

BSC

Calculation/Analysis Change Notice

1. QA:QA
2. Page 1 of 3

Complete only applicable items.

3. Document Identifier: 050-00C-WH00-00100-000	4. Rev.: 00A	5. CACN: 002
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6. Title:
Nuclear Criticality Calculations for the Wet handling Facility

7. Reason for Change:
The $H/^{235}U$ values for Figure 109 were determined to be incorrect. The range of $H/^{235}U$ values given in Table 39 for the fuel pin arrays is incorrect.

The condition leading to this change has been logged into the corrective action program's electronic condition reporting system as CR11753.

CACN 001 for 050-00C-WH00-00100-000 Rev 00A was incorrectly identified as QA:N/A. This is corrected in the current CACN. The condition leading to this change has been logged into the corrective action program's electronic condition reporting system as CR11897.

8. Supersedes Change Notice: Yes If, Yes, CACN No.: 050-00C-WH00-00100-000 Rev 00A CACN001 No

9. Change Impact:

Inputs Changed: Yes No Results Impacted: Yes No

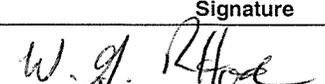
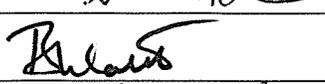
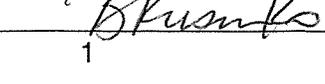
Assumptions Changed: Yes No Design Impacted: Yes No

10. Description of Change:
Figure 109 is replaced with a figure that shows the correct $H/^{235}U$ values (see attached corrected figure). The determined $k_{eff}+2\sigma$ values remain unchanged.

The $H/^{235}U$ ranges examined for the fuel pin arrays in Table 39 are also corrected (see attached corrected table).

No conclusions, text, or other results of the subject calculation are affected by this change.

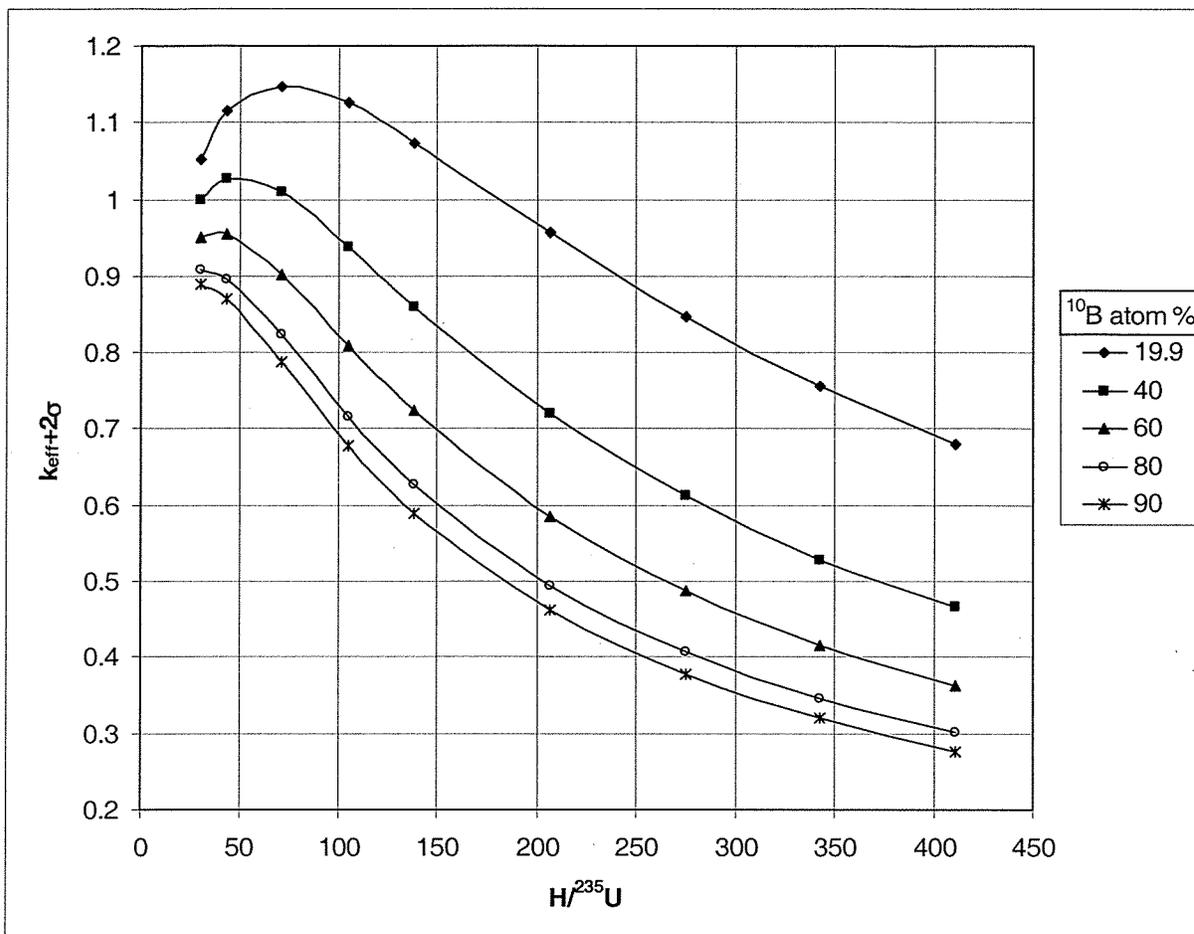
11. REVIEWS AND APPROVAL

Printed Name	Signature	Date
11a. Originator: W. G. Rhoden		3/27/08
11b. Checker: B. A. Matthews		3/27/08
11c. EGS: A. A. Alsaed		3/27/08
11d. DEM: D. Beckman		3/27/08
11e. Design Authority: B. Rusinko		3/28/08

Corrected Table 39. Parameter Variations Examined for Simple Geometries

Parameter	Range/Values Examined
UO ₂ particle size (sphere, hemisphere, and slab)	Homogeneous, 0.2 – 0.6 cm
UO ₂ Fuel Pin Geometries (fuel pin arrays)	B&W 15x15 per Section 6.1.1 and Table 5 Westinghouse 17x17 OFA per Section 6.1.1 and Table 5 7x7 per 6.1.2 and Table 6 9x9 per 6.1.2 and Table 6
H/ ²³⁵ U (Sphere, Hemisphere, and Infinite Slab Models)	75 – 400 1 – 400 (Homogeneous borated water reflected)
H/ ²³⁵ U (fuel pin arrays)	30 - 411 (B&W 15x15) 29 – 212 (Westinghouse 17x17 OFA, 7x7, and 9x9)
Pin Pitch (fuel pin arrays)	1.1309 – 2.4631 cm (B&W 15x15) 0.9468 – 1.5667 cm (Westinghouse 17x17) 1.1651 – 1.9279 cm (9x9) 1.4807 – 2.4501 cm (7x7)
Sphere UO ₂ mass (kg)	30 – 200
Hemisphere UO ₂ mass (kg)	100 – 500
Slab thickness (cm)	5 – 30
Boron content (mg/L)	500 – 2500 (sphere, hemisphere, and slab) 2500 (fuel pin array)
Boron Enrichment (¹⁰ B atom%)	19.9 (sphere, hemisphere, and slab) 19.9 – 90.0 (fuel pin array)
Number of Fuel Pins	121 – 5041 (B&W 15x15) 121 – 6561 (Westinghouse 17x17 OFA) 121 – 5625 (7x7 and 9x9)
Reflector	Borated water, concrete, and steel (slab and sphere) Concrete on bottom and borated water above (hemisphere) Concrete or steel on three sides and borated water elsewhere (fuel pin arrays)

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Corrected Figure 109. $k_{eff}+2\sigma$ Results for a Concrete and Borated Water Reflected Square Pitched Array of 3,721 B&W 15x15 Fuel Pins with 2500 mg/L Boron