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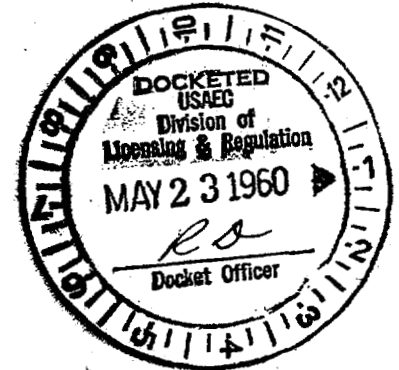
ENGELHARD INDUSTRIES, INC.

*Post Amended
5-20-60*

D. E. MAKEPEACE DIVISION

PINE & DUNHAM STREETS
ATTLEBORO, MASS.
ATTLEBORO 1-0090

May 17, 1960



United States Atomic Energy Commission
Germantown, Maryland

Attention: J.C. Delaney-Licensing Branch
Materials Branch

Reference: SNM-185 - Docket 70-139

Subject: Request For Amendment To Ship Acid Solutions

Gentlemen:

In connection with our nuclear fuel fabricating activities and in particular the manufacture of the core for the Enrico Fermi Fast Breeder Reactor the requirement has arisen to transport an accumulation of several containers of acid pickle solutions containing 25.6% enriched uranium from our Plainville Massachusetts fabricating plant to a licensed commercial refiner of enriched uranium. This action requires an amendment to our license.

D. E. Makepeace requests further amendment to SNM-185 authorizing the shipment of acid solutions containing 25.6% enriched uranium to a commercial refiner for reprocessing. These solutions are generated through the nitric acid pickling of end croppings from PRDC co-extrusions. (Ref. DEM-5 Rev. A., Section 14, Page 17.) The pickling operation is performed in order to salvage as much uranium as possible for recycling purposes. In the course of this operation, some of the uranium goes into solution along with the copper, nickel, and zirconium which is being removed. This operation is done in batches of 6 liters of solution and averages 50 grams U-235 per batch with individual variation running from 18 to 170 grams. U-235.

*Cy this request
sent Inspection
May 24, 1960*

J.C. Delaney
United States Atomic Energy Commission
Germantown, Maryland

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We propose to ship these solutions in containers holding a maximum volume of 12 liters with a maximum mass of 350 grams U-235 per container. The container will consist of a 58 gallon open head steel drum which contains a 6-1/2" diameter galvanized cylinder closed at one end and centered in the drum by means of a wooden support. Three one gallon polyethylene screw cap jars will be inserted into the cylinder in an end to end configuration. The jars are 6" in diameter and 11" tall. Vermiculite will be tightly packed at the top and bottom of the cylinder and between each jar. A top cover will then be placed over the cylinder and the barrel will be sealed for shipment.

The criticality justifications for this container are derived from TID-7019, Guide To Shipment Of U-235 Enriched Uranium Materials. For a 30% enrichment uranium solution, the infinite cylinder diameter is given as 6.3" (Ref. TID-7019, Table II; page 13). Since our polyethylene containers are 6" in diameter, this criterion is met. Also, in table I; page 12, the maximum permissible value for U-235 solutions is given as 350 grams which will be adhered to as our limit. The spacing between adjacent containers is maintained at 18" edge to edge or 24" center to center by virtue of their design. This is in accord with the minimum spacing for 55 gallon drums listed in Table X; page 20 as 1.5 ft. for an in line array.

We propose to ship a maximum of 5 of these containers in an in line array. The barrels will be shored to assure that this configuration is maintained in transit. In the event that the refiner to be selected is Irvington-Baker Division of Engelhard Industries, shipments will be made via Baker truck to be loaded and shored by D. E. Makepeace personnel. There will be no other uranium transported on the vehicle with these shipments.

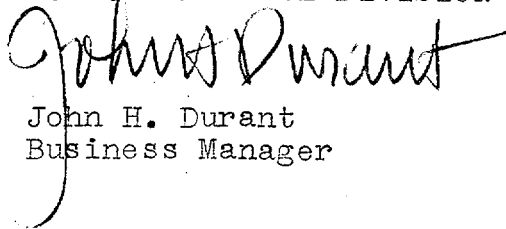
If other licensed commercial sources are employed, the same method of shipment will be used with D. E. Makepeace personnel loading and shoring the refiner's truck.

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We will appreciate your early action and decision on our request. Collect telephone calls will be accepted on this subject if they will expedite the processing of this request.

Very truly yours,

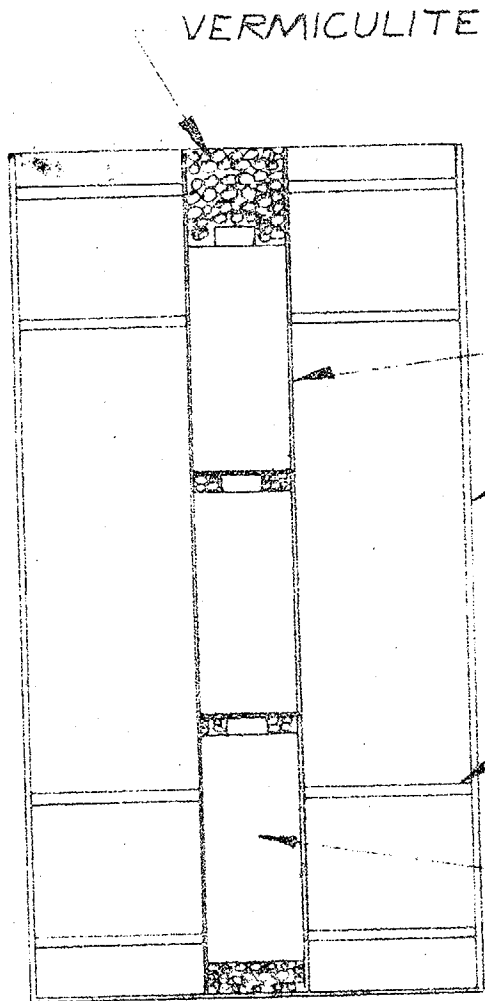
D. E. MAKEPEACE DIVISION

A handwritten signature in cursive script, appearing to read "John H. Durant". The signature is written in black ink and is positioned above the typed name and title.

John H. Durant
Business Manager

JHD/jet

Enclosure: Drawing #50065 container

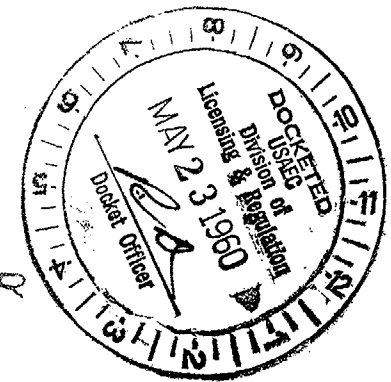


6 1/2 DIA. 18 GA. GALVANIZED CYLINDER

58 GAL. STEEL DRUM

2X4 WOOD BRACES

6" DIA. POLYETHYLENE JAR



G-2		G-1		ITEM	DRAWING NO.	DESCRIPTION	PROJECT NO.	USED ON ASS'Y			
QUANTITY		NO.		NO.							
TOLERANCES UNLESS OTHERWISE SPECIFIED DECIMAL ± 0.05 FRACTIONAL ± 1/64" ANGULAR ± 1/2°					APPROVED DRAWN <i>A.J. Fuller</i> CHECKED APPROVED <i>R. M. Weiss</i> 5/17/60		DATE FINISH & SPECIFICATION MATERIAL & SPECIFICATION		TITLE SHIPPING CONTAINER FOR ENRICHED PICKLE SOLUTIONS		
BREAK ALL SHARP EDGES REMOVE ALL BURRS					ENGELHARD INDUSTRIES, INC. D. E. MAKEPEACE DIVISION ATTLEBORO, MASS.			SCALE 		SIZE A	
								DRAWING NO. 50065		REV	

JOURNAL INU

70-139