Galer, Rose

From: Rose, Jay
Sent: Tuesday, December 18, 2007 9:54 AM
To: Galer, Rose
Subject: FW: U/TRU Storage-- Bayer 2007

From: cassandra.bayer@srnl.doe.gov [mailto:cassandra.bayer@srnl.doe.gov]
Sent: Thursday, July 26, 2007 9:28 AM
To: Schwartz, Francis (NE-HQ)
Cc: rick.geddes@srs.gov; Stout, Daniel; Buschman, Nancy; steven.mcconnell@srs.gov; david.ostby@inl.gov
Subject: U/TRU Storage

Frank,

We hopefully come up with a simple way of scaling the U/TRU storage footprint. Using the storage footprint for the various scenario, a sizing factor was developed. However, caution should be used since the size of the U/TRU storage is also dependent on the building configuration and location.

Below is the storage footprint for the U/TRU being produced for each of the UREX+1a scenarios:

800 MT/year UREX+1a based facility
U/TRU Oxide = 43,872 kg/yr = 3,068 cans (14.3 kg/can)
1 years storage capacity
Storage Footprint = 39,000 ft2 (single level building with cans stacked 2 high)

100 MT/yr UREX+1a based facility
U/TRU Oxide = 5,490 kg/yr = 364 cans (14.3 kg/can)
1 years storage capacity
Storage Footprint approximately 4,380 ft2 (single level building with cans stacked 2 high)

3000 MT/year UREX+1a based facility
U/TRU Oxide = 163,493 kg/yr = 11,434 cans (14.3 kg/can)
10 years storage capacity
Storage Footprint = 1,080,000 ft2 (three single level buildings with cans stacked 4 high)

The size of the building depends on the storage configuration, but using 8 ft2 per can of oxide (size of can plus 2ft on either side) the size of storage can be approximated. Additional space would need to be added for electrical equipment, ventilation, shelving, aisle, etc., so one can use 12 ft2 per can to size the storage facility footprint to account for the space needed for ventilation, shelving, electrical equipment, etc.

Using the 12ft2 per can of oxide from the UREX+1a:

1000 MT/year UREX based facility
U/TRU Oxide = 54,840 kg/yr = 3,835 cans
40 year storage capacity = 153,400 cans
Storage Footprint approximately 1,840,800 ft2 (assuming single level buildings with the cans are stacked 2 high)

500 MT/year UREX based facility

U/TRU Oxide = 27,420 kg/yr = 1,918 cans
40 year storage capacity = 76,700 cans
Storage Footprint approximately 920,400 ft2 (assuming single level buildings with the cans are stacked 2 high)

If you have any questions concerning this information, please contact me or Steve McConnell (803-725-6025).

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