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COVER SHEET FOR FILE NO. 1 - DOCKET 70-139

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THIS FILE CONTAINS CORRESPONDENCE TO & FROM APPLICANT.

FOR INTERNAL MEMOS, STATE LETTERS, ETC., SEE FILE NO. 2.

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SEP 2 7 1963

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Engelhard Industries, Inc. Pine and Dunham Streets Attleboro, Mansachusetts

Attention: Nr. N. M. Weise

Gentlement

The information contained in your latter of June 27, 1963, regarding the levels of uranium contamination remaining in your facility after completion of decontamination of the fecilities and equipment, has been reviewed in connection with the activities performed under licenses SNR-165 and SUB-172.

As a result of this review, we have concluded that due to the insignificance of the contamination which may be present on equipment in this particular instance, no heated to health and safety is involved and no license would be required for any person receiving or possessing such equipment or facilities.

Sinceraly yours.

Director Division of Licensing and Regulation

Distribution: Formal Doc. Rm. Br. & Div. rfs Compliance (2) Suppl.

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D. E. MAKEPEACE DIVISION

PINE & DUNHAM STREETS ATTLEBORO, MASS. ATTLEBORO 1-0090 Phone: No. Attleboro MYrtle 5-9358

June 27, 1963

United States Atomic Energy Commission Division of Licensing and Regulation Source and Special Nuclear Material Branch Washington 25, District of Columbia

Attention: Mr. Donald A. Nussbaumer

Subject: Cancellation of SNML-185 and SUB-172

Reference: Docket No/ 70-139 and 40-768

Gentlemen:

L&R File Copy

Due to the termination of nuclear activities formerly engaged in by the D. E. Makepeace Division of Engelhard Industries, Inc., it is hereby requested that the above-referenced nuclear material licenses be cancelled. As a basis for this request, the attached data list represents current fixed and removable contamination levels which exist in our former nuclear facility. These values were measured in accordance with procedures as outlined in your letter of August 15, 1962.

We feel that the present levels of activity are sufficiently below acceptable standards to justify the termination of our licenses, and the use of the area for non-nuclear activities. The readings which are attached were verified by Mr. Walter Lorenz of the Compliance Division during his inspection of October 23-25, 1962. However, if further verification should be required, it is requested that an inspection be made as soon as possible so that the facility may be used at the earliest opportunity.

Should further information be required, please call the writer collect before July 19, 1963.

Very truly yours,

ENGELHARD INDUSTRIES, INC. D. E. Makepeace Division

M. M. Mein

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N. M. Welss, Health & Safety Manager

NMW:pmr Enc.

DOCK_J NO. 40-768 70-13

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JUN 28 1963

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FINAL DECONTAMINATION RESULTS D. E. MAKEPEACE DIVISION NUCLEAR FACILITY

Reference: D. E. Makepeace, Plainville, Massachusetts, Nuclear Areach Drawing A. J. Fuller and H. A. Corbishley 9/28/60

Symbols:

Floors

Walls

ENGELHARD INDUSTRIES, INC.

Area	Fixed Alpha (d/m/100 cm ²)	Removable Alpha (d/m/100 cm ²)	Fixed Beta-Gamma (mr/hr.)	Removable Beta-Gamma (d/m/100 cm ²)
A	400	66	< 0.1	21
B	600	73	< 0.1	20
C	300	96	< 0.1	22
D	450	52	< 0.1	26
E	600	120	< 0.1	17
F	500	35	< 0.1	20
G	600	123	< 0.1	26
Н	550	142	< 0.1	24
	1000	140	< 0.1	31
J	1000	131	< 0.1	21
K	700	102	∠ 0.1	22
L	350	86	۷.1 ک	30
M	350	84	< 0.1	23
N	600	67	< 0.1	16
0	1000	116	< 0.1	22
P	1000	85	< 0.1	24
Q	1500	78	く 0.1	27
R	1000	114	0.1	25
S	1000	114	0.1	31

ENGELHARD INDUSTRIES, INC.

Final	Decontamination Results	
D. E.	Makepeace Nuclear Facility	

<u>Area</u>	Fixed Alpha (d/m/100 cm ²)	Removable Alpha (d/m/100 cm ²)	Fixed Beta-Gamma (mr/hr.)	Removable Beta-Gamma (d/m/100 cm ²)
T	1000	124	< 0.1	23
U	1000	131	< 0.1	19
V	900	59	۷.۱ ک	17
W	2000	125	0.1	25
X	2500	127	0.1	28
Y.	2500	197	0.2	37
Z	1000	65	∠ 0.1	23
AA	1000	65	< 0.1	27
BB	700	133	< 0.1	24
22	400	82	0.2	32
DD	1000	80	< 0.1	29
W=1	0	2 10	< 0.1	0
W-2	j o	∠ 10	۷۵.۱ ک	0
W-3	0	く 10	< 0.1	0
W-4] 0	۲ اه	< 0.1	0
W-5] 100	18	< 0.1	7
W-6] 150	24	< 0.1	9
W-7	j o	۲ او	< 0.1	0
W-8	j o	< 10	< 0.1	2
W- 9] 20 0	43	< 0.1	11

Ceilings, Pipes, Lights, All Overhead Fixtures

Removable Alpha - All less than 10 d/m/100 cm². Fixed Alpha - All less than 10 d/m/100 cm². Removable Beta-Gamma - All less than 10 d/m/100 cm². Fixed Beta-Gamma - All less than 0.1 millirad/hr.

Page 2

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APR 2 6 1963

DONALD A. NUSSBAUMER, CHIEF SOURCE & SPECIAL NUCLEAR MATERIALS ER. DIVISION OF LICENSING & REFULATION U. S. ATOMIC ENERGY COMMISSION GERMANTONN, MARTLAND

ENGELHARD INDUSTRIES, INC. D. E. MAKEPEACE DIVISION PINE AND DUNHAM STREETS ATTLEBORO, MASSACHUSETTS ATTENTION: MR. NORTON M. WEISS

LICENSE SNM-185 IS HEREBY AMENDED TO EXPIRE JULY 31, 1963 IN ACCORDANCE WITH YOUR TELETYPE REQUEST DATED APRIL 25, 1963. THIS LICENSE AS AMENDED AUTHORIZES YOUR CONTINUED POSSESSION OF THE SPECIAL NUCLEAR MATERIAL WHICH IS PRESENT ONLY AS CONTAMINATION. REFERENCE DOCKET 70-139: LR:JJL

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70-139 L&R:JJL

JAN 23 1963

Engelhard Industries, Inc. D. E. Makepeace Division Pine and Dunham Streets Attleboro, Massachusetts

Attention: Mr. Norton M. Weiss Health and Safety Manager

Gentlemen:

License SNM-185 is hereby emended to expire April 30, 1963, in accordance with your request of January 21, 1963. All other terms and conditions of the license remain unchanged.

FOR THE U. S. ATOMIC ENERGY COMMISSION

Donald A. Mussbaumer, Chief Source & Special Muclear Materials Branch Division of Licensing & Regulation

DISTRIBUTION: Formal & Suppl. Dockets Document Room H. J. McAlduff, OROO D. George, NMM Div. of Compliance, Hq. (2) w/cy of twx dated 1-21-63 D. A. Nussbaumer, L&R Br. & Div. Reading files State Health(2)

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Division of Licensing & Regulation

APR 2 5 1963

Docket Office

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U.S. ATOMIC ENERGY COMM.

U S ATOMIC ENERGY COMMISSION 4/25/63 DIVISION OF LICENSING AND REGULATION WASHINGTON, D C ATTENTION DONALD A NUSSBAUMER . CHIEF SOURCE AND SPECIAL NUCLEAR MATERIALS BRANCH

REFERENCE DOCKET 70-139. REQUEST ADDITIONAL NINETY DAY EXTENSION OF SPECIAL NUCLEAR MATERIALS LICENSE 185 TO COMPLETE DECONTAMINATION OF FORMER NUCLEAR AREA. NEW EXPIRATION DATE WILL BE JULY 31, 1963

ENGELHARD INDUSTRICXXX INDUSTRIES INC D E MAKEPEACE DIVISION N. M. WEISS, HEALTH AND SAFETY MANAGER

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MATERIALS BRANCH

REFERENCE DOCKET 70-139 AND 40-768. REQUEST FURTHER NINETY DAY EXTENSION OF SPECIAL NUCLEAR MATERIALS LICENSE 185 TO ALLOW COMPLETION OF DECONTAMINATION PROGRAM IN FORMER NUCLEAR AREA. NEW EXPIRATION DATE WILL BE APRIL 30, 1963

TWX INCOMPS

D E MAKEPEACE DIVISION OF ENGELHARD INDUSTRIES, INC NORTON M WEISS, HEALTH AND SAFETY MANAGER



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INCOMING TELEGRAM

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SOURCE AND SPECIAL NUCLEAR MATERIALS BRANCH ATTN MR DONAL GERMANTOWN MD RTE WUX WASHDC

REFERENCE: DOCKET 70-139; SNM-185 WITH REFERENCE TO TELEPHONE CONVERSATIONS THIS DATE WITH DR. CHARLES LUKE AND MR WARREN EISTER, THE FOLLOWING INFORMATION SHOULD BE ADDED TO OUR AMENDMENT REQUEST OF MAY 18,1961 THE PROPOSED ADDITIONAL STORAGE AREA FOR PRDC CORE SUB ASSEMBLIES IS LOCATED IN THE METAL BUILDING PREFERREDTO IN OUR REQUEST DATED MARCH 11, 1960 THIS BUILDING IS LOCATED AT A MINIMUM DISTANCE OF 170 FEET FROM OUR PRESENT CORE STORAGE ROOM AS OUTLINED ON OUR DRAWING SK-86 PREVIOUSLY SUBMITTED WITHIN THE BUILDING THERE IS A MINIMUM DISTANCE OF 25 FEET BETWEEN THE PRESENT FUEL PIN STORAGE AREA AND THE PROPOSED

INCOMING TELEGRAM

CORE STORAGE CAGE WE FEEL THAT THIS REPRESENTS SAFE SPACING DETWEEN THE TWO ARRAYS (AREAS) SHOULD FURTHER INFORMATION BE REQUIRED, PLEASE CALL THE WRITER COLLECT ENGELHARD INDUSTRIES INC, D E MAKEPEACE DIVN NORTON WEISS HEALTH AND SAFETY MANAGER

70-139 SNM-185 18 196111 1960 170 SK-86 25 .--



D. E. MAKEPEACE DIVISION

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

January 22, 1960

United States Atomic Energy Commission Germantown Maryland

- ATTN: Mr. Charles McCallum Licensing Branch
- REF: SNM-185, Docket 70-139 Amendment to Incinerate Organic Waste

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Gentlemen:

Further to our application for an amendment to reduce licensed uranium containing organic waste material in our incinerator dated December 15, 1959, we have received your request for clarification and assurances to prevent the accumulation of critical amounts of special nuclear material containing ash as well as questions concerning operation of this unit when the prevailing wind blows smoke over the adjacent Turnpike Lake. The following additional information we believe is pertinent.

Waste material which contains enriched uranium will be segregated from both normal and depleted uranium-contaminated materials by being placed in separate, colored, galvanized containers which are 30" in diameter, 24" high, and weigh 13½ lbs. These containers will be weighed before removal to the incineration area to assure that a weight of 80 lbs. of material is not exceeded. This figure was established on the basis that our combustible waste material contains 1% of fully enriched uranium by weight. We feel that this is a highly conservative estimate. The amount of U-235 which would be contained in this 80 lbs. batch would total 338 grams using the previously mentioned criteria. This amount, being less than an "always-safe" mass, will be incinerated separately. U. S. Atomic Energy Commission Mr. Charles McCallum

-1.1 × 201

January 22, 1960 Amendment to Incinerate Organic Waste

After incineration, the ashes from each batch of enriched waste will be removed and placed in a 15 gal. open head bolt locking steel drum which is 15-3/8" in diameter and 19-4" high. We estimate that we will generate approximately 26.4 lbs. of ash per batch, using a 66% reduction in weight due to burning. (REF: TID-7517, P. 229, Open Field Burning of Low-Level Radioactive Contaminated Combustible Wastes, Harris and Weinstein.) On the basis of 15 lbs. of ash per cubic foot, we will generate a volume of 1.76 cubic feet of ash per batch. This amount will nearly fill a 15 gal. drum which has a volume of 2.06 cubic feet.

Since the incinerator will be cleaned after every batch of enriched waste has been burned, there will be no possibility of an accumulation of ash or residue in crevices or corners.

Depleted and normal uranium-containing waste material will be incinerated in larger batches and the ashes placed in 30 or 55 gal. steel drums for disposal.

We propose to operate this facility only at such times as the prevailing wind permits us to perform air monitoring down wind from the stack, (i.e. the incinerator will not be operated when the referenced lake is down wind from the stack).

We trust the foregoing is sufficient to enable you to proceed with the requested amendment action. If there are further questions, please do not hesitate to telephone collect in the interests of early disposition.

Thank you very much.

Very truly yours,

D. E. MAKEPEACE DIVISION

John H. Durant /Business Manager

JHD/bs





United States Atomic Energy Commission Germantown, Maryland

Attention: C.P. McCallum, Division of Licensing and Regulation.

Reference: SNM 185 Docket 70-139 Amendment Application DEM-9

Gentlemen:

In response to your letter of January 4th requesting clarification of our feasibility report on Fabrication of Fuel Elements for AFNETF, we are pleased to submit the following:

1. Scrap material which will be generated in the fabrication of AF-NETR fuel elements will fall into three categories; end croppings, blanked edges (ladders), and rejected cores. This material will be sheared when necessary to assure that it will fit into our standard one gallon steel scrap containers which are 8" in diameter and 7" deep. The maximum quantity of contained U-235 which will be placed in one pail is 350 grams. Scrap pails will be stored in our enriched scrap storage area which consists of three parallel arrays which maintain these containers at a 12" edge-edge distance from all others within the same array. There is a 2 ft. spacing between each of the three arrays.

The conditions indicated above are consistent with safe interaction criteria as outlined in K-1380, Studies in Nuclear Safety, Part I, page 1 and tables I and II, pages I-3 and I-4. The stated criteria of K-1380 prescribe that a container of fissionable material should:

- 1. Be safe under any conditions of moderation and complete water reflection.
- 2. Be separated at a distance of at least 12" from other containers of fissionable materials.
- 3. Satisfy the requirements of a safe solid angle subtended from other containers of fissionable materials.

United States Atomic Energy Commission Germantown, Maryland January 22, 1960

Gentlemen:

The first two criteria are met by our containers in that the amount of U-235 is "always-safe", and the spacing is 12" edge-edge between adjacent units. The fractional solid angle subtended by a central pail in our arrays has been calculated by the method outlined in K-1380, Table II (2.), page I-4, to be .0357 steradians which is considerably smaller than the safe value of .200 steradians which is used at ORGDP (Ref. K-1019, Rev. 4, page 26, table XX.)

- 2. With respect to semi-finished and finished elements, the same type of criteria will be applied. The maximum mass limits to be used will be 854 grams U-235. Spacing of 12" edge-edge between tote trays will be maintained in in-process storage areas. Fractional solid angles of in-process and finished materials range from .045 to .095 steradians in comparison with a safe value of .480 steradians for 1.25 in. slabs as presented in table XX. of K-1019.
- 3. Dimensions of the shipping container to be used will be 42" long by 28" wide by 20" high. This will allow for a 6" spacing of the elements in all directions while in the container. Similar containers which were stacked or placed adjacent to each other would thus provide a separation of 12" between the elements contained therein. We propose to ship completed fuel elements in maximum quantities of twelve (2 shipping containers each containing 744 grams U-235).

Shipment will be made via Railway Express, Protective Signature Service. The construction of the shipping container affords protection against interaction with similar types of containers which might be brought in contact while in transit. The size of the container is such that telescoping into a birdcage due to shifting of a load during shipment will be impossible. Standard ICC procedures will be followed with regard to labeling of containers to inform the carrier of the contents therein.

We trust the foregoing will enable early favorable action on our amendment application.

Very truly yours,

D. E. MAKEPEACE DIVISION

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John H. Durant Business Manager

JHD/jet