

Licensee: SYLVANIA-CORNING NUCLEAR CORP.,  
Hicksville, New York

Date of Investigation:  
December 22, 1960

License No.: C-3700

Type of Investigation:  
Type "B" Incident

Expiration Date: April 30, 1962

Applicable 10 CFR Part 20 - 40

FINDINGS

During the period 10/24/60 to 11/14/60 two successive biweekly film badges worn by [REDACTED] a Sylcor machinist, temporarily assigned to a control restricted area to straighten depleted 95% uranium-molybdenum fuel rods showed exposures of 5.7 rad beta. EX 6

Several other employees working alongside [REDACTED] and performing identical fuel rod straightening operations, did not receive exposures in excess of 155 mrem/week beta. EX 6

Independent radiation measurements made by the inspector of [REDACTED] operations under the worst possible conditions revealed a radiation level of 10 mr/hr beta. This radiation level during [REDACTED] total time that he performed fuel rod straightening would have resulted in a maximum radiation exposure of 850 mrems beta. EX 6

Film badges supplied by HASL when exposed for 4-1/6 hours in the same position that [REDACTED] occupied during actual operations showed no exposures. EX 6

It is concluded that the exposure occurred to the badges and not to the individual.

No items of noncompliance contributed to the incident.

K-1

The following item of noncompliance was noted during the investigation:

20.202 "Personnel monitoring"

(a) (1) - in that [REDACTED] a machinist, was not *EXP* supplied with personnel monitoring equipment when he entered and worked for thirteen days between 9/31/60 and 10/23/60 in the PRDC Control Area, a restricted area, where he was likely to receive a radiation exposure in excess of 100 mrem during seven consecutive days. (See items 3 and 5 of report details.)

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Inspector

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Approved by: Robert W. Kirkman

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January 12, 1961  
Date Report Prepared

Distribution:

4 cys - Div of Cmp, HQ

2 cys - NYOO

SYLVANIA-CORNING NUCLEAR CORPORATION  
Hicksville, Long Island, New York

Date of Investigation: December 20, 1960

Persons Accompanying Inspector:

Mr. John Mieli, Senior Radio-Physicist, Division of  
Industrial Hygiene, Department of  
Labor, New York State

Persons Contacted:

Dr. Benjamin Schloss, Ph.D., President, Nucleonic Corporation  
of America  
Mr. William Herman, Physicist, Nucleonic Corporation of America  
Mr. Henry E. Grieb, Safety Engineer, Sylvania-Corning Nuclear  
Corporation  
Mr. Charles Bienholz, Foreman, PRDC, Control Area  
[REDACTED] Ex 6  
Mr. George Martin, Leadman, PRDC, Control Area  
Dr. William N. Young, Medical Director  
Mr. Boyd Metz, Production Manager

DETAILS

1. Notifications

On December 8, 1960, a telephone call was received by Mr. J. Roeder of this office from Henry Grieb, Safety Engineer, Sylcor., advising that they had received a film badge report from Nucleonic Corporation of America, 196 Degraw Street, Brooklyn, New York, that [REDACTED] a machinist, had received an exposure of 250 mrem gamma and 5.77 rad beta during a period of from 11/7/60 to 11/19/60. Grieb also stated that he received the film badge report on 12/8/60, which showed that [REDACTED] had received 400 mrem x-ray exposure. Grieb stated that he immediately telephoned Nucleonic Corporation and spoke to Mr. George Herman, a Physicist, stating that [REDACTED] could not be exposed to x-ray at Sylcor. Herman immediately read the badge and corrected the reading from 400 mrem x-ray exposure to 5.77 rad beta exposure. See Exhibit "A" showing the original and corrected film badge readings.

Ex 6  
Ex 6  
11.

On 12/8/60 a confirming telegram was received at this office which stated that investigation details would follow. (See Exhibit "B"). On 1/9/61 a detailed report of the incident from H. Grieb, Safety Engineer, dated 1/3/61 was received at this office and is included as Exhibit "E".

2. License Status

License C-3700 is current with an expiration date of April 30, 1962 and extends to both Sylcor plants at Hicksville, New York and at Bayside, New York. The license permits the use of source material for research and development on fuel element manufacture and reprocessing. An initial inspection was conducted on 10/28/58 by R. S. Cleveland of this office but only operations at Bayside, New York were inspected. A reinspection was conducted on 2/17/60 by Mr. P. Klevin of this office and operations at Hicksville were reviewed and items of noncompliance were noted: 20.401(c) failure to maintain records of washings released to the sanitary sewerage system and of effluents to the air in the proper units; and 20.203(f)(1) failure to label containers. It was noted during this inspection that during the week of 11/2/59 D. Crowther had received an exposure of 950 mrep beta while inspecting depleted uranium pins. This exposure occurred to only the head, chest and arms, and did not constitute an overexposure.

INVESTIGATION DETAILS

3. Henry E. Grieb, Safety Engineer and RSO

Grieb stated that until today he had believed that [REDACTED] a machinist, had worked in the Power Research Development Corporation (PRDC) Control Area for a period of three weeks from 10/24/60 to 11/14/60. However, in the inspector's presence it was learned from [REDACTED] time card records that [REDACTED] had been in the control area on 9/31/60 for 7.7 hours, on 9/14/60 for 6 hours, on 9/16/60 for 2.7 hours, on 9/29/60 for 7.7 hours stripping depleted uranium-molybdenum fuel rods with alcohol, on 7/30/60 for 7.7 hours stripping fuel rods, on 10/7/60 for 5.7 hours tooling, on 10/10/60 for 7.7 hours bagging fuel rods into polyethylene bags, on 10/11/60 for 1.5 hours bagging, on 10/17/60 for one hour bagging, on 10/18/60 for one hour bagging, on 10/23/60 5.7 hours bagging, on 10/20/60 for 7.7 hours cutting off fuel rods into 12" lengths, on 10/21/60 for 7.7 hours cutting off. On all the above dates Grieb stated that [REDACTED] a film badge. All the above operations were carried on in the PRDC Control Area, a restricted area. The Control Area is a caged-off restricted room which is entered through a dressing room. Posted printed restrictions stated that rubbers, gloves, protective clothing, protective eye glasses, and film badges must be worn. Grieb stated that the average

weekly exposure for personnel in the control area is about 100 mrem beta. Within the control area room, 40' x 60', is located an annealing furnace, swaging machines, centerless grinders, cut off wheel lathes and a degreaser.

Grieb stated that [redacted] was issued a Nucleonic Corporation film badge on 10/24/60, covering the two week period of 10/24/60 to 11/6/60 and then issued a new badge covering the two week period of 11/7/60 to 11/19/60. Grieb stated that [redacted] has not worked in the control area since 11/14/60. During the period of 10/24/60 to 11/14/60 time records show that [redacted] worked a total of 85 hours in straightening depleted fuel rods 12" long and 3/8" diameter. Grieb stated that the fuel rods were 95% uranium metal alloyed with 5% molybdenum with trace amounts of U-234, U-235 and U-233. Ex 6

Grieb stated that he received the film badge exposure report for the period 10/24/60 to 11/6/60 on 11/11/60 and noted that [redacted] had received a 160 mrem x-ray exposure, but did not pay any attention to this reading until December 8, 1960 when he received the film badge report for the period of 11/7/60 to 11/19/60 showing a 400 mrem x-ray exposure for [redacted]. On December 8, 1960, Grieb stated that he called Dr. B. Schloss, President of Nucleonic Corporation of America and told him and Joan Cara, in charge of film badge records for Nucleonic, that [redacted] could not possibly be exposed to x-ray during this period. Herman reread the badge for the period of 11/7/60 to 11/19/60 revising [redacted] exposure to 5.7 rad beta, but neglected to reread the film badge for the period of 10/24/60 to 11/6/60, which also showed an x-ray exposure. Grieb stated that he spoke to Herman about the previous film badge on 12/9/60 when Herman delivered the revised film record to Grieb. Grieb stated that Herman told him that he would reread the film badge of 10/24/60 to 11/6/60. This film badge was not reread until the inspector, in looking over [redacted] film badge exposures for the period 10/24/60 to 11/6/60, noted a film badge exposure of 160 mrem x-ray. Grieb in the inspector's presence telephoned Dr. Schloss of Nucleonic, who reread the film badge for the period of 10/24/60 to 11/6/60 and stated to both Grieb and the inspector via telephone that this badge also showed another exposure of 5.7 rad beta to [redacted] for the period of 10/24/60 to 11/6/60. This exposure had not been reported to the Commission and Grieb stated that he should have been alert to note [redacted] previous exposures when he received Nucleonic's report on 11/11/60. On 12/23/60 a letter was received from Nucleonic Corporation of America dated 12/22/60 which explains the method of film interpretation and the correct exposures for [redacted]. The developed film badges were also enclosed. The letter is included as Exhibit "D". Ex 6

Grieb stated that he reviewed [redacted] operation in straightening fuel rods and believes that this was a badge exposure and not an overexposure to an individual. Grieb stated his opinion is based upon the following: EX6

(a) [redacted] was seated at a table straightening 12" long 3/8" diameter rods between two V groove chucks and a press. Only one fuel rod could be straightened at a time and [redacted] production was approximately 250 rods during a 7.7 hour day. [redacted] had on his left a tote box approximately 8" wide 8" high and 18" long with a cover, and [redacted] would remove one rod from the tote box on the left, straighten the rod, and place it in an empty tote box on his right. [redacted] position at the table was such that the film badge attached to the coverall was 18" from the straightening jig, and Grieb stated that when he monitored the operation, he could not get a radiation level greater than 2 mr beta/hr at the film badge. Furthermore, only [redacted] chest, arms and head were exposed as he was sitting all the time. EX6

(b) A Production Hand, Joseph Latona, also did straightening occasionally and sat alongside [redacted] during this period. Latona's time records and exposure records show that Latona worked alongside [redacted] assisting him in straightening fuel rods during the period of 11/7/60 to 11/14/60. Records of Latona's working time during the aforementioned period indicated that Latona worked a total of 7.5 hours per day for the 5 day period. Latona's film badge for the period 11/7/60 to 11/19/60 shows only an exposure of 155 mrem beta. EX6

Grieb stated that he believed that [redacted] had put his film badge into the tote box which had approximately 200 rods in it at all times and which has a surface radiation level of 240 mrem per hour beta. Grieb stated that [redacted] is a top machinist, who complained to his union delegate when put into the control area to perform straightening operations which normally were performed by lower paid employees. Grieb stated that [redacted] was placed in the control area because of lack of work in the machine tool operations. EX6

Grieb stated that [redacted] has been removed from all work within any controlled or restricted area effective 12/8/60. EX6

4. George Martin, Leadman in Control Area

George Martin stated that he was [redacted] immediate supervisor in the control area during the straightening operation. Martin stated that although they were supposed to keep the tote boxes covered and remove only one fuel rod at a time, the cover of the tote box was continuously off because the design of the tote box was impractical and it was difficult to insert a gloved hand through the end slot and remove one rod. Therefore, the cover of the tote box was left off and [redacted] would have 20 or 30 rods lying on the table in front of him. Martin stated that he observed [redacted] and that [redacted] had his film badge attached to the outside label of his coverall. EX 6

5. [redacted] Machinist

[redacted] stated that he had worked in the control area on many occasions prior to 10/24/60 when he was first issued a film badge. He stated that he would be called in to work on machinery and occasionally for a day or two help out with the stripping and bagging operations. [redacted] stated that at the end of October he was put in the control area steady to straighten fuel rods. [redacted] stated that Lionel Schulman worked alongside him two days (total work time 15 hours) performing the same operations. Nicholas Manzo worked one day and Joseph Latona worked one week alongside him. The personnel monitoring records for the two day period Schulman worked alongside [redacted] show 20 mrem beta on the film badge of 10/24/60 to 11/6/60. Nicholas Manzo shows 80 mrem beta exposure for this period, but he was doing other work within the control area, as well, whereas Lionel Schulman only worked two days in the control area alongside [redacted]. EX 6

[redacted] stated that he never had the film badge off the coverall he was wearing and at the end of each day turned in his film badge to the security guard at the gate and picked up his film badge each morning. This was verified by examination of the security guard records which show that [redacted] film badge was never missing and was turned in each night and re-issued each morning. EX 6

[redacted] showed the inspector the exact position he occupied during the fuel rod straightening operations and two film badges supplied by HASL were placed at the exact location where [redacted] indicated he was sitting. A cardboard carton was placed on a chair and the film badges were pinned to the box 16" away from the straightening jig. An open tote box containing 20 fuel rods and 20 scattered fuel rods were placed on the table. The badges were exposed 4 hours and 10 minutes and developed by HASL, who reported no badge exposure. EX 6

5. Dr. William Young, Medical Director

Dr. Young stated that on 12/8/60, he had [redacted] submit a urine sample which he sent to Controls for Radiation, Cambridge, Massachusetts for bioassay for uranium. The bioassay for [redacted] showed a concentration of uranium in urine of 4.6 micrograms per liter. A repeat urine taken 12/28/60 was analyzed by HASL and showed a urine concentration of 2.0 ug/l uranium. Dr. Young also took blood samples on 12/8/60 and made a differential count and stated that no blood abnormalities were noted. EX 6

6. Personnel Monitoring

[redacted] did not have any film badge or personnel monitoring device prior to 10/24/60, and did not work in the control area after 11/14/60, therefore, his thirteen week reported exposure consisted of two successive reported 5.7 rads beta for a total of 11.4 rads beta. EX 6

7. Direct Radiation Surveys

A direct radiation survey was performed by the inspector accompanied by Grieb in the PRDC Control Area, in the vicinity where [redacted] had worked, using a #1680 Juno survey meter, calibrated 11/23/60. The following are radiation measurements: EX 6

- (a) With [redacted] occupying a seat and performing a simulated rod straightening operation with the number of fuel rods and location pointed out by [redacted] as typical of his operation. An open tote box containing 200 fuel rods (1/2 filled) was on a table immediately to the left of [redacted] and 20 fuel rods were strewn on the table in front of [redacted]. The radiation reading was taken at [redacted] chest which was 15" from the surface of the table and found to be - 10 mr/hr beta. EX 6
- (b) At the surface of the tote box containing 200 fuel rods 6" from the surface of the fuel rods - 34 mr/hr beta.  
No reading could be obtained at the surface of the fuel rods because the dimensions of the tote box were too small to allow the insertion of a survey instrument. EX 6
- (c) At the surface of the fuel rod straightening jig with one fuel rod in the jig - 2 mr/hr beta. EX 6

8. Film Badge Evaluation

The two Nucleonic film badges which [REDACTED] wore between 10/24/60 and 11/14/60 were submitted to HASL for evaluation. HASL stated that the films showed no evidence of heat damages, and that both film badges appear to have been uniformly exposed to 5.7 rads beta radiation. The film badge is described as a #544 Dupont double emulsion in a plastic packet. Both Nucleonic and HASL made their evaluations from the insensitive films because the sensitive films were too blackened for evaluation. EX 6

9. Corrective Action

The following item noted during the investigation was discussed with Mr. Boyd Metz, Plant Manager:

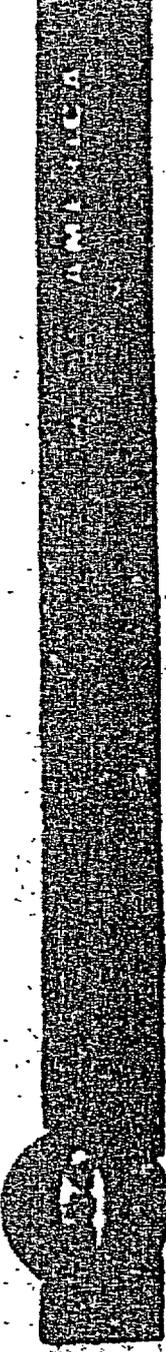
20.202 "Personnel monitoring"

- (a) (1) - in that [REDACTED] was not issued a film badge prior to 10/24/60 when he had in fact worked in the control area on thirteen different days between 9/31/60 and 11/23/60. G x 6

Mr. Metz stated that immediate steps will be taken to have badges issued to all persons who enter the control area.

11/19/60

Exhibit "A"



### IRRADIATION EXPOSURE REPORT

To Be Filled In By: VEE

Badges Received 1-2-3-4

Badges Developed 1-2

Report Mailed 1-3

Prepared By FE

Approved By \_\_\_\_\_

Film Emulsion No. \_\_\_\_\_

Exposure Period from 11-9-60 to 11-13-60

Dr. M. Grieb, Safety Dept.  
Sylvania-Corning Nuclear  
Castlague Road  
Richville, L.I., N.Y.

Company Starting Date \_\_\_\_\_

Report Prepared For \_\_\_\_\_

Signature \_\_\_\_\_

10  
A

| FILM<br>NO. | NAME<br>BTU-C | EXPOSURE      |               |                  |              |    |                  | CUMULATIVE TOTALS TO DATE |      |         |               |       |      |         |      | DENSITIES |            |      |         |      |
|-------------|---------------|---------------|---------------|------------------|--------------|----|------------------|---------------------------|------|---------|---------------|-------|------|---------|------|-----------|------------|------|---------|------|
|             |               | Gamma<br>(mm) | X-Ray<br>(mm) | Beta Ray<br>(mm) | Masterson    |    | Quarterly Period |                           |      |         | Calendar Year |       |      |         | OV   |           | Cu (.500") |      | Cu (.8) |      |
|             |               |               |               |                  | From         | To | Gamma            | X-ray                     | Beta | Neutron | Gamma         | X-ray | Beta | Neutron | F    | S         | F          | S    | F       |      |
|             |               |               |               |                  |              |    |                  |                           |      |         |               |       |      |         |      |           |            |      |         | From |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 0    |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 0    |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 105  |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 30               | /            | /  |                  |                           |      |         |               | 0     | 70   | .030    |      |           |            |      |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 50   |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 55               | /            | /  |                  |                           |      |         |               | 0     | 440  | .060    |      |           |            | .070 |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 125  |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 85   |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 0    |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 60               | /            | /  |                  |                           |      |         |               | 0     | 865  | .070    |      |           |            | .20  |         |      |
|             |               | 0             | 0             | 20               | /            | /  |                  |                           |      |         |               | 0     | 110  | .020    |      |           |            | .0   |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 45   |         |      |           |            |      |         |      |
|             |               | .050          | 4.00          | 8.00             | See attached |    |                  |                           |      |         |               | 0     | 500  | 0       | 3.50 | 4.60      | 5.60       | .10  |         |      |
|             |               | 0             | 0             | 100              | /            | /  |                  |                           |      |         |               | 0     | 555  | .170    |      |           |            | .03  |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 30   |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 55   |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 0    |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 40               | /            | /  |                  |                           |      |         |               | 0     | 220  | .040    |      |           |            | .01  |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 105  |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 0    |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 0    |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 0                | /            | /  |                  |                           |      |         |               | 0     | 45   |         |      |           |            |      |         |      |
|             |               | 0             | 0             | 30               | /            | /  |                  |                           |      |         |               | 0     | 205  | .030    |      |           |            |      |         |      |
|             |               | 0             | 0             | 45               | /            | /  |                  |                           |      |         |               | 0     | 215  | .050    |      |           |            |      |         |      |

REMARKS

Ex. 6

# Exhibit "A"

| NAME | ID NUMBER | EXPOSURES    |              |                 |          | CUMULATIVE TOTALS TO DATE |                  |    |               | OFFICIAL |   |      |   |   |
|------|-----------|--------------|--------------|-----------------|----------|---------------------------|------------------|----|---------------|----------|---|------|---|---|
|      |           | Gamma (mrad) | X-Ray (mrad) | Beta Ray (mrad) | Neutrons |                           | Quarterly Period |    | Calendar Year |          | F | S    | Y | E |
|      |           |              |              |                 | Fast     | Thermal                   | From             | To | Gamma         | X-ray    |   |      |   |   |
|      |           | 0            | 0            | 0               | /        | /                         |                  |    | 0             | 0        |   |      |   |   |
|      |           | 0            | 0            | 0               | /        | /                         |                  |    | 0             | 75       |   |      |   |   |
|      |           | 0            | 0            | 0               | /        | /                         |                  |    | 0             | 130      |   |      |   |   |
|      |           | 0            | 0            | 130             | /        | /                         |                  |    | 0             | 380      |   | .150 |   |   |
|      |           | 0            | 0            | 55              | /        | /                         |                  |    | 0             | 135      |   | .060 |   |   |
|      |           | 0            | 0            | 165             | /        | /                         |                  |    | 0             | 675      |   | .110 |   |   |
|      |           | 0            | 0            | 0               | /        | /                         |                  |    | 0             | 0        |   |      |   |   |
|      |           | 0            | 0            | 165             | /        | /                         |                  |    | 0             | 635      |   | .160 |   |   |
|      |           | 0            | 0            | 60              | /        | /                         |                  |    | 0             | 170      |   | .030 |   |   |
|      |           | 0            | 0            | 0               | /        | /                         |                  |    | 0             | 155      |   |      |   |   |

Ex. 6

EXHIBIT "B"

DEC 8 1960

ATTN R W KIRKMAN COMPLIANCE DIV

ACTION: Mr. Kirkman

TT #91

CONFIRMATION OF TELE CALL FROM H E GRIEB TO J ROEDER  
FILM BADGE EXPOSURE OF 250 MREM GAMMA AND 5.77 RAD BETA MONITORING  
PERIOD FROM 11/7/60 TO 11/19/60 NAME [REDACTED]  
INVESTIAXXX INSTXXX INVESTIGATION DETAILS TO FOLLOW

Ex. 6

H E GRIEB SYLCOR

SYLVANIA CORNING NUCLEAR CORP CORRECTION  
H-E GRIEB

END PLS ACK AC

PLS CLR OK TNX WM

TM

Exhibit C

11-2  
to conf  
re report



# RADIATION EXPOSURE REPORT

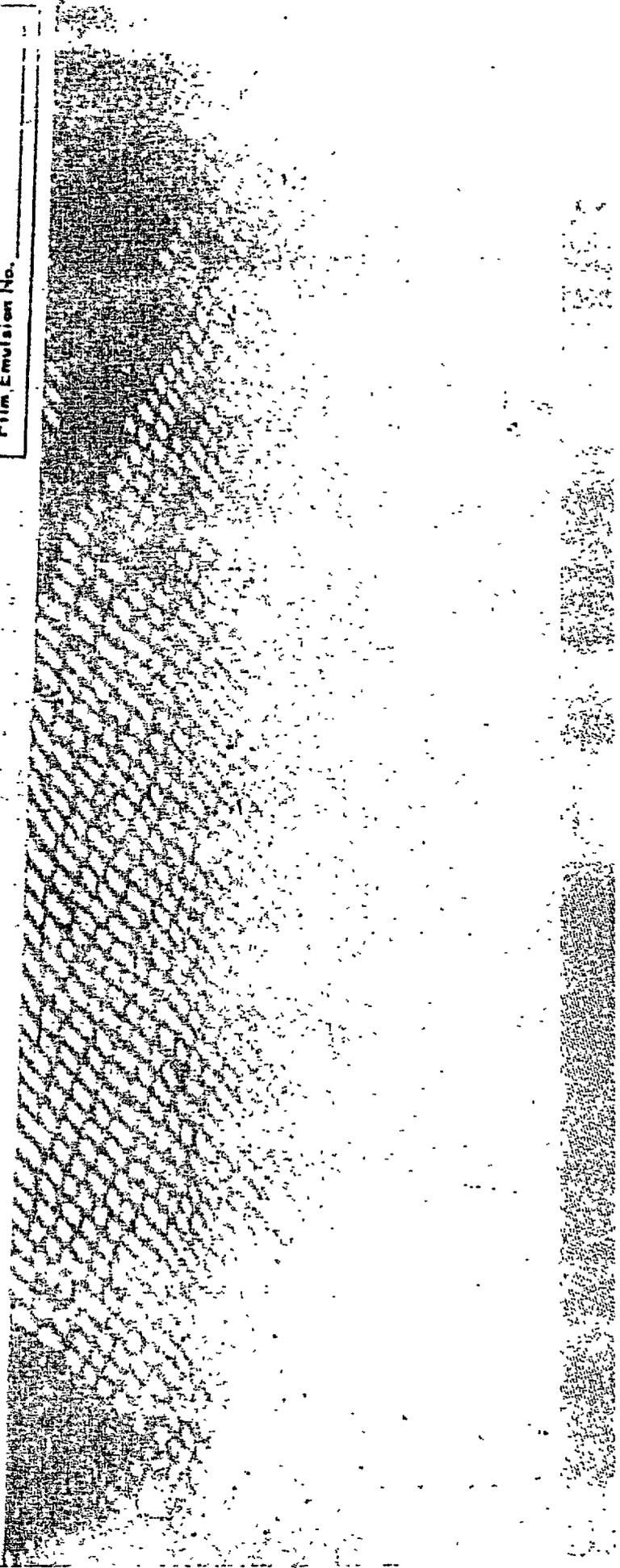
Exposed from OCT 24 1957 to 0

at Demo

by Person

Mr. H. Grueb, Safety Dept.,  
Sylvania-Coring Nuclear  
Centisago Road  
Nicholsville, L.I., N.Y.

|                         |
|-------------------------|
| To Be Filled In By NCA  |
| Beads Received _____    |
| Beads Developed _____   |
| Report Mailed _____     |
| Prepared By _____       |
| Approved By _____       |
| Film Emulsion No. _____ |





| DATE  | AMOUNT | DESCRIPTION     | DEBIT  | CREDIT | BALANCE  |
|-------|--------|-----------------|--------|--------|----------|
| 01/01 | 100.00 | INITIAL DEPOSIT |        | 100.00 | 100.00   |
| 01/05 | 50.00  | PAYROLL         | 50.00  |        | 50.00    |
| 01/10 | 25.00  | RENT            | 25.00  |        | 25.00    |
| 01/15 | 75.00  | SALES           |        | 75.00  | 100.00   |
| 01/20 | 30.00  | UTILITIES       | 30.00  |        | 70.00    |
| 01/25 | 15.00  | INSURANCE       | 15.00  |        | 55.00    |
| 01/30 | 40.00  | SALES           |        | 40.00  | 95.00    |
| 02/01 | 20.00  | PAYROLL         | 20.00  |        | 75.00    |
| 02/05 | 10.00  | RENT            | 10.00  |        | 65.00    |
| 02/10 | 35.00  | SALES           |        | 35.00  | 100.00   |
| 02/15 | 15.00  | UTILITIES       | 15.00  |        | 85.00    |
| 02/20 | 55.00  | SALES           |        | 55.00  | 140.00   |
| 02/25 | 30.00  | PAYROLL         | 30.00  |        | 110.00   |
| 02/30 | 180.00 | SALES           |        | 180.00 | 290.00   |
| 03/01 | 95.00  | RENT            | 95.00  |        | 195.00   |
| 03/05 | 50.00  | UTILITIES       | 50.00  |        | 145.00   |
| 03/10 | 170.00 | SALES           |        | 170.00 | 315.00   |
| 03/15 | 45.00  | PAYROLL         | 45.00  |        | 270.00   |
| 03/20 | 175.00 | SALES           |        | 175.00 | 445.00   |
| 03/25 | 90.00  | RENT            | 90.00  |        | 355.00   |
| 03/30 | 130.00 | UTILITIES       | 130.00 |        | 225.00   |
| 04/01 | 86.00  | PAYROLL         | 86.00  |        | 139.00   |
| 04/05 | 150.00 | SALES           |        | 150.00 | 289.00   |
| 04/10 | 50.00  | RENT            | 50.00  |        | 239.00   |
| 04/15 | 135.00 | UTILITIES       | 135.00 |        | 104.00   |
| 04/20 | 125.00 | SALES           |        | 125.00 | 229.00   |
| 04/25 | 50.00  | PAYROLL         | 50.00  |        | 179.00   |
| 04/30 | 120.00 | RENT            | 120.00 |        | 59.00    |
| 05/01 | 135.00 | UTILITIES       | 135.00 |        | -76.00   |
| 05/05 | 125.00 | SALES           |        | 125.00 | 149.00   |
| 05/10 | 50.00  | PAYROLL         | 50.00  |        | 99.00    |
| 05/15 | 135.00 | RENT            | 135.00 |        | -36.00   |
| 05/20 | 125.00 | UTILITIES       | 125.00 |        | -161.00  |
| 05/25 | 125.00 | SALES           |        | 125.00 | -36.00   |
| 05/30 | 50.00  | PAYROLL         | 50.00  |        | -86.00   |
| 06/01 | 120.00 | RENT            | 120.00 |        | -206.00  |
| 06/05 | 135.00 | UTILITIES       | 135.00 |        | -341.00  |
| 06/10 | 125.00 | SALES           |        | 125.00 | -216.00  |
| 06/15 | 50.00  | PAYROLL         | 50.00  |        | -266.00  |
| 06/20 | 135.00 | RENT            | 135.00 |        | -401.00  |
| 06/25 | 125.00 | UTILITIES       | 125.00 |        | -526.00  |
| 06/30 | 125.00 | SALES           |        | 125.00 | -401.00  |
| 07/01 | 50.00  | PAYROLL         | 50.00  |        | -451.00  |
| 07/05 | 120.00 | RENT            | 120.00 |        | -571.00  |
| 07/10 | 135.00 | UTILITIES       | 135.00 |        | -706.00  |
| 07/15 | 125.00 | SALES           |        | 125.00 | -581.00  |
| 07/20 | 50.00  | PAYROLL         | 50.00  |        | -631.00  |
| 07/25 | 135.00 | RENT            | 135.00 |        | -766.00  |
| 07/30 | 125.00 | UTILITIES       | 125.00 |        | -891.00  |
| 08/01 | 125.00 | SALES           |        | 125.00 | -766.00  |
| 08/05 | 50.00  | PAYROLL         | 50.00  |        | -816.00  |
| 08/10 | 120.00 | RENT            | 120.00 |        | -936.00  |
| 08/15 | 135.00 | UTILITIES       | 135.00 |        | -1071.00 |
| 08/20 | 125.00 | SALES           |        | 125.00 | -946.00  |
| 08/25 | 50.00  | PAYROLL         | 50.00  |        | -996.00  |
| 08/30 | 135.00 | RENT            | 135.00 |        | -1131.00 |
| 09/01 | 125.00 | UTILITIES       | 125.00 |        | -1256.00 |
| 09/05 | 125.00 | SALES           |        | 125.00 | -1131.00 |
| 09/10 | 50.00  | PAYROLL         | 50.00  |        | -1181.00 |
| 09/15 | 120.00 | RENT            | 120.00 |        | -1301.00 |
| 09/20 | 135.00 | UTILITIES       | 135.00 |        | -1436.00 |
| 09/25 | 125.00 | SALES           |        | 125.00 | -1311.00 |
| 09/30 | 50.00  | PAYROLL         | 50.00  |        | -1361.00 |
| 10/01 | 120.00 | RENT            | 120.00 |        | -1481.00 |
| 10/05 | 135.00 | UTILITIES       | 135.00 |        | -1616.00 |
| 10/10 | 125.00 | SALES           |        | 125.00 | -1491.00 |
| 10/15 | 50.00  | PAYROLL         | 50.00  |        | -1541.00 |
| 10/20 | 135.00 | RENT            | 135.00 |        | -1676.00 |
| 10/25 | 125.00 | UTILITIES       | 125.00 |        | -1801.00 |
| 10/30 | 125.00 | SALES           |        | 125.00 | -1676.00 |
| 11/01 | 50.00  | PAYROLL         | 50.00  |        | -1726.00 |
| 11/05 | 120.00 | RENT            | 120.00 |        | -1846.00 |
| 11/10 | 135.00 | UTILITIES       | 135.00 |        | -1981.00 |
| 11/15 | 125.00 | SALES           |        | 125.00 | -1856.00 |
| 11/20 | 50.00  | PAYROLL         | 50.00  |        | -1906.00 |
| 11/25 | 135.00 | RENT            | 135.00 |        | -2041.00 |
| 11/30 | 125.00 | UTILITIES       | 125.00 |        | -2166.00 |
| 12/01 | 125.00 | SALES           |        | 125.00 | -2041.00 |
| 12/05 | 50.00  | PAYROLL         | 50.00  |        | -2091.00 |
| 12/10 | 120.00 | RENT            | 120.00 |        | -2211.00 |
| 12/15 | 135.00 | UTILITIES       | 135.00 |        | -2346.00 |
| 12/20 | 125.00 | SALES           |        | 125.00 | -2221.00 |
| 12/25 | 50.00  | PAYROLL         | 50.00  |        | -2271.00 |
| 12/30 | 135.00 | RENT            | 135.00 |        | -2406.00 |
| 01/01 | 125.00 | UTILITIES       | 125.00 |        | -2531.00 |
| 01/05 | 125.00 | SALES           |        | 125.00 | -2406.00 |
| 01/10 | 50.00  | PAYROLL         | 50.00  |        | -2456.00 |
| 01/15 | 120.00 | RENT            | 120.00 |        | -2576.00 |
| 01/20 | 135.00 | UTILITIES       | 135.00 |        | -2711.00 |
| 01/25 | 125.00 | SALES           |        | 125.00 | -2586.00 |
| 01/30 | 50.00  | PAYROLL         | 50.00  |        | -2636.00 |
| 02/01 | 135.00 | RENT            | 135.00 |        | -2771.00 |
| 02/05 | 125.00 | UTILITIES       | 125.00 |        | -2896.00 |
| 02/10 | 125.00 | SALES           |        | 125.00 | -2771.00 |
| 02/15 | 50.00  | PAYROLL         | 50.00  |        | -2821.00 |
| 02/20 | 120.00 | RENT            | 120.00 |        | -2941.00 |
| 02/25 | 135.00 | UTILITIES       | 135.00 |        | -3076.00 |
| 02/30 | 125.00 | SALES           |        | 125.00 | -2951.00 |
| 03/01 | 50.00  | PAYROLL         | 50.00  |        | -3001.00 |
| 03/05 | 120.00 | RENT            | 120.00 |        | -3121.00 |
| 03/10 | 135.00 | UTILITIES       | 135.00 |        | -3256.00 |
| 03/15 | 125.00 | SALES           |        | 125.00 | -3131.00 |
| 03/20 | 50.00  | PAYROLL         | 50.00  |        | -3181.00 |
| 03/25 | 135.00 | RENT            | 135.00 |        | -3316.00 |
| 03/30 | 125.00 | UTILITIES       | 125.00 |        | -3441.00 |
| 04/01 | 125.00 | SALES           |        | 125.00 | -3316.00 |
| 04/05 | 50.00  | PAYROLL         | 50.00  |        | -3366.00 |
| 04/10 | 120.00 | RENT            | 120.00 |        | -3486.00 |
| 04/15 | 135.00 | UTILITIES       | 135.00 |        | -3621.00 |
| 04/20 | 125.00 | SALES           |        | 125.00 | -3496.00 |
| 04/25 | 50.00  | PAYROLL         | 50.00  |        | -3546.00 |
| 04/30 | 135.00 | RENT            | 135.00 |        | -3681.00 |
| 05/01 | 125.00 | UTILITIES       | 125.00 |        | -3806.00 |
| 05/05 | 125.00 | SALES           |        | 125.00 | -3681.00 |
| 05/10 | 50.00  | PAYROLL         | 50.00  |        | -3731.00 |
| 05/15 | 120.00 | RENT            | 120.00 |        | -3851.00 |
| 05/20 | 135.00 | UTILITIES       | 135.00 |        | -3986.00 |
| 05/25 | 125.00 | SALES           |        | 125.00 | -3861.00 |
| 05/30 | 50.00  | PAYROLL         | 50.00  |        | -3911.00 |
| 06/01 | 135.00 | RENT            | 135.00 |        | -4046.00 |
| 06/05 | 125.00 | UTILITIES       | 125.00 |        | -4171.00 |
| 06/10 | 125.00 | SALES           |        | 125.00 | -4046.00 |
| 06/15 | 50.00  | PAYROLL         | 50.00  |        | -4096.00 |
| 06/20 | 120.00 | RENT            | 120.00 |        | -4216.00 |
| 06/25 | 135.00 | UTILITIES       | 135.00 |        | -4351.00 |
| 06/30 | 125.00 | SALES           |        | 125.00 | -4226.00 |
| 07/01 | 50.00  | PAYROLL         | 50.00  |        | -4276.00 |
| 07/05 | 120.00 | RENT            | 120.00 |        | -4396.00 |
| 07/10 | 135.00 | UTILITIES       | 135.00 |        | -4531.00 |
| 07/15 | 125.00 | SALES           |        | 125.00 | -4406.00 |
| 07/20 | 50.00  | PAYROLL         | 50.00  |        | -4456.00 |
| 07/25 | 135.00 | RENT            | 135.00 |        | -4591.00 |
| 07/30 | 125.00 | UTILITIES       | 125.00 |        | -4716.00 |
| 08/01 | 125.00 | SALES           |        | 125.00 | -4591.00 |
| 08/05 | 50.00  | PAYROLL         | 50.00  |        | -4641.00 |
| 08/10 | 120.00 | RENT            | 120.00 |        | -4761.00 |
| 08/15 | 135.00 | UTILITIES       | 135.00 |        | -4896.00 |
| 08/20 | 125.00 | SALES           |        | 125.00 | -4771.00 |
| 08/25 | 50.00  | PAYROLL         | 50.00  |        | -4821.00 |
| 08/30 | 135.00 | RENT            | 135.00 |        | -4956.00 |
| 09/01 | 125.00 | UTILITIES       | 125.00 |        | -5081.00 |
| 09/05 | 125.00 | SALES           |        | 125.00 | -4956.00 |
| 09/10 | 50.00  | PAYROLL         | 50.00  |        | -5006.00 |
| 09/15 | 120.00 | RENT            | 120.00 |        | -5126.00 |
| 09/20 | 135.00 | UTILITIES       | 135.00 |        | -5261.00 |
| 09/25 | 125.00 | SALES           |        | 125.00 | -5136.00 |
| 09/30 | 50.00  | PAYROLL         | 50.00  |        | -5186.00 |
| 10/01 | 135.00 | RENT            | 135.00 |        | -5321.00 |
| 10/05 | 125.00 | UTILITIES       | 125.00 |        | -5446.00 |
| 10/10 | 125.00 | SALES           |        | 125.00 | -5321.00 |
| 10/15 | 50.00  | PAYROLL         | 50.00  |        | -5371.00 |
| 10/20 | 120.00 | RENT            | 120.00 |        | -5491.00 |
| 10/25 | 135.00 | UTILITIES       | 135.00 |        | -5626.00 |
| 10/30 | 125.00 | SALES           |        | 125.00 | -5501.00 |
| 11/01 | 50.00  | PAYROLL         | 50.00  |        | -5551.00 |
| 11/05 | 120.00 | RENT            | 120.00 |        | -5671.00 |
| 11/10 | 135.00 | UTILITIES       | 135.00 |        | -5806.00 |
| 11/15 | 125.00 | SALES           |        | 125.00 | -5681.00 |
| 11/20 | 50.00  | PAYROLL         | 50.00  |        | -5731.00 |
| 11/25 | 135.00 | RENT            | 135.00 |        | -5866.00 |
| 11/30 | 125.00 | UTILITIES       | 125.00 |        | -5991.00 |
| 12/01 | 125.00 | SALES           |        | 125.00 | -5866.00 |
| 12/05 | 50.00  | PAYROLL         | 50.00  |        | -5916.00 |
| 12/10 | 120.00 | RENT            | 120.00 |        | -6036.00 |
| 12/15 | 135.00 | UTILITIES       | 135.00 |        | -6171.00 |
| 12/20 | 125.00 | SALES           |        | 125.00 | -6046.00 |
| 12/25 | 50.00  | PAYROLL         | 50.00  |        | -6096.00 |
| 12/30 | 135.00 | RENT            | 135.00 |        | -6231.00 |
| 01/01 | 125.00 | UTILITIES       | 125.00 |        | -6356.00 |
| 01/05 | 125.00 | SALES           |        | 125.00 | -6231.00 |
| 01/10 | 50.00  | PAYROLL         | 50.00  |        | -6281.00 |
| 01/15 | 120.00 | RENT            | 120.00 |        | -6401.00 |
| 01/20 | 135.00 | UTILITIES       | 135.00 |        | -6536.00 |
| 01/25 | 125.00 | SALES           |        | 125.00 | -6411.00 |
| 01/30 | 50.00  | PAYROLL         | 50.00  |        | -6461.00 |
| 02/01 | 135.00 | RENT            | 135.00 |        | -6596.00 |
| 02/05 | 125.00 | UTILITIES       | 125.00 |        | -6721.00 |
| 02/10 | 125.00 | SALES           |        | 125.00 | -6596.00 |
| 02/15 | 50.00  | PAYROLL         | 50.00  |        | -6646.00 |
| 02/20 | 120.00 | RENT            | 120.00 |        | -6766.00 |
| 02/25 | 135.00 | UTILITIES       | 135.00 |        | -6901.00 |
| 02/30 | 125.00 | SALES           |        | 125.00 | -6776.00 |
| 03/01 | 50.00  | PAYROLL         | 50.00  |        | -6826.00 |
| 03/05 | 120.00 | RENT            | 120.00 |        | -6946.00 |
| 03/10 | 135.00 | UTILITIES       | 135.00 |        | -7081.00 |
| 03/15 | 125.00 | SALES           |        | 125.00 | -6956.00 |
| 03/20 | 50.00  | PAYROLL         | 50.00  |        | -7006.00 |
| 03/25 | 135.00 | RENT            | 135.00 |        | -7141.00 |
| 03/30 | 125.00 | UTILITIES       | 125.00 |        | -7266.00 |
| 04/01 | 125.00 | SALES           |        | 125.00 | -7141.00 |
| 04/05 | 50.00  | PAYROLL         | 50.00  |        | -7191.00 |
| 04/10 | 120.00 | RENT            | 120.00 |        | -7311.00 |
| 04/15 | 135.00 | UTILITIES       | 135.00 |        | -7446.00 |
| 04/20 | 125.00 | SALES           |        | 125.00 | -7321.00 |
| 04/25 | 50.00  | PAYROLL         | 50.00  |        | -7371.00 |
| 04/30 | 135.00 | RENT            | 135.00 |        | -7506.00 |
| 05/01 | 125.00 | UTILITIES       | 125.00 |        | -7631.00 |
| 05/05 | 125.00 | SALES           |        | 125.00 | -7506.00 |
| 05/10 | 50.00  | PAYROLL         | 50.00  |        | -7556.00 |
| 05/15 | 120.00 | RENT            | 120.00 |        | -7676.00 |
| 05/20 | 135.00 | UTILITIES       | 135.00 |        | -7811.00 |
| 05/25 | 125.00 | SALES           |        | 125.00 | -7686.00 |
| 05/30 | 50.00  | PAYROLL         | 50.00  |        | -7736.00 |
| 06/01 | 135.00 | RENT            | 135.00 |        | -7871.00 |
| 06/05 | 125.00 | UTILITIES       | 125.00 |        | -8006.00 |
| 06/10 | 125.00 | SALES           |        | 125.00 | -7881.00 |
| 06/15 | 50.00  | PAYROLL         | 50.00  |        | -7931.00 |
| 06/20 | 120.00 | RENT            | 120.00 |        | -8051.00 |



NUCLEONIC CORPORATION OF AMERICA

111 STREET \* BROOKLYN 31, N. Y. \* MAIN 4-7370



CABLE NO. 17

Exhibit 'D'

December 22, 1960

12/22/60

Mr. Sostein  
111 Street  
Brooklyn 31, New York

Re: Sostein's Exposure Report

Mr. Sostein:

In regard to the exposures received by [redacted] during the weeks:

Ex 6

C.W. Densities

|                           | F    | S     |
|---------------------------|------|-------|
| Nov 24th to November 26th | 3.24 | 3.15* |
| Nov 27th to November 29th | 3.50 | 3.16* |

The sensitive film of the 544 packet indicates a reading at densities of approximately 3.0 making the possibility of an interpretation from this film questionable. The total exposure report has been interpreted from the insensitive film (C.W.#).

A density of .160 C.W. reading on the insensitive film against a Beta Calibration Curve indicates an exposure of 5.7 Rad. This reading is the corrected reading. [redacted] both weeks are the same.

Ex. 6

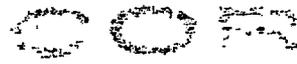
Enclosed you will find [redacted] film, as requested.

Ex. 6

Respectfully yours,

NUCLEONIC CORP. OF AMERICA

W. G. Herman



Division of Sylvania Electric Prod. Inc.

*Exhibit 4-F*

January 3, 1961

Mr. E. Epstein  
United States Atomic Energy Commission  
Compliance Division  
376 Hudson Street  
New York, N. Y.

Dear Mr. Epstein:

Attached is a copy of the report that was made  
on the film badge exposure of [REDACTED]

*Ex. 6*

Please advise me if there is any further information required.

Very truly yours,

Henry E. Grieb  
Chief Safety Engineer

HEG:dw  
Att.