

November 8, 2013

Mr. Curtis Chambellan
Tritium Readiness Subprogram
Office of Stockpile Technology (NA-123.1)
Department of Energy/NNSA
PO Box 5400
Albuquerque, NM 87185-5400

Dear Mr. Chambellan:

BASIS FOR TPBAR RELEASE ESTIMATE

RE: Shaver, MW and DD Lanning, "Mark 9.2 (FLG Design) TPBAR Tritium Release, Deduced from Analysis And Qualification Of WBN Cycle 9 RCS Data," TTP-1-3016 R0, October 22, 2009.

PNNL has concluded that it is acceptable to use an average permeation rate of 10 curies per year as an analysis basis for TPBAR tritium release.

The best estimate value for TPBAR permeation, including a 95% confidence level upper bound is ≈ 4.2 Ci/TPBAR per year. This specific value is for WBN1 C9; TPBAR operational experience in WBN1 cycles 6 through 10 show results that are consistent with C9.

The indicated best estimate does not reflect operation to the design basis cycle length (600 EFPD) or to the design basis tritium production limit (1.2 grams per TPBAR), and does not account for any potential operational changes that may occur at WBN1. Given these potential uncertainties in operational parameters, analysis performed using 4.2 Ci/TPBAR/year may not be bounding for all future operational scenarios. PNNL believes that additional margins should be added to the best estimate value to ensure that analyses performed today can reasonably be expected to bound future operations.

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Based on what is known today, PNNL expects that an average release of 10 Ci/TPBAR/year should reasonably bound these potential uncertainties.

If you have any questions, please call me or either Ed Love at (509) 372-4134, or Larry Bagaasen at (509) 372-4312.

Sincerely,



Cheryl K. Thornhill, Manager
Tritium Technology Program

CKT/KAB/csm

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