MEMO ROUTE SLIP
Form AEC-93 (Rev. May 14, 1947)

See me about this.	For concurrence.	For action.
Note and return.	For signature.	For information.

TO (Name and unit)	INITIALS / DATE	REMARKS
Dr. Peter A. Morris, Asst. Director for Reactors, CO:HQ		NUCLEAR METALS, INC., AND ENGELHARD INDUSTRIES REPORTS ✓
TO (Name and unit)	INITIALS / DATE	Please note that two Form AEC-591's were issued for License Nos. SNM-185 (Engelhard) and SNM-65 (Nuclear Metals), by Mr. P. B. Klevin, Region I. The two forms, noting no items of non-compliance, were forwarded to Headquarters May 7, 1962.
TO (Name and unit)	INITIALS / DATE	
FROM (Name and unit) R. W. Kirkman, Director, CO:I		REMARKS
PHONE NO. 281	DATE 6/15/62	

USE OTHER SIDE FOR ADDITIONAL REMARKS

U. S. GOVERNMENT PRINTING OFFICE : 1957—O-422007

P. A. Morris, Asst. Dir. for Reactors
Division of Compliance

JUN 14 1962

J. R. Sears, Reactors Specialist
Region I, Division of Compliance

D. E. MAKEPEACE, DIVISION OF ENGELHARD INDUSTRIES

No items of noncompliance were observed during this visit to D. E. Makepeace.

Operations are being performed according to detailed written procedures. In our judgment, there was negligible risk to the health and safety of the public in these operations at the time of the visit, and there is reasonable assurance that the level of risk will not increase during the completion of the current jobs.

Enclosure:
2 cys of Rpt.

OFFICE ▶	COMPLIANCE					
SURNAME ▶	SEARS:am	KIRKMAN				
DATE ▶	6/13/62					

Form AEC-318 (Rev. 9-53)

U. S. GOVERNMENT PRINTING OFFICE 16—62761-3

I. Scope of Visit

A visit was made to the Fuel Fabrication facility of the D. E. Makepeace Division of Englehard Industries on April 25, 1962 by John R. Sears and Paul B. Klevin, Inspectors of the Division of Compliance. The purpose of Mr. Sears' visit was to inspect the operation for possible criticality hazards. A visit included a tour of the facility, observation of equipment and storage facilities and discussions with the following: Mr. Norton Weiss, Health Physics Manager and Criticality Engineer, and Mr. A. Canham, Plant Manager.

II. Results of Visit

The D. E. Makepeace Division of Englehard Industries is phasing out of the nuclear fuel fabrication business. They are accepting no new orders for fuel fabrication, and at the present time there is a handful of people employed at the plant. There are only two operations in process. One of these operations consists of concentrating pickle bath solutions before these solutions are sent out for reprocessing, and the second operation consists in oxidizing some scrap from an Enrico Fermi job. Mr. Canham stated that the organization still has a six month warranty period on its contracts for the fabrication of the Enrico Fermi Fuel. Thus, it still employs on its staff a mechanic who can straighten bent fuel elements or do some welding on a final assembly.

At the end of the Enrico Fermi fabrication job there were on hand approximately 629 kgs of fuel alloy consisting of 10% uranium molybdenum in which the uranium was enriched to 26%. Mr. Weiss stated that it is planned to oxidize this scrap to make it more amenable to further reprocessing. This oxidation is proceeding in a furnace in which approximately 5 kgs are placed at a time and an oxygen lance is fed into the furnace to furnish the gas for oxidation. The burning of the Enrico Fermi scrap is proceeding on a two-shift-a-day basis. Approximately 15 kgs are handled on each shift. Mr. Weiss stated that about 218 runs will be necessary to finish this job and at the time of the inspection 120 had been completed. It is scheduled that the job will be completed by the end of May, 1962.

The inspectors toured the facility and observed the furnace in which the scrap is being oxidized. They also observed the storage vault in which the scrap is stored both before and after the burning. The inspectors interrogated the vault custodian who weighs out and lays out the material for the off-shift operator to burn. It appeared to the inspector that the procedure used was adequate to insure that the operator would not inadvertently assemble a critical mass. A maximum of 5 kgs is placed in each can and three cans will be left out for the operator on the 4 - 12 shift. It was also observed by the inspectors that there was a detailed written procedure available at the furnace for the use of the operator. This procedure did spell out the step-by-step operations for the process.

The only other job which the Makepeace Division is doing in its fuel fabrication plant at this present time consists of evaporating solutions which are presently contained in 55 gallon drums. These

are solutions from acid baths. Records have been kept of the total amount of U-235 in each drum. The evaporation is performed in an open tank which is surrounded by strip heaters. During the day shift the solution is kept at approximately 250° F, and at night the solution is kept at approximately 200° F. 50 gallons are boiled down to approximately 25 gallons, and the limit has been established of 400 grams of U-235 in the final 25 gallons of solution. The size of the container used for the evaporation process is such that the liquid from no more than one 55 gallon drum could fit in the container at a time. The container is completely emptied after each evaporation process. It was observed by the inspectors that in this area, too, there were detailed written procedures available for the operators to follow in performing the evaporation.

ENGELHARD INDUSTRIES, INC.
D. E. Makepeace Division

April 18, 1962

GENERAL NOTICE

Evaporation of Enriched Pickle Solution

The evaporation of enriched pickle solution has been set up in the cleaning room in the Hot Roll area. It is important that the simple instructions contained in this letter are carried out carefully and accurately.

Responsibilities are assigned below:

(a) Overall

George Maciel, assisted by Chet Lis.

(b) Shifts

1. 1st Shift - Mr. Peter McGeough (Accountability man)
2. 2nd Shift - Mr. Burt Chalmers (Uranium burning program)
3. 3rd Shift - Mr. William Shea (Guard)

Each man will be expected to do the following on the shift assigned to him (in addition to his normal work) as shown above.

1. Check tank hourly to insure there are no leaks in the tank.
2. From 11:00 P.M. to 7:00 A.M. the temperature of the solution is to be 200° F. From 7:00 A.M. to 11:00 P.M. temperature is to be 250° F. Mr. Chalmers will reduce temperature to 200° F. each night before going home. Mr. McGeough will raise temperature to 250° F. each morning.
3. When checking condition of the tank, and temperature of solutions, a check will be made to insure that the ventilating system is working properly. This can be done by observing the exhausting of the fumes from the tank. If the ventilation system is not functioning properly, all of the power should be shut off by pulling down the handle on the master switch, located on the outside wall of the Pickle Room. After shutting off power, report incident to the Guard.

NOTE: If a leak should develop in the tank, the following procedure should be followed:

A. Put on rubber gloves and face shield.

average 200 gms U^{235}
400 gms maxim
Contains from 2 gms. to 4 gms/l max
(Lift up)

B. Drain off acid into the plastic bucket located under the tank and transfer solution, using funnel, into the empty poly-lined 55 gal. drum located in the evaporation area.

C. Extreme caution should be used.

In addition to the hourly checks, Mr. McGeough will supply solution and ready these solutions for pumping into the tank. Mr. Chalmers will make certain that the tank is full (1" from top of tank) before leaving for home each evening.

MR. SHEA will shut off master switch as in Line 3 above, and the switches to the exhaust fans before leaving the plant on Saturday morning.

Mr. Chalmers will be instructed on how the above is to be carried out, and in turn will instruct Mr. Shea at 11:00 P.M. on April 18, 1962.

The duration of the above program will be about five (5) to six (6) weeks, completing approximately end of May.

C. A. Canham
Plant Manager

CAC:pmr

Distribution

Mr. J. Drew
Mr. P. McGeough
Mr. B. Chalmers
Mr. W. Shea

Mr. N. Weiss
Mr. E. O'Neil
Mr. C. Lis
Mr. J. Keenan

Mr. G. Maciel
Mr. J. Nickerson
Mr. J. Bell
Mr. W. Mittendorf

INSPECTION NOTES

Inspector PBKleni - Se

Approved by [illegible]

LICENSEE: Engelhart Ind. (DE Make Peace Div) Lic. No. SNM 185 - SUB 1

Type Inspection: (I) (RI) (Announced) (Unannounced) Date April 24 1962

I. GENERAL INFORMATION

A. Inspection on : 10 CFR (20) (30) (31) (40) (70)

B. Persons Accompanying:

Name	Position/Organization
1. None	
2.	

C. Persons Contacted: (inc. name, title, rad duties, reports to)

1. C. A Canham - Plant Mgr

Experience: ~~Former British Naval Officer~~ - Schooled at Br. NAV Academy Nuclear Business since last Inspection Dec 10 1960

2. Norton M. Weiss - Criticality & H P. - same as in Dec. Insp

Experience:

3.

Experience:

For person(s) acting as RSO summarize authority:

D. Radiation Safety Comm. (Yes) (No). Meetings Minutes

Members, Position & Who report to.
1.
2.
3.

Scope & Authority of Committee

E. Organization and Administration:

1. Summary of Q&A and Program (as pertains to lic. materials)

11. **Organization and Procedures**

As noted in the prior report, DEM is a Division of Engelhard Industries, Inc., and F. Mittendorf, General Manager, is still in charge of the two Engelhard Industries divisions, one of which is the nuclear facility located in Plainville, Massachusetts. Mittendorf does not maintain his office at the nuclear plant but at the non-nuclear facility in Attleboro. He also spends time in the Newark office of Engelhard Industries, Inc.

only personnel
Weiss
Canham
2 Secy's
C. Lab act
D. Material cont
2 - acct's
4 prod. workers

Mr. C. A. Canham is Plant Manager, replacing G. H. Barney. Barney at present is the Engineering Manager. However, according to Canham, Barney is leaving the employ of DEM the first of the year, and Mr. Schulte will replace him as Engineering Manager. John M. Durant is Business Manager. Norton M. Weiss is Health and Safety Manager. Weiss reports to Canham. All of the other aforementioned individuals report to the General Manager.

Canham stated that approximately ~~150 to 300~~ 11 people are employed at the Plainville plant. Approximately ~~50%~~ of these comprise the office and technical staff.

F. Facilities & Uses of Byproduct/Source /Special Nuclear Material

1. Isotopes:

Material/Form	Lic. Limit	Qty on Hand	Qty/Assay	Supplier	Use/rate/quanti
Material on Hand		957 Kgs	Contained U 25% Enriche		
			alloy 10% Molybdenum		

PRDC Materials

to be burned in a furnace with an oxygen lance to convert metal to UO_2

5 Kgs/run 3 runs/shift
15 Kg/shift 2 Shifts/day
65% burnup - Mill to size
Have performed 120 runs to date. have 2
to do - Expect to complete work by May 30 1962

2. Persons using Material(s): (inc.: name, title, duties, training, experience)

(a) 4 production workers

Note Fuel Production Operations Stopped on Oct 11 19

(b)

(c) see attached sheet

left up

March 26, 1962

HEALTH & SAFETY PROGRAM

URANIUM OXIDATION AND PREPARATION

1. Loading and Unloading Furnace

   a) Respirators must be worn whenever furnace is unloaded.

   b) Air samples will be taken at mouth of furnace to check for airborne activity.

   c) Smear samples will be taken daily in the furnace and preparation areas and also adjoining areas to prevent the spread of contamination.

2. Ball Milling and Sieving Operations

   a) Transfer of material from trays to ball mill jars will be done in vented hoods in the melting area using gloves.

   b) Transfer of material from ball mill jars to sieves and the actual sieving operations must be done in vented hoods utilizing glove ports.

   c) No material is to be removed from hoods unless it is in a sealed container which has been thoroughly wiped with a clean damp cloth.

   d) Air samples will be taken at hoods (breathing zone) while operations are in process to check effectiveness of exhaust system.

3. General Procedures

   a) The entire work area involved in burning and further preparation will be roped off and considered as a restricted area.

   b) All persons working or entering the area are required to wear protective clothing - coveralls, shop coats, shoes, rubbers, and film badges.

   c) Urine samples will be taken from personnel working on any of these operations to check for internal exposure to uranium.

N. M. Weiss

N. M. Weiss, Health & Safety Mgr.

C. A. Canham

C. A. Canham, Plant Manager

NMW:pmr

F. 3. Facilities:
Licensee uses: ( ) Lab (✓) Counting room (✓) Fume hood ( ) Dry box
(✓) Table/bench ( ) remote hand. equip. (✓) protective clothin
( ) other

Describe checked items:
Doing burning operation only within production area

1. Inventory
No source material on hand

957 Kg U @ 25.6% Enrichment Scrap contains 245 Kg U^{235}
260 Kg U @ 25.6% Enrichment in derby form awaiting instructions from PRDC as to transfer

4. Restricted Area Established ✓ Describe
Yes Entire Production area

5. Summary of Handling Procedures/Operations:
See sheet back of Page 2

6. Instrumentation & Calibration Procedures:
See page 6 of notes

7. Other Notes: for radiographer occupancy factors, exposure times, time spent in high radiation area

n/a

G. Radiation Safety Precautions & Procedures (Summary of Scope)

Radiological Health and Safety

[Instructions, oral & written:

A. Organization

Norton M. Weiss reported that he is Criticality Engineer and Health Physics Supervisor, and that he is responsible for nuclear health, safety and criticality. Weiss added that in addition to these responsibilities, he has responsibility for security, fire and general plant safety.

Weiss stated that he has had an assistant since April, 1960. ~~Ray Diffley,~~ his assistant, is a 1958 graduate of Providence College, where he majored in physics. Diffley stated that he has received on-the-job training in health physics from Weiss, and that he is not involved in nuclear criticality.

Only Weiss available at Plant 2-3/week Stationed at main attalbro plant

Weiss reported that ~~Hazel Bussy, a laboratory technician discussed under item 12A, is responsible for counting, and air, water and smear samples.~~

Ed Bolton, Health Physics Technician, works on the fabrication floor area and, according to Weiss, is responsible for taking air surveys, making ventilation system checks, conducting direct radiation surveys, monitoring, and smearing incoming and outgoing shipment containers.

2.

(a

1 of 4 production employees does laundry of clothing

Left up

records available

unrestricted areas Yes

A review of the urine sample results maintained by Weiss indicated the maximum urine sample found during March 31, 1960 (samples analyzed by NSE) to be 39 ug U per liter. This sample was found for a Mr. Hebert, Plant Foreman. A sample submitted by Hebert and analyzed September 30, 1960 showed a uranium in urine concentration of less than 1 ug U per liter.

It was noted that most of the urine samples analyzed on March 31 by NSE were much higher than those reported by Controls for Radiation in two subsequent periods, namely July 1 and September 30, 1960. For example, the melting operator, Cloutier, showed a uranium in urine concentration of 37 ug U per liter on March 31, 5 ug U per liter on July 1, and 1.2 ug U per liter on September 30. Other personnel performing the operations noted above, in which urine samples are obtained, showed similar decreases of uranium in urine concentrations from the March 31 report by NSE. The highest uranium in urine concentration found in the September 30 series, analyzed by ConRad, showed 8.6 ug U per liter. The majority of the uranium in urine concentrations for other personnel ranged between 1 to 2 ug U per liter.

3. Locking/securing of areas:

D. Personnel Monitoring and Air Surveys

A biweekly film badge program is still in effect for all employees working in restricted areas. The total number of personnel under the film badge service has increased from 40 to 125. Weiss reported that for the period beginning December 12, 1960, he started using Controls for Radiation film badges on a biweekly basis instead of continuing the service of Nucleonic Corporation of America, Brooklyn, New York. He said he was using Controls for Radiation since they were much closer to his facility, and he did not find any fault with the previous film badge supplier.

The following discussion covers the exposure of an individual in the furnace melt area. The operations performed by the furnace melt operators involve their melting of both depleted and enriched uranium (25.6% enriched uranium).

Weiss stated that he continues to maintain 13 week, 26 week, 39 week and 52 week records of film badge totals. A review of the 1960 film badge records indicated that one employee, a melter named Everett Bodwell, received fairly high beta exposures. A record of Bodwell's film badge exposures in mrad from January 9, 1960 through November 13, 1960 follows:

Left up

I. Storage & Security of Material

(X) Restricted Area (X) Locked space Summary:

Sr vault — Spacing OK

b

(a) Liquid Wastes

Liquid wastes from the plant are treated through a series of three hold-up tanks and are then released to a septic tank system. Weiss reiterated as he had in the previous inspection that he uses 7 x 10^{-6} uc/ml as the level to be released to the unrestricted area. 2×10^{-5}

The records maintained by Weiss show the amount of gallons, total volume, the dpm per liter, uc/ml x 10^{-6}, uc/gallon x 10^{-6}, and total uc in a tank. From the period January 4 to December 3, 1960, a total of 11,391 uc was delivered to the tanks. Two water samples taken from the lake behind the plant to check seepage showed approximately .15 x 10^{-6} uc U/ml.

Jan-Dec 1961 - total 17,637.05 pc
Highest Daily release 1.89 pc/l x 10^{-5}
Over .6 pc/l x 10^{-5}

leach pits
see notes and memo

(b) Solid Wastes

Weiss stated that no solid wastes have been disposed to date. He said that he has contacted Oak Ridge in order to ship waste materials to their burial ground. He added that waste materials ~~should be~~ sent to Oak Ridge ~~by the end of December.~~

4. Incineration No

K. (✓) Posting of Areas CRA CHRA (CRM) CARA

(✓) Labeling Containers CRM) Tagging Sources

(✓) AEC-3 posted & where: at Entrance to restricted area

Summary:

16. Instrumentation

In addition to the instrumentation reported in the previous inspection, Weiss reported that a Technical Associates Juno and Cutie Pie, and an NMC P-3 proportional counter have been procured and are available for use. He also added that he has ~~on order~~ one Eberline alpha proportional counter and one Nuclear-Chicago 2610. /26

17. Fire, General Safety and Security

No change occurred since the previous inspection except that the Plainville fire chief had been visited and given literature which was supplied by Mr. J. Macnamara of the Chicago Operations Office. ~~In addition, Weiss stated that he is setting up a fire brigade.~~ no fire brigade. Relies on Plainville

no fire brigade
relies on Plainville

E. Survey Programs

(1) Smears

Weiss reported that smear samples are taken over a one square foot area approximately every day at 40 different locations within the restricted and clean areas. He stated that when a high reading is obtained, Health Physics notifies the janitors to decontaminate. Weiss has set tentative contamination levels in both the restricted and clean areas. He said that he uses a level of 100 alpha dpm/ft^2 in the restricted areas and 10 alpha dpm/ft^2 for the clean areas. He reported that any smear samples taken in the aforementioned areas which exceed these tentative standards are immediately cleaned up.

A review of the records maintained on smears indicated that the smear samples in the clean area ranged from 0 to 48 alpha dpm/ft^2, and that levels from 28 to 1000 alpha dpm/ft^2 were found in the restricted areas. The highest sample, 1000 alpha dpm, found on the floor of the abrasive wheel, was decontaminated to 24 alpha dpm/ft^2. Records indicated that the highest sample was found on May 6, 1960. After decontamination, 24 alpha dpm/ft^2 was found on May 7.

At the vacuum annealing furnace on March 8, 1960, a smear of 912 alpha dpm/ft^2 was found. This was decontaminated, and on March 9, a level of 140 alpha dpm was found.

(2) Incineration and Air Surveys

Weiss reported, and records indicate, that on March 3, April 7 and 8, June 16, 23 and 30, August 22 and 26, September 8 and 14, October 14, 17, 18 and 19, and November 2, 3, 11 and 15, air samples were taken within the licensee's own enclosure approximately 100' from the stack. These samples recorded on the sample record sheet showed ranges of air sample concentrations from .07 to 1.64 x 10^{-11} uc U/ml. According to Weiss, the waste materials (wipes, etc.) contained minute quantities of enriched uranium as well as depleted and natural uranium.

When asked what concentrations were found outside of the restricted plant grounds, Weiss replied that he had not conducted any air samples outside the restricted plant area. He agreed that no evaluation had been made or air samples collected down wind from the incinerator outside the plant grounds in order to determine the radioactive concentrations which will fall out as a result of incineration.

THE STANDARD FOR RADIATION SAFEGUARDS
CON-RAD
controls for radiation
INC.
130 ALEWIFE BROOK PARKWAY · CAMBRIDGE 40 · MASSACHUSETTS
UNIVERSITY 4-6280

November 8, 1961

Mr. Norton Weiss
Engelhard Industries, Inc.
D. E. Makepeace Division
Pine and Dunham Streets
Attleboro, Mass.

Dear Mr. Weiss:

The following are the results of the wipe test swabs returned to us on October 23, 1961.

Sample No.	result in uc of Co^{60}
1	0.00
2	0.00
3	0.00
4	2.3×10^{-5}

The instrument used to count these swabs was a Harshaw Sodium Iodide crystal connected to a Tracerlab Versamatic II scaler. The results indicate that the contamination on the outside of the source is well below the maximum permissible amount of 0.05 uc allowed by the AEC.

If there are any questions regarding this report or if we can be of further assistance, please do not hesitate to contact us.

Very truly yours,

James Epstein, Head
Radiological Safety Dept.

JE:nl

D. E. Pallepeace 2/28/62

no source material
957 Kg U @ 25.6% Enrichment
scrap, etc.
245 Kg U^{235}
260 Kg U @ 25.6% acre
in Derby for
awaiting instructions
from PROC as
to transfer

Fuel fab operation ceased
stopped
Oct 11 1961

S

8/9/61 — letter from W. Taylor

① Pumped out April 29 1961 (14000 gal) 477.9 μc U
② Pumped out Aug 14-15

pumped in N. Attleboro sewerage treatment plant

1000 gal — 192 μc
7000 gal 9.826

Work load decreased. & volume of water in treatment plant decreased

Installed High water alarm — no overflow since Aug 15.

---

20. Leak test Only done Oct 23 1961
20.5216-1 9 samples. 000. to 2.3×10^{-5} μc

awaiting leak test kit from Controls for radiation. Send for kit last week

RRA — 8/6.

Air Sample Current UO2 Process

~~[illegible]~~ ranges from 0.5% to 50% MAC

few high. ones

519 d/m/M³

384

670

aver. 20% MAC

Carlson

Intend to make an announcement of going out of Nuclear Business after Aug 8th

Have given 6 month warranty on fuel shipped to PRDC

Inspected OK

50%	200	fuel cores	launched
100%	100	IPR	depleted
50	200	ORB	depleted

Oper PRDC

Contained w

629 Kgs alloy 10% Moly. 26% enrich.

Kgs to be burned. 800

Burning in furnace with an oxygen lance

5 Kgs/run

3 runs/shift 15 Kgs/shift

2 shifts/day

65% burnup

Approx 218 runs to do

120 run to Date

Expect to complete work by May 30 1960

Reason for quitting Nuclear Business

Lost a great deal of money & could not see any foreseable business gains (nucl. business) in next five years

Eber R. Price, Assistant Director
Division of Licensing and Regulation

MAY 1 1 1962

Leo Dubinski, Assistant Director for Materials
Division of Compliance

Original Signed by
Leo Dubinski

ENGELHARD INDUSTRIES, INC., ATTLEBORO, MASSACHUSETTS;
LICENSE NO. SNM-185 AND SUB-172 - ALLEGED DEFICIENCIES
IN WASTE DISPOSAL SYSTEM

CO:EGO

On September 22 and October 9, 1961, we transmitted information to L&R from Region I, Division of Compliance, with regard to subject matter. Attached is a copy of a memorandum dated May 7, 1962, in which Region I reports further on this situation.

The memorandum indicates that the deficiencies in the licensee's waste disposal system apparently have been corrected. We believe that no further inquiry of this matter is necessary.

Also attached are copies of Form AEC-591 relative to the inspection by Region I of subject licenses.

Attachments:
1. Cpy memo dtd 5/7/62
   fm CO:I
2. Cpys (2) Form AEC-591

cc: R. W. Kirkman, CO:I, w/o

Leo Dubinski, Assistant Director for Materials, Division of Compliance, HQ

MAY 7 1962

Robert W. Kirkman, Director
Region I, Division of Compliance

ENGELHARD INDUSTRIES, INC., ATTLEBORO, MASSACHUSETTS, LICENSE NOS. SNM-185 (DOCKET 70-139) AND SUB-172 - ALLEGED DEFICIENCIES IN WASTE DISPOSAL SYSTEM (OUR MEMO DATED 10/3/61)

CO:I:PBK

During the course of a regularly scheduled inspection of the licensee's facilities on April 25, 1962, a review of the subject matter was made.

Mr. Norton M. Weiss, Health & Safety Manager, reported that the Division of Sanitary Engineering, Commonwealth of Massachusetts had made several inspections of the waste disposal system since August 1961 and that they are satisfied with the disposal system. Weiss reported that he had installed a high water alarm as per recommendations from the State in August 1961. He reported that no overflow of the leaking pits occurred since that time and that the high water alarm has never been actuated.

Records of disposals to the leaking pit areas were reviewed. The records indicated that a total of 17,637 uc U was released to the pits during the period January 1 to December 31, 1961. The highest daily release was found to be 1.89×10^{-5} uc/l and the average, 0.6×10^{-5} uc/l. These waste disposal records were well documented in the H. P. files.

Weiss reported that on April 29, 1961 one of the pits was pumped out and a total of 14,000 gallons of liquid effluent containing 477.9 uc U was released into the north Attleboro sewerage

OFFICE ▶	COMPLIANCE					
SURNAME ▶	KLEVIN:bm	KIRKMAN				
DATE ▶	5/7/62					

Form AEC-318 (Rev. 9-53)

U. S. GOVERNMENT PRINTING OFFICE 16—62761-3

treatment plant system. On August 14-15, a total of 17,000 gallons of liquid waste containing a total of 201.8 uc U was similarly discharged. No other similar discharges from the pits were made to date.

Both C. A. Canham, Plant Manager, and Norton Weiss reported that fuel production operations ceased at the facility on October 11, 1961 and, therefore, the amount of contaminated liquid wastes flowing into the hold up tanks have been greatly reduced. In addition, the plant personnel have been decreased from 200 to 11 personnel. Of the eleven plant personnel, only 5 persons require shower facilities and that their work clothing be laundered periodically. Therefore, the major problem of laundry detergents and lint causing blockage and eventual overflow of waste waters from the pits has been minimized. Canham stated that Engelhard does not contemplate any future work involving nuclear materials other than their present operation which involves the burning of U metal to UO_2. This is the operation that this five production workers are and will be involved in.

No further action will be taken by this office relative to the waste disposal system.

Transmitted herewith are clear inspection report forms, AEC-591, for License Nos. SNM-185 and SUB-172.

Enclosure:
4 cys - 591 Form
2 cys - DL&R