

2. The Supplement ER and LPES report (LPES, 2013) do not provide an analysis for return transportation of the empty 48Y “heel” cylinders from UUSA to Port Hope and Metropolis. The LPES report (LPES, 2013) does note the potential radiation hazard near the “heel” cylinders, but does not provide a transportation analysis. The Supplement ER also does not include any impacts from transportation of “heels” cylinders. Please provide the analysis.

Response: The transportation impacts assessment performed in support of the Supplemental ER did not explicitly include the transportation of 48Y “heel” cylinders, however the impacts of transporting these cylinders was evaluated and documented in the 2005 NRC EIS, Appendix D and URENCO considers this evaluation of potential impact to be bounding to the current and proposed movement of the “heels” cylinder. The majority of the 48Y feed cylinders received on site are retained, and used to containerize tails (DUF) which are stored on UBC pad for offsite disposition.

During the course of preparation of the 2005 EIS for the initial project evaluation, LES (UUSA) provided information in the initial Environmental Report regarding the handling of the 48Y cylinders once the feed was extracted. EIS Section 4.2.11.2 states the following which summarizes the basis of the analysis:

The empty Type 48Y cylinders that were used to transport the DUF₆ to the conversion facility would be shipped back to the feed material suppliers in Metropolis, Illinois, or Port Hope, Ontario. In this analysis, the NRC staff assumed that these shipments would occur from the proposed NEF (63 empty cylinders per year) and an adjacent, private conversion facility (627 empty cylinders per year) over the same routes used for the feed materials. The empty Type 48Y cylinders would contain solid residues, or heels, that would remain after evacuating the UF₆ from the cylinders. The heels would contain radioisotopic daughter products produced by the UF₆. Half the number of feed product shipments would be needed to transport the empty cylinders back to the feed material suppliers. (Full cylinders would be shipped one per truck and empty cylinders would be returned two per truck.)

The following table indicates the number of “heels” cylinders included in the evaluation:

Table D-6 Number of Packages and Number of Trucks or Railcars Required for the Transport

cShipment of empty Type 48Y cylinders would be from the proposed NEF (63 empty cylinders per year) and the adjacent private conversion facility (627 empty cylinders per year).

Material	Type of Container	Number of		
		Containers	Trucks	Railcars
Natural UF ₆	Type 48X _a	890 _a	890 _a	223
	Type 48Y _a	690 _a	690 _a	173
Enriched UF ₆	Type 30B _a	350 _a	117 _a	30
DUF ₆	Type 48Y _a	627 _a	627 _a	157
	11,340-kg (25,000-lb)	547	547	137
Depleted U ₃ O ₈	bulk bags _b	461	461	116
	11,340-kg (25,000-lb)	461	461	116
CaF ₂	bulk bags _b	461	461	116
Solid Waste	55 gallon drums _a	480 _a	8 _a	2
Empty Cylinders	Type 48Y _a	690	345	87

kg - kilogram ; lb - pound.

Sources: a LES, 2005; b DOE, 2004a; DOE, 2004b.

The empty Type 48Y cylinders would contain residues, or heels, that would remain after evacuation of the UF₆. For the analysis presented in the EIS, NRC staff assumes the empty Type 48Y cylinders would be shipped from the proposed NEF (UUSA) and the conceptual adjacent private conversion facility to the feed material suppliers using the same routes for shipping feed material to the proposed NEF (UUSA).

Results of the analysis for the transport impact from empty 48Y cylinders is summarized in the following data excerpted from the tables presented in Appendix D to the EIS.

Table D-14 Nonradiological Fatalities from Truck Transportation of Radioactive Materials (Excerpt)

Material	Route	Occupational		Nonoccupational	
		Normal (LCFs)	Accident (Fatalities)	Normal (LCFs)	Accident (Fatalities)
Empty Type 48Y Cylinder	Metropolis, IL	2×10^{-3}	2×10^{-2}	2×10^{-1}	6×10^{-2}
Empty Type 48Y Cylinder	Port Hope, ON	4×10^{-3}	2×10^{-2}	4×10^{-1}	9×10^{-2}

Table D-15 Radiological Latent Cancer Fatalities from Incident-Free Truck Transportation of Radioactive Materials (Excerpt)

Material	Route	Maximum Individual	Crew
Empty Type 48Y Cylinder	Metropolis, IL	9×10^{-9}	5×10^{-4}
Empty Type 48Y Cylinder	Port Hope, ON	9×10^{-9}	1×10^{-3}

The following summary of transportation impacts for transport of all radiological materials by truck is included in the EIS (Appendix D):

For the members of the general public, the largest impacts are from the nonradiological incident-free transportation of the radioactive materials (less than 1 fatality from traffic accidents and about 2 latent cancer fatalities from the vehicle emissions.) For the radiological impacts, the risk of latent cancer fatalities from postulated accidents would be no greater than 0.3 per year. This is about two orders of magnitude higher than the direct radiation received from the incident-free transportation due to the fact that during a postulated accident, the inhalation of the radioactive material is much more significant than the direct radiation. However, due to the low total annual latent cancer fatalities values due to accidents (less than 0.5), no radiation-induced latent cancer fatalities would be expected to occur to members of the public.

EIS Section 4.2.11.3 includes this summary of transportation impacts:

There is a potential for less than one fatality to either the general public or occupational workers from traffic accidents using either truck or rail transport. The emissions of either trucks or trains could result in about two latent cancer fatalities. Incident-free direct radiation could result in less than one latent cancer fatality to either the general public or occupational workers. The accident risk was assessed to be less than one latent cancer fatality to the general public resulting from

accidents involving either a truck or rail. The impacts from the truck and rail traffic to and from the site would have a SMALL to MODERATE impact on overall traffic.

In 2013, URENCO will have returned approximately 75 cylinders of “heel” to the feed suppliers that request return of their cylinders for refilling. Based on this actual operational data, we have projected the rate of return to be approximately 100-150 cylinders on an annual basis at a facility production rate of 3.3 MSWU. If we project further to the proposed full capacity at expansion (proposed action), we anticipate the movement of 48Y “heels” cylinders would be approximately 300 to 450 annually. These levels are less than the 690 total 48Y “heels” cylinders evaluated and documented in the EIS, Appendix D, therefore the previous analysis is bounding to the current proposed action and the impact of the transportation of the 48Y “heels” cylinders remains SMALL to MODERATE in combination with the impacts for transport of feed product and DUF cylinders.

We agree with your assessment that the recent version of the Environmental Report and the Supplemental ER (2012) do not include a description of the transportation of 48Y “heels” cylinders. We will modify the Supplemental ER, and the current version of the ER, to include a description of this activity and the potential impacts as previously addressed and documented in the EIS.