

UNITED NUCLEAR CORPORATION FUELS DIVISION

File Copy

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September 15, 1964

Mr. Donald A. Nussbaumer, Chief
Source & Special Nuclear Materials Branch
Division of Licensing and Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.



Dear Mr. Nussbaumer:

Transmitted herewith is a general revision to our Fuels Recovery Plant license application, SNM-777. The revision is needed to incorporate necessary changes discovered in our post-accident review of operations as well as the results of experience gained in the first few months of plant operation. Incorporated also are changes previously approved by DL & R in separate correspondence.

To facilitate your review, please note the following:

1. Inserts (3 pages) are included for the criticality calculations only. The remainder of the application, i.e., the General Information and Procedures Manual, the Health Physics Manual, and the Emergency Plan, are presented as replacement manuals. Included also is the most recent annual report.
2. Changes from the original application are marked by asterisks in the right hand margin. A few of these changes will have been previously approved by your department.
3. The drawings in the back of the General Information Manual are not resubmitted and we ask that they be removed from the original manual into the revised booklet.
4. Although the new post of Director of Licensing for the Fuels Division, referenced in the General Information Manual, has been filled, he has not yet begun his work in that area. So until further notice, questions concerning this application should be addressed to Mr. L. J. Swallow, c/o United Nuclear Corporation, Hematite, Missouri.

Copy 1 supplied

Public Affairs and Insp
Div. of Operations

RCJ:tc

9/17/64
LUKE RRR

Very truly yours,

R. C. Johnson, Acting Manager
Chemicals Operation

ACKNOWLEDGE

4572

INSIDE STORAGE FACILITIES
STORAGE SHELVES (REF. PARAGRAPH 504.3)

SOLID ANGLE SUBTENDED AT CENTER BOTTLE BY:

1. TWO # 1 BOTTLES

$$H = 13 \quad H/A = 2.167$$

$$A = 6 \quad H/B = 1.300$$

$$B = 10 \quad \Omega = .325$$

$$2\Omega = .650$$

2. TWO # 2 BOTTLES

$$H = 15 \quad H/A = 2.50$$

$$A = 6 \quad H/B = 2.50$$

$$B = 6 \quad \Omega = 1.55$$

$$2\Omega = .310$$

3. FOUR # 3 BOTTLES

$$H = \sqrt{(15)^2 + (13)^2} = 19.8$$

$$A = 6 \quad H/A = 3.30$$

$$B = 11.7 \quad H/B = 1.69$$

$$\Omega = .171$$

$$4\Omega = .684$$

4. FOUR # 4 BOTTLES

$$H = 32.6 \quad H/A = 5.43$$

$$A = 6 \quad H/B = 2.79$$

$$B = 11.7 \quad \Omega = .065$$

$$4\Omega = .260$$

5. FOUR # 5 BOTTLES

$$H = 47.4 \quad H/A = 7.900$$

$$A = 6 \quad H/B = 4.05$$

$$B = 11.7 \quad \Omega = .032$$

$$4\Omega = .128$$

6. FOUR # 6 BOTTLES

$$H = 62.8 \quad H/A = 10.47$$

$$A = 6 \quad H/B = 5.37$$

$$B = 11.7 \quad \Omega = .018$$

$$4\Omega = .072$$

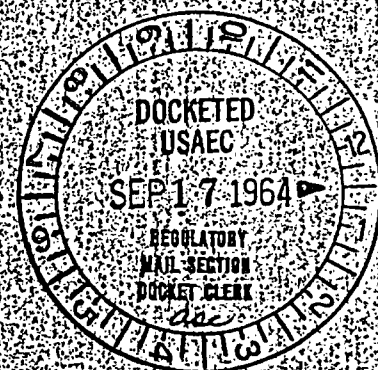
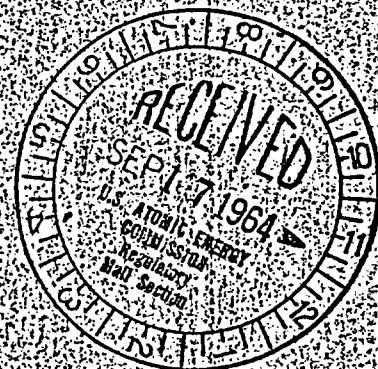
7. FOUR # 7 BOTTLES

$$H = 37.3 \quad H/A = 6.22$$

$$A = 6 \quad H/B = 3.19$$

$$B = 11.7 \quad \Omega = .050$$

$$4\Omega = .200$$



INSIDE STORAGE FACILITIES

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8. FOUR # 8 BOTTLES

$$H = 57 \quad H/A = 9.50$$

$$A = 6 \quad H/B = 4.87$$

$$B = 11.7 \quad \Omega = .022$$

$$4\Omega = .088$$

9. FOUR # 9 BOTTLES

$$H = 78.4 \quad H/A = 13.1$$

$$A = 6 \quad H/B = 6.70$$

$$B = 11.7 \quad \Omega = .012$$

$$4\Omega = .048$$

10. FOUR # 10 BOTTLES

$$H = 84.6 \quad H/A = 14.10$$

$$A = 6 \quad H/B = 7.23$$

$$B = 11.7 \quad \Omega = .010$$

$$4\Omega = .040$$

11. FOUR # 11 BOTTLES

$$H = 94.2 \quad H/A = 15.7$$

$$A = 6 \quad H/B = 8.05$$

$$B = 11.7 \quad \Omega = .008$$

$$4\Omega = .032$$

12. FOUR # 12 BOTTLES

$$H = 114.5 \quad H/A = 19.1$$

$$A = 6 \quad H/B = 9.79$$

$$B = 11.7 \quad \Omega = .005$$

$$4\Omega = .020$$

13. FOUR # 13 BOTTLES

$$H = 110 \quad H/A = 18.3$$

$$A = 6 \quad H/B = 9.4$$

$$B = 11.7 \quad \Omega = .006$$

$$4\Omega = .024$$

GRAND TOTAL 2.556

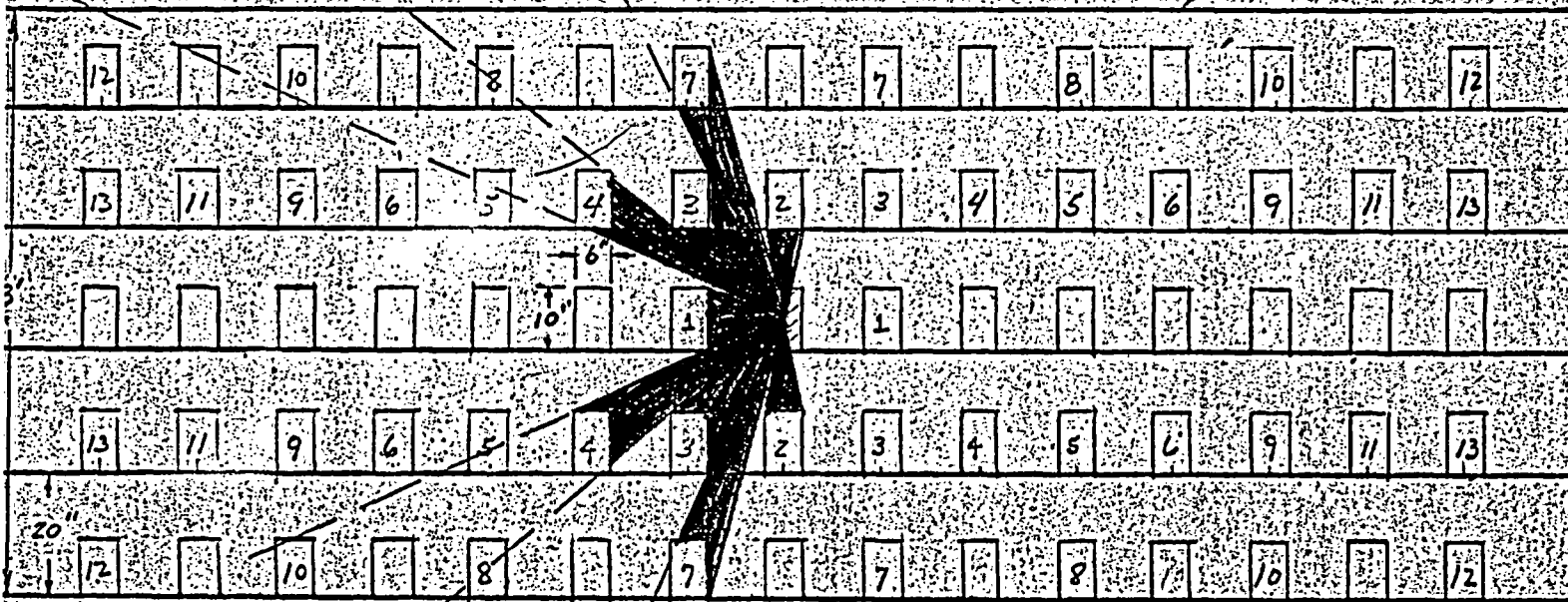
TOTAL FOR BOTTLES 1, 2, 3, 4, 7 IS 2.104 STERADIANS.

THE ABOVE CALCULATIONS WERE MADE ON AN OAK RIDGE GASEOUS DIFFUSION PLANT
SOLID ANGLE SLIDE RULE.

INSIDE STORAGE SHELVES
REF. PARAGRAPH 504.3

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TOP OF WALL



FLOOR

8/6/64