

Dr Luke

Mallinckrodt Telegram Leaders - L. Johnson 12/29/58

Requests temporary permission to ship 5 gal containers in 55 gallon "Shorty", single layer (not stacked), 12 drums max per shift, St. Louis - Lynchburg, Va.

$$50 \text{ lb. } UO_2 \times 0.87 \times 0.042 \times \frac{1}{2.2} = 0.83 \text{ kg } U-235$$

4.2% enr. Mall, 0.848 kg. U-235

87% U

$$\frac{0.051 \times 59.89}{1000}$$

$$\frac{4,000,000 \times 235.12}{760}$$

$$0.2\% \text{ Moisture} \times 50 \times \frac{1}{2.2} = 0.0454 \text{ kg } H_2O \times \frac{2}{18} = 0.005 \text{ kg } H$$

$$H/U = \frac{0.005 \times 235}{0.83} = 1.4$$

$$\text{Vol bird cage} = \frac{.785(24)^2(25.5)}{1728} = 6.68 \text{ cu ft.}$$

5.75 cu ft or 43 gal
 (or Mall, 5.748 gal) sec Mall 12/31/58

$$\text{Vol Cont.} = 5 \text{ gal or } 5 \times 3.79 \frac{\text{gal}}{\text{litre}} = 19 \text{ litres}$$

TID 7016

Table 5 Max U-235, $H/K = 2-20$ 4.5 kg in max vol 4.5 l

Mall, $H/K = 1.4$ 0.83 kg in Vol 19 l

Table 7 Max density U-235 in birdcage
 w. 12" 5x5 spacing. Mall

$$\frac{0.83 \times 19.225}{5.75} = 0.145 \text{ kg/l}^3$$

Vol TID-7016, 1.0 kg/l³
 HR 2-20

Draft Shipping Guide

D.S.G. Mall.

U-235/cont. 1.9 lb or 0.864 kg U-235 0.848 kg U-235

Side to side Sepu, Inf Square 3' 12 3/4"

For square array, Solid angle, 6 coplanar (Total of 7) $\Omega = 2.45$ $\frac{2.45}{4\pi} \times 100 = 19.4\%$
 Mall wants to ship 12 drums OK for $k = 0.65$

B-17