

The following data/assumptions will better address the LLW differences between the LEU option and the LEU/Th option of Alternative 1.

1. There is 397 kg fissile ( $^{233}\text{U}$  and  $^{235}\text{U}$ ) in the HTGR fuel.
2. Based on past experience of LLW to Nevada National Security Site, it is expected that the maximum quantity of fissile in a Type B shipping container (CASTOR cask) will be restricted to 1 kg. To protect a 1 kg maximum, it is assumed that 900 grams would be the maximum in a CASTOR cask. Therefore, from a fissile content, it will require a minimum of 441 CASTOR casks for the cemented LEU or LEU/Th.
3. The volume of cemented grout for the LEU option is 26,700 gallons and for the LEU/Th option is 75,400 gallons.
4. The volume of a cemented grout can will be approximately that of the TLK can (also referred to as cask liner). Two cemented grout cans can fit into a CASTOR cask. The interior diameter of a can is 54 cm and the interior height is 90 cm. Assuming the grout can is 90% full, the maximum volume of grout in a can is 49 gallons.
5. Based on volume, there will be 545 grout cans of LEU. However, the fissile content in two grout cans (that can be placed in a CASTOR) would be over 1450 grams. Per note 1 above, the fissile content restriction will require a minimum of 441 CASTOR casks. Since there are 455 CASTOR casks, it is assumed that all 455 CASTOR casks will be used for the cemented LEU grout, and all of the TLK cans will be disposed as LLW equipment waste.
6. There will be 1540 grout cans of LEU/Th. Since each grout can of LEU/Th will contain about 258 g fissile, the fissile restriction on CASTOR casks will be met. However, only 910 grout cans can be placed in CASTOR casks. Therefore, 630 grout cans will be disposed as LLW, corresponding to about 5500 cubic feet, in addition to the TLK cans.

<u>Waste Form</u>	<u>LEU Option</u>	<u>LEU/Th Option</u>
LLW equipment waste (cubic feet)	7.89E+03	7.89E+03
LLW grout in CASTOR (cubic feet)	6.69E+04	6.69E+04
LLW grout not in CASTOR (cubic feet)		5.46E+03