: RE: NIST RAIs

Ty, you asked for draft RAIs for the NIST review. If you can document NIST's e-mail from earlier this week, that would eliminate RAI 2 below, leaving RAI 1 remaining. Would you like my BC's concurrence on RAI 1 below?

Ken

From: Kline, Kenneth
Sent: Thursday, December 19, 2019 11:18 AM
To: Naquin, Ty <Tyrone.Naquin@nrc.gov>
Subject: NIST RAIs

Ty, the following are draft RAIs for NIST.

(1) Justify key assumptions in the DCE related to the disposition of inventory (10 CFR 70.25(e)(2)(v); 10 CFR 70.25(e)(1)(i)(A); 10 CFR 70.25(e)(1)(ii); Draft Interim Staff Guidance on Decommissioning Funding Plans for Materials Licensees)

10 CFR 70.25(e)(2)(v) requires that the DFP consider how changes in authorized possession limits may impact the DCE. 10 CFR 70.25(e)(1)(i)(A) requires that the DFP provide a detailed cost estimate that reflects "the cost of...perform[ing] all decommissioning activities." 10 CFR 70.25(e)(1)(ii) requires that the DFP identify and justify the key assumptions contained in the DCE. Draft Interim Staff Guidance on Decommissioning Funding Plans for Materials Licensees (June 2018) (ML18163A087) describes ways in which the disposition of inventory can be covered in the DCE.

NIST Owned Inventory

In response to an NRC question about the plan and associated costs for disposition of NIST owned inventory, NIST's supplemental information states that

"Rather than itemize individual sources and weigh hypothetical transfer/disposal/storage options/ it is assumed for now that sealed sources

will be transferred to the U.S. Department of Energy. Discussions with DOE personnel were conducted in 2009 and reasonable cost estimates were determined and incorporated into D&D cost estimate prepared by Philotechnics in August 2009.

In 2015, the NIST awarded Ecology Services, Inc. (ESI) a contract for the removal, packaging, and transport, and disposition/disposal of various sealed sources located at NIST’s Gaithersburg, Maryland facility. The sources were a wide range of items with activities as small as a few picocuries to an irradiator with over 1,800 curies. Many preliminary activities were required before actual source removal could begin and included . . . Thus, in an ever-changing environment, plans to send NIST owned material to an end destination would involve a variety of methodologies as described above.

. . . The approach made in 2009 was to couple the disposal cost of unsealed materials into the total DAW (Dry Active Waste) cost estimate.

. . . The approach made in 2009 was to assume that sealed sources will be transferred to the U.S. Department of Energy, rather than itemizing individual sources and weighting hypothetical transfer/disposal/storage options. Discussions with DOE personnel, at the time, indicated \$500,000 may be reasonable. This value was then coupled into the total D&D cost estimate via our Packaging, Shipping, and Disposal of Radioactive Wastes component. The total cost in 2016 for unsealed (DAW) and seal disposal is \$44,451 and \$900,000 respectively and sums to \$944,451. This is 28.1% of the total Laboratory decommissioning cost \$3,363,114 (without contingency). Therefore, a reasonable estimate for NIST controlled sources would be to take the percent cost determined in 2016 (28.1%) and apply it to the laboratory decommissioning cost for 2019 (\$3,711,418). This value is \$1,042,264.”

Similar to the 2019 DFP, the 2009 DFP and the 2016 DFP include discussion about an assumption that sealed sources will be transferred to DOE and all three DFPs stated that “Discussion with DOE personnel indicated \$500,000 may be reasonable. The sources will be shipped as a Type B shipment to Nevada, ad distance of 2400 miles. Additional costs are \$100,000 for a Type B package and shielding, \$84,000 for transportation to Nevada, and \$60,000 for security and administration of Increased Controls at NIST during the decommissioning project.” Only NIST’s supplemental information discusses the use of Ecology Services, Inc.

Staff is unable to determine whether the narrative description of the methodology for estimating the costs for unsealed source disposition has been incorporated into the cost estimate in the 2016 DFP (and therefore, incorporated into the 2019 DFP which is based on the 2016 DFP) because the costs referenced in the narrative discussion of the methodology (i.e., \$100,000, \$84,000, and \$500,000) are inconsistent with the costs included in the detailed cost estimate spreadsheets (\$120,000, \$158,400, and \$900,000,). Specifically, the costs of disposition of sealed materials is incorporated in the 2009 DFP, 2016 DFP, and 2019 DFP in the following ways:

	2009 Appendix B, Laboratory Areas Cost Estimating Worksheets, Section 3.14	2016 Appendix B, Laboratory Areas Cost Estimating Worksheets, Section 3.14	2019
Packing Materials Costs	\$100,000	\$120,000	Unknown because supporting spreadsheets are not provided

Shipping Costs	\$84,000	\$158,400	Unknown because supporting spreadsheets are not provided
Waste Disposal Costs	\$500,000	\$900,000	Unknown because supporting spreadsheets are not provided

Staff are unable to identify information justifying the change in the estimated costs between 2009 and 2016 because the narrative description of the methodology did not change and no further explanation is provided. To ensure that the full cost of dispositioning NIST owned inventory is accurately incorporated into the DCE, the NRC request that the licensee provide further explanation for the basis of the costs included in the 2016 DFP (and assumed to also be incorporated in the 2019 DFP) for the packing, shipping, and disposal of sealed sources, including how the Ecology Services, Inc. option has been relied upon (this includes identifying the 2019 costs for packing, shipping and waste disposal which are missing from the table above) .

Customer-owned inventory

For customer-owned inventory, the Draft Interim Staff Guidance on Decommissioning Funding Plans for Materials Licensees states that a reasonable alternative to including the costs for packaging, loading, and transporting the material to another facility that can accept the material under its license “may be an existing contract under which the customer is responsible for packing, loading and shipping the material to an end destination that can accept the material under the end destination’s license.” In response to an NRC question about the plan and associated costs for disposition of customer owned inventory, NIST’s supplemental information states that

“[o]nly sources belonging to NIST are included in our D&D cost estimate; it is assumed all other sources will be returned to the customer. NIST maintains inter-agency agreements with DOE for nuclear materials associated with calibration programs. It is understood that in the unlikely event of stopping all operations at NIST, the nuclear materials that are DOE-owned will be returned to the appropriate facilities. In addition to the DOE materials NIST maintains several Cooperative Research and Development Agreements (CRADA) in support of calibration activities with various domestic and international entities. In those agreements it is clear that materials coming to NIST for calibration will be returned to the customer when the calibration services are completed or no longer available.”

NIST’s supplemental information makes clear that the 2019 DCE does not include decommissioning costs for the disposition of customer-owned inventory present at the facility at the time of decommissioning. Furthermore, the supplemental material states that the customer-owned inventory will be transferred back to the customer at the time of decommissioning. However, it does not provide any explanation for which entity will be responsible for the costs associated with packaging, loading, and transporting the material. To ensure that the disposition of customer-owned inventory is covered, does NIST have agreements or contracts in place that make clear that the customer is obligated to pay for these costs?

(2) Identify the specific facilities used as comparisons for purposes of estimating the level of effort required for the final radiation survey (10 CFR 70.25(e)(ii); NUREG-

1757, Volume 3, Rev. 1, Appendix A, Section A.3.1)

10 CFR 70.25(e)(ii) requires that licensees identify and justify the key assumptions contained in the DCE. In addition, NUREG-1757, Vol. 3, Rev. 1, Appendix A, Section A.3.1 states that "a decommissioning estimate should contain a substantial level of detail, consistent with the guidance presented in this section, to allow the NRC to fully evaluate the adequacy of the estimate" and that "justifications based on 'past experience' are likely to be adequate only if the past experience is relevant; therefore, the cost estimate should compare comparable decommissionings with respect to facilities, materials, processes, management, regulatory requirements, and price levels."

The 2019 DFP states that "estimates for the level of effort required for the final radiation survey were based on previous experience with facilities of comparable complexity (2019 DFP p.9 of 17). In response to an NRC question for the identification of the specific facilities that were used for comparison, NIST's draft responses states that "The language indicating that the estimates for the level of effort were based on previous experience with facilities of comparable complexity refers to the labor estimates section originally presented by Philotechnics in their Decommissioning Cost Estimate prepared for NIST in August 2009 (see ML092810475 P.10) and the Philotechnics' experience with other cost estimates." The reference provided by NIST to the August 2009 DFP appears to be referencing a similar statement that "estimates for the level of effort required for the final radiation survey were based on previous experience with facilities of comparable complexity." Without an understanding of the specific facilities that are used as the basis for the estimated level of effort for the final radiation survey, the NRC does not have the information needed to fully evaluate the adequacy of the estimate. Provide a comparison of the specific facilities that were used for the final radiation survey estimate.