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TEXAS INSTRUMENTS

INCORPORATED
MATERIALS & ELECTRICAL PRODUCTS GROUP

June 12, 1979

Mr. Leland C. Rouse, Chief
Fuel Processing & Fabrication Branch
Div. of Fuel Cycle & Material Safety
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

U.S. NUCLEAR REG. COMMISSION
MAIL SECTION

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Reference: SNM-23, Docket 70-33, Request for License Amendment dated May 1, 1979

Gentlemen:

As the result of your staff's review of our request for amendment dated May 1, 1979, we are submitting this cover letter and enclosures revisions. This cover letter replaces the cover letter dated May 1, 1979, in its entirety. Also enclosed you will find page changes to Enclosure III.

It is requested that U.S.N.R.C. License No. SNM-23, Docket No. 70-33, Amendment No. 8, dated July 28, 1979, be amended to:

1. Permit the temporary storage of 5 HFBR (or similar) loaded shipping containers at work location number 31. See Enclosure III, Table 1, page 4. No justification for this request is provided as the storage of these containers precludes the loading of the work location with other containers or SNM. **7908150517**
2. Permit the use of a newly developed borated phenolic foam insulated shipping container for storage and transfer of HFBR, NBSR, ORR, or other box type fuel elements within the HFIR Facility (with no greater ^{235}U content than HFBR fuel elements, approximately 351 g ^{235}U). As presented in the enclosures of May 1, 1979, designer and independent calculations demonstrate that the newly developed container meets Fissile Class I package requirements of 10 CFR Part 71. Therefore, the storage of box type fuel elements within the newly developed container will not affect the nuclear criticality safety of fuel storage at TI. Use of the newly developed shipping containers are limited to available shipping container storage space within location numbers (30), (31), (41), (51), and (57) as permitted by Table 1, Appendix 1, of Amendment No. 8.

FEE EXEMPT

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The maximum number of loaded newly developed shipping containers will not exceed 12, as is currently required by license condition #24.

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Enclosures I and II provide information and form the justification of this request, and Enclosure III provides an update of Table 1 of Appendix 1 in accordance with past correspondence between TI and your staff. All changes to Table 1 are itemized in the enclosure.

Sincerely,

Calvin M. Hopper

Calvin M. Hopper
Manager Nuclear Safety

/ck

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ENCLOSURE III

The following Table 1 of Appendix 1 of SNM-23 License Amendment No. 8, is attached to update the table to conform to this amendment request and previous corrections prior to NRC approval of Amendment No. 8.

Changes indicated on the following sheet revisions were documented by letters as follows:

<u>Letter to NRC from T.I. dated:</u>	<u>Work Location No. Wording Change</u>
April 13, 1978	(21), (68)
May 5, 1978	(22), (23), (24), (32), (33), (48), (54), (55), (59), (67), (79)
*This request	(30), (51) to eliminate reference to four elements
	(31) to permit temporary storage of loaded newly developed shipping containers in lieu of each 6M container or fuel plates

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TABLE 1

Rev. B

MSQ FOR VARIOUS
ARRAYS & WORK PLACES

<u>LOCATION NO.</u>	<u>LOCATION NAME</u>	<u>MSQ</u>	<u>OPERATION</u>
(1)	Cage	$\bar{<}$ 167 Kg ^{235}U total U_3O_8 powder $\bar{<}$ 6.4 Kg ^{235}U per birdcage or 6M container (max. 2 bottles* per birdcage or 6M container) $\bar{<}$ 26 birdcages and/or 6M containers $\bar{<}$ 3.2 Kg ^{235}U per bottle*	Store unissued U_3O_8
(2)	Drybox (furnace room)	$\bar{<}$ 3.2 Kg ^{235}U U_3O_8 powder (max. 1 bottle*)	Sieve and/or blend U_3O_8
(3)	Balance (vault-like room)	$\bar{<}$ 3.2 Kg ^{235}U U_3O_8 powder (max. 1 bottle*)	Weigh unissued U_3O_8 in bottle or cans
(4)	Drybox (vault-like room)	$\bar{<}$ 3.7 Kg ^{235}U U_3O_8 powder (5.6 liter SS container & 0.5 liter SS can)	Weigh U_3O_8 for issue to process or for samples
(5)	Drybox (press room)	$\bar{<}$ 3.7 Kg ^{235}U U_3O_8 powder (5.6 liter SS container 0.5 liter SS can)	Weigh U_3O_8 into lot charges or weigh U_3O_8 into compact charges
(6)	Blend bench (press room)	$\bar{<}$ 936 gm ^{235}U or 48 charges total $\bar{<}$ 468 gm ^{235}U or $\bar{<}$ 24 charges per blender U_3O_8 & aluminum powder	Blend compact charges
(7)	Press (press room)	$\bar{<}$ 468 gm ^{235}U in 24 U_3O_8 & aluminum powder charges or compacts or a combination of each	Press compact charges
(8)	Storage array (press room)	10 storage positions $\bar{<}$ 469 gm ^{235}U /position or $\bar{<}$ 24 compacts	Store compact charges or pressed compacts

* 1 liter plastic bottle

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TABLE 1

Rev. B

<u>LOCATION NO.</u>	<u>LOCATION NAME</u>	<u>MSQ</u>	<u>OPERATION</u>
(9)	Inspection bench	< 468 gm ²³⁵ U or 24 compacts	Inspect compacts
(10)	Vacuum oven (furnace room)	< 2.808 Kg ²³⁵ U or 144 compacts	Vacuum anneal compacts
(11)	Wash water boiler fur- nace room	< 24 gms ²³⁵ U	Boil off wash water
(12)	Bridgeport milling machine furnace room	< 350 gms ²³⁵ U 1 fuel plate 12 compacts	Shear, punch or machine fuel plate sections or experimental compacts
(13)	Waste drum press furnace room	< 24 gms ²³⁵ U < one drum	Compact combus- tible waste
(14)	Waste drum storage furnace room	< 48 gms ²³⁵ U < two drums with < 24 gms ²³⁵ U/drum	Store closed waste drums
(15)	Vacuum cleaner storage press room	< 24 gms ²³⁵ U	Store vacuum cleaner
(16)	Bottle cart	< 3.2 Kg ²³⁵ U < one bottle or covered stainless steel can of U ₃ O ₈	Move bottles or stainless steel cans of U ₃ O ₈
(17)	Compact and charge jar carts	6 storage positions for compacts < 468 gms ²³⁵ U or < 24 compacts/position or 3 storage positions for compact charges < 468 gms ²³⁵ U or < 24 charges/position	Move: compacts & charge jars from vault-like room to vacuum furnace and to and from press room
(18)	Storage array (vault-like room)	25 storage positions < 3.2 Kg ²³⁵ U/position	Store U ₃ O ₈ powder, compact charges, sectioned fuel plates
(19)	Vacuum storage (vault-like room)	< 11.252 Kg ²³⁵ U < 576 compacts	Store 'as pressed' or 'as annealed' compacts

TABLE 1

<u>LOCATION NO.</u>	<u>LOCATION NAME</u>	<u>MSQ</u>	<u>OPERATION</u>
	GENERAL MFG. AREA CLEANING ROOM		
(20)	Pickling & Rinse tanks	< lot fuel plates, each lot of plates < 468 gm ²³⁵ U	Pickle fuel plates
(21)	Degreaser	1 lot fuel plates each lot of plates < 468 gm ²³⁵ U < 12 fuel plates in the Degreaser at one time.	Degrease fuel plates
(22)	Rinse tanks (deionized water)	1 HFIR outer element or 1 HFIR inner element or 10 HFBR or similar elements with < ²³⁵ U content (a cart of 10 HFBR or similar elements may be in the work area)	Rinse elements one HFIR element at a time or up to five box-type elements at a time (remainder of box-elements to be inside storage cart)
(23)	Deburr & clean	1 HFIR outer element or 1 HFIR inner element or 10 HFBR or similar elements with < ²³⁵ U content (a cart of 10 HFBR or similar elements may be in the work area) maximum no. of elements being deburred & cleaned at a time - 2.	Remove burrs and chips and wipe clean
	<u>Element Assy. Room</u>		
(24)	Assembly stand	or 1 HFIR outer element or 1 HFIR inner element + 23 fuel plates in box, the box of plates at lease 6" from the element.	Assemble element
(25)	Storage array	20 storage positions < one lot of fuel plates per position each lot of plates < 468 gm ²³⁵ U or 24 plates.	Store fuel plate in preparation for assembly into elements.
(26)	Bench	< one lot of fuel plates each lot of plates < 468 gm ²³⁵ U or 24 plates.	Inspect and deburr fuel plates

<u>LOCATION NO.</u>	<u>LOCATION NAME</u>	<u>MSQ</u>	<u>OPERATION</u>
GENERAL MFG. AREA			
(27)	Fuel plate assy.	$\bar{\leq}$ 468 gm ^{235}U or $\bar{\leq}$ 24 compacts or 12 assemblies	Assemble compacts, frames & covers. One assy. has 2 compacts
(28)	Vacuum storage array	$\bar{\leq}$ 8 storage positions $\bar{\leq}$ 468 gm ^{235}U or $\bar{\leq}$ 12 assemblies per position	Store 'as welded' fuel plate assemblies. One assy. has 2 compacts
(29)	Element storage array (near auxiliary generator)	3 element carts or 3 6M containers 6M containers to have $\bar{\leq}$ 9.6 Kg ^{235}U per container	Store 'in process' elements or 'as received' U_3O_8
(30)	Storage array (near overhead door)	10 shipping containers, 5 inner HFIR elements and 5 outer HFIR elements with one element per container; or 10 containers with 4 HFBR or similar elements with $\bar{\leq}$ ^{235}U content per element or 10 6M containers $\bar{\leq}$ 9.6 Kg ^{235}U per container; or a total of 10 of any of the above containers	Store completed elements or 'as received' U_3O_8
* (31)	Shear	$\bar{\leq}$ 468 gm ^{235}U $\bar{\leq}$ 24 fuel plates <u>or</u> $\bar{\leq}$ 5 6M containers $\bar{\leq}$ 9.6 Kg ^{235}U per container, or 5 HFBR (or similar) shipping containers.	Trim edges and/or ends of fuel plates, or temporarily store as received U_3O_8 or loaded containers
(32)	Weld Milling Machine Shop	1 element cart; maximum number of elements being worked on in work station at a time - 2.	Weld fittings or store elements
(33)	Miller, Kearney and Trecher	1 element cart; maximum number of elements being work on in work station at a time - 2.	Mill or store elements
(34)	Drill press	1 HFBR or similar element	Drill holes in elements as required.

TABLE 1

<u>LOCATION NO.</u>	<u>LOCATION NAME</u>	<u>MSQ</u>	<u>OPERATION</u>
(35)	Miller, VanNorman	1 HFBR or similar element	Mill end fittings and/or side plate
(36)	Miller, Cincinnati	1 HFBR or similar element	Mill end fittings and/or side plates
(37)	Surface plate	1 HFBR or similar element	Inspect or hand work element
(38)	Work bench (at end of surface plate)	1 HFBR or similar element	Inspect, rivet, or hand work element
(39)	Work bench and straightening fixture	1 HFBR or similar element	Straighten, rivet or hand work element
(40)	Miller, Bridgeport	1 HFBR or similar element	Mill elements
(41)	Element storage array	12 element carts and/or HFIR or HFBR or ORR shipping containers and/or 6M containers. Each 6M container to hold ≤ 9.6 Kg ^{235}U	Store 'in process or completed elements or 'as received' ^{235}U
	<u>Lathe Machine Shop</u>		
(42)	American lathe	\leq one inner or one outer HFIR element	Machine inner & outer HFIR elements
(43)	Work place	\leq one inner or one outer HFIR element	Deburr, engrave, cut lands, misc. hand operations
(44)	Miller, Bridgeport	\leq 468 gm ^{235}U \leq 24 fuel plates	Machine plates
(45)	Surface plate	\leq one inner or one outer HFIR element or one HFBR or similar element	Inspect elements

<u>LOCATION NO.</u>	<u>LOCATION NAME</u>	<u>MSQ</u>	<u>OPERATION</u>
(46)	Monarch lathe	< one inner or one outer HFIR element	Machine HFIR elements
(47)	Storage array	4 element carts	Store 'in process elements.
<u>General Mfg. Area</u>			
(48)	Hot bond mill & Grieves Hendry oven.	< 936 gm ²³⁵ U 24 fuel plates and 12 bonding assys; 12 bonding assemblies are to be at least 6" from the nearest fuel plate and remain on work bench until oven is empty.	Hot roll bond and load degreasing rack.
(49)	Trent furnace	< 468 gm ²³⁵ U 24 fuel plates	Anneal fuel plates
(50)	Hevi-Duty furnace	< 2.808 kg ²³⁵ U or 144 fuel plates	Anneal fuel plates
* (51)	Storage array	5 HFBR shipping containers or similar shipping containers for box-type fuel elements	Store completed elements
(52)	Sciaky welder	one inner or one outer HFIR element	Weld, assy. or remove rings, remove spacers, HFIR elements
(53)	Dispatch oven	one inner or one outer HFIR element	Assemble or remove spacers HFIR elements
(54)	Roll swage BNL	one HFBR or similar element plus 48 fuel plates. Fuel plates in boxes to be placed in designated areas on work bench. Boxes separated by 6" min. spacing. No element to be placed on work bench. Work bench to be used with one roll swage at a time.	Assemble & roll swage elements
(55)	Roll swage ORR	one HFBR or similar element plus 48 fuel plates. Fuel plates in boxes to be placed in	Assemble & roll swage elements

<u>LOCATION #</u>	<u>LOCATION NAME</u>	<u>MSQ</u>	<u>OPERATION</u>
(55)	continued	areas on work bench. Boxes separated by ' minimum spacing. No element to be placed on work bench. Work bench to be used with one roll swage at a time.	
(56)	Cold roll mill	< 468 gm ²³⁵ U or 24 fuel plates	Cold roll fuel plates and load degreasing rack Check single plates at fluoroscope
(57)	Work place under crane	1 element cart and/or shipping container	Store 'in process' or completed element or perform misc. operations on element Load shipping containers
(58)	Storage array	48 storage positions < one lot of fuel plates or one HPBR or box-type element Each lot of plates < 468 gm ²³⁵ U 24 plates	Store 'in process' or completed fuel plates, or HPBR and/or ORR elements
(59)	Press Brake	< 936 gm ²³⁵ U or 48 plates; up to 25 plates may be in temporary assembly, w/no more than 24 plates outside temporary element assembly.	Blank, form fuel plates or load degreasing rack
(60)	Storage array	<10 waste or material discard (laundry) drums Any drum to contain < 24 gms ²³⁵ U & 6 6M containers with < 50 fuel plates or equivalent with < 975 gms ²³⁵ U each container.	Store sealed waste material discard drums and load, seal and store 6M containers
	<u>Inspection</u>		
(61)	Storage array	52 storage positions < one lot of fuel plates per position Each lot of plates < 468 gm ²³⁵ U 24 plates	Store 'in process' or completed fuel plates

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<u>LOCATION #</u>	<u>LOCATION NAME</u>	<u>MSQ</u>	<u>OPERATION</u>
(62)	Surface plate	1 HFIR inner or outer fuel element	Inspect element
(63)	Inspection Table #1	< 468 gm ²³⁵ U or 24 fuel plates	Inspect fuel plates
(64)	Inspection Table #2	< 468 gm ²³⁵ U or 24 fuel plates	Inspect fuel plates
(65)	X-ray homogeneity scanner #1	< 468 gm ²³⁵ U or 24 fuel plates	Inspect fuel plates
(66)	X-ray homogeneity scanner #2	< 468 gm ²³⁵ U or 24 fuel plates	Inspect fuel plates
(67)	Ultrasonic test	< 585 gms ²³⁵ U or < 30 fuel plates with up to 6 plates immersed in water. All fuel plates not being processed are to be in boxes. Boxes of fuel plates are to be separated from other boxes of fuel plates by at least 6".	Inspect fuel plates
(68)	Storage array	18 storage positions 16 positions for < one lot of fuel plates per position, each lot of plates < 468 gms ²³⁵ U or 24 plates and 2 element carts.	Store "in process" or completed fuel plates Store "in process" or completed elements
(69)	Inspection Table #3	< 468 gm ²³⁵ U or 24 fuel plates	Inspect fuel plates
(70)	Inspection Table #4	< 468 gm ²³⁵ U or 24 fuel plates	Inspect fuel plates
(71)	Inspection Table #5	< 468 gm ²³⁵ U or 24 fuel plates	Inspect fuel plates
(72)	Inspection Table #6	< 468 gm ²³⁵ U or 24 fuel plates	Inspect fuel plates
(73)	Inspection Table #7	< 468 gm ²³⁵ U or 24 fuel plates	Inspect fuel plates
(74)	Element channel probe	one element HFIR or box-type	Probe element channels

TABLE 1

<u>LOCATION NO.</u>	<u>LOCATION NAME</u>	<u>MSQ</u>	<u>OPERATION</u>
(75)	Storage array	40 storage positions < one lot of fuel plates per position Each lot of plates < 468 gm ²³⁵ U 24 plates	Store 'in process' or completed fuel plates
(76)	Fluoroscope room	< 468 gm ²³⁵ U or 24 fuel plates	Fluoroscope and punch or fluoroscope inspect fuel plates
(77)	Radiography room	one (1) inner or outer HFIR element or one (1) cart of HFBR or ORR elements or 1 lot of fuel plates < 468 gm ²³⁵ U or 24 fuel plates	Radiograph elements or fuel plates
(78)	Storage array	20 storage positions < one lot of fuel plates per position Each lot of plates < 468 gm ²³⁵ U or 24 fuel plates	Store 'in process' or completed fuel plates
(79)	Gamma count and Alpha count	< 585 gm ²³⁵ U or < 30 fuel plates (includes 6 standard plates). All fuel plates not being processed are to be in boxes. Boxes of fuel plates are to be separated from other boxes of fuel plates by at least 6".	Gamma count and alpha count ²³⁵ U content of fuel plates
(80)	Storage array	4 standard 30 gal. waste drums with 3, 7, 12, & 24 gms ²³⁵ U	Store standards for waste drum counting
(81)	Storage array	1 element cart	Store 'in process' elements
(82)	Degreasing rack cart (two)	< 468 gm ²³⁵ U or 24 fuel plates or < 3.3 Kg ²³⁵ U < one bottle of U ₃ O ₈ per cart.	Move one lot of fuel plates in two degreasing racks or one bottle of U ₃ O ₈

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TABLE 1

Rev. B

<u>LOCATION NO.</u>	<u>LOCATION NAME</u>	<u>MSQ</u>	<u>OPERATION</u>
(83)	Charge tray	24 charges 468 gm ²³⁵ U	Hold charges
(84)	Compact tray	24 compacts 468 gm ²³⁵ U	Hold compacts
(85)	Anneal rack	24 fuel plates 468 gm ²³⁵ U	Anneal plates
(86)	Fuel plate storage tray	24 fuel plates 468 gm ²³⁵ U	Store plates
(87)	Fuel plate storage box	24 fuel plates 468 gm ²³⁵ U	Store plates

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