

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 03011205/82-01(DETP); 03008700/82-01(DETP)

Docket Nos. 03011205; 03008700

License No. 37-02375-17      Category K      Priority 7  
License No. 13-07964-05      Category K      Priority 7

Licensee: United States Steel Corporation  
600 Grant Street  
Pittsburgh, PA 15230

and

United States Steel Corporation  
Blast Furnace Division  
Gary, IN 46402

Inspection At: 1 North Broadway  
Gary, IN

Inspection Conducted: July 8, 22, and 28, 1982

Inspectors: *S. R. Lasuk*  
S. R. Lasuk  
*D. J. Sreniawski*  
W. J. Slawinski

8/26/82

8-26-82

Approved By: *D. J. Sreniawski*, Chief  
D. J. Sreniawski, Chief  
Materials Radiation Protection  
Section 2

8-26-82

Inspection Summary

Inspection on July 8, 22, and 28, 1982 (Reports No. 03011205/82-01(DETP), 03008700/82-01(DETP))

Areas Inspected: Special, unannounced, safety inspection of the licensee's organization; materials, facilities, and equipment; radiological protection procedures; training and instructions to workers; personnel radiation protection; and independent measurements. The inspection involved 35 inspector-hours onsite.

Results: Of the six areas inspected, no items of noncompliance were identified in four areas; four apparent items of noncompliance (failure to leak test sealed sources at six month intervals as required by Condition No. 13 in both licenses - Section 6.a.; failure to calibrate radiation survey meters at six month intervals as required by Condition No. 17 of

the -17 license and at one year intervals as required by Condition No. 16 of the -05 license - Section 6.c.; failure to restrict the performance of radiation surveys only to authorized individuals as required by Condition No. 17 of the -17 license and by Condition No. 16 of the -05 license - Section 7; failure to maintain visible labels and signs on, and in the area of, containers of licensed material as required by 10 CFR 20.203(f) and Condition No. 17 of the -17 license - Section 7) were identified in two areas.

## DETAILS

### 1. Persons Contacted

Jon N. Martinsen - Superintendent, Fuel and Electronics Department,  
Energy Division  
F. D. Karrle - Chairman, Radiation Committee and General Foreman,  
Energy Division  
R. B. MacLeod - Plant Radiation Officer  
Steven H. Conkle - Superintendent, Safety and Environmental Health  
Robert McDaniel - Assistant to Mr. Conkle  
Dean R. Larson - Radiation Protection Officer for the Coke and Chemicals  
Division  
A. W. Sellers - Superintendent, Coke Production Department  
G. C. Popiela - Operating Foreman, Coke and Chemicals Division  
J. D. Derucki - Radiation Protection Officer for the Iron Producing  
Division  
Jack Marler - Maintenance Engineer, Iron Producing Division  
John Nash - Safety Engineer, Iron Producing and Energy Divisions  
Tim Zaberdac - Safety Engineer, Coke and Chemicals Division  
Marvin Gilliam - Utilityman, Coke and Chemicals Division  
John Wills, Jr. - Utilityman, Coke and Chemicals Division  
Lorenzo Smith - Assistant Heater

### 2. Receipt of Information

David M. Taliaferro, Assistant Regional Counsel for the U.S. Environmental Protection Agency in Chicago, Illinois, contacted Region III during the afternoon of June 10, 1982, to report allegations of unsafe practices at the U.S. Steel Corporation in Gary, Indiana. The information was sent to the USEPA by a former U.S. Steel Corporation employee in a letter, in the form of a complaint, dated June 2, 1982. A similar letter/complaint dated June 8, 1982, was received by our office on June 11, 1982, and is attached as Exhibit 1.

This unannounced special inspection by Region III was initiated on July 8, 1982, after a meeting with the alleged in Gary, Indiana, earlier that day (see Section 11 of this report). The inspection was continued on July 22 and concluded on July 28, 1982. It included efforts to determine whether or not the allegations concerning radiation safety matters could be substantiated.

### 3. Licensed Programs

NRC Materials License No. 37-02375-17 is an industrial, Category K, Priority VII license which was amended in its entirety on July 15, 1980, via Amendment No. 05. The material authorized under this license is cesium-137 sealed sources in Kay-Ray source holders for level measurements only at the licensee's facilities at 1 North Broadway in Gary, Indiana. The sources cannot exceed 500 millicuries per source when used in Models 7063P and 7064P source holders and, cannot exceed 200 millicuries per source when used in Models 7050 and 7051 source holders.

NRC Materials License No. 13-07964-05 is an industrial, Category K, Priority VII license which was amended in its entirety on September 27, 1977, via Amendment No. 03. The materials authorized under this license are cesium-137 sealed sources and americium-241 sealed sources for use only at 1 North Broadway in Gary, Indiana. The authorized maximum amount and use are as follows:

- a. Am-241, 4 sources containing 0.5 curie each, in Kay-Ray Model 7100 source holders for hydrogen analysis.
- b. Cs-137, 4 sources containing 1 curie each, in Kay-Ray Model 7051 source holders to determine bulk density of coke.
- c. Am-241, 1.6 curies (eight sources of not more than 200 millicuries each), in Texas Nuclear Corporation Model 5010 source holders for hydrogen analysis of blast furnace coke.
- d. Cs-137, 8 curies (eight sources of not more than 1 curie each), in Texas Nuclear Corporation Model 5174 or 5175 source holders to measure the bulk density of blast furnace coke.

4. Inspection History

There have been no previous inspections of the programs conducted under the two licenses.

5. Organization

Earl W. Sieger - General Manager (highest licensee official at the Gary Works).

Other individuals and their position are shown in Section 1 of this report.

No items of noncompliance were identified.

6. Materials, Facilities and Equipment

a. Materials

The licensee's current inventory under the -17 license shows 75 Kay-Ray devices containing cesium-137 sealed sources which were installed on bins in the Coke and Chemicals Division (CCD) in 1976-77. There are 36 devices on No. 2 Coke Battery bins and 39 devices on No. 3 Coke Battery bins, as shown on the main inventory record which was provided by the Plant Radiation Officer (PRO). This record shows one device contained 500 millicuries of Cs-137, fourteen devices had 200 millicuries, and the others contained 100, 50, or 25 millicuries at the time of installation. The PRO said a physical inventory is conducted on a monthly basis at which time routine radiation surveys are made around each device.

A selective review of leak test records for licensed material under the -17 license shows the Cs-137 sealed sources in the following Kay-Ray devices were not tested for leakage and/or contamination during the indicated intervals.

<u>Device Serial No.</u>	<u>Device Location</u>	<u>Interval</u>
2751	No. 2 Coke Battery, Bin 301	5/79 to 1/82
2723	No. 2 Coke Battery, Bin 302	5/79 to 1/82
2746	No. 2 Coke Battery, Bin 302	5/79 to 1/82
2725	No. 2 Coke Battery, Bin 303	5/79 to 1/82
2747	No. 2 Coke Battery, Bin 303	5/79 to 1/82
2745	No. 2 Coke Battery, Bin 108A	1/80 to 1/82
5061	No. 3 Coke Battery, Bin 203	6/80 to 1/82, 11/77 to 11/78
5072	No. 3 Coke Battery, Bin 208	6/80 to 1/82, 11/77 to 11/78
5093	No. 3 Coke Battery, Bin 208	6/80 to 1/82, 11/77 to 11/78

This is an item of noncompliance with License Condition No. 13 which requires each sealed source to be tested for leakage and/or contamination at intervals not to exceed six months.

The PRO said representatives from several organizations (Kay-Ray, Texas Nuclear Corporation, Professional Radiation Management) conduct tests for leakage and/or contamination and are required to immediately notify the licensee if they ever detect a leaker. He said they have never had a leaking source as yet.

The licensee has 24 devices containing licensed material authorized under the -05 license; 20 are mounted on blast furnace components in the Iron Producing Division (IPD) and 4 are in storage. This inventory includes 8 Kay-Ray devices and 16 Texas Nuclear Corporation devices, each containing no more than the authorized amount of americium-241 or cesium-137 as sealed sources. Records show these devices were installed sometime during the period of February 1973 to March 1978. The Radiation Protection Officer for the IPD stated that radiation surveys are conducted in the area of these devices about every two months.

A selective review of leak test records for licensed material under the -05 license shows the sealed sources containing milli-curie amounts of Am-241 or Cs-137 in the following devices were not tested for leakage and/or contamination during the indicated intervals.

<u>Model &amp; Device Serial Numbers</u>	<u>Device Location</u>	<u>Intervals</u>
Kay-Ray 7100, 1268	No. 6 Blast Furnace, South	5/79 to 7/80 to 7/81 to 5/82
Kay-Ray 7051, 1268	No. 6 Blast Furnace, North	5/79 to 7/80 to 9/81 to 5/82
Kay-Ray 7100, 1267	No. 6 Blast Furnace, North	5/79 to 7/80 to 5/82
Kay-Ray 7051, 1267	No. 6 Blast Furnace, South	5/79 to 7/80 to 9/81
Kay-Ray 7100, 1219	No. 13 Blast Furnace, South	5/79 to 7/80, 1/81 to 5/82
Kay-Ray 7051, 1219	No. 13 Blast Furnace, North	5/79 to 7/80, 1/81 to 9/81
Kay-Ray 7100, 1218	No. 13 Blast Furnace, North	4/79 to 7/80, 1/81 to 5/82
Kay-Ray 7051, 1218	No. 13 Blast Furnace, South	5/79 to 7/80, 1/81 to 9/81 to 5/82
Texas Nuclear 5010, B32	In Storage	10/77 to 12/79 to 9/81
Texas Nuclear 5010, B43	In Storage	10/77 to 12/79 to 9/81
Texas Nuclear 5010, B33	No. 8 Blast Furnace, South	3/78 to 12/79 to 3/81
Texas Nuclear 5010, B34	No. 8 Blast Furnace, North	3/78 to 12/79 to 3/81

This is an item of noncompliance with License Condition No. 13 which requires each of the above sealed sources to be tested for leakage and/or contamination at intervals not to exceed six months.

b. Facilities

The licensed material under the -17 license is used in devices that are installed on coal bins to provide an indication when a bin is either full or empty.

The material under the -05 license is used in devices that are installed on blast furnace coke weigh hoppers. The Cs-137 source in a device on one side of the hopper is used to determine the coke bulk density. The Am-241 source in a device mounted on another side of the hopper provides neutrons which are used to indicate the hydrogen concentration in the coke moisture.

c. Equipment

The licensee has a variety of radiation detection instrumentation. Both divisions (CCD and IPD) involved in this inspection procured portable survey meters for radiation measurements in their areas. In addition, the PRO has a supply of survey meters that may be used by the divisions when their meters are in for repair or calibration. On July 22, 1982, the Division Radiation Officer for the CCD showed the inspectors two instruments that are used for radiation surveys in his area; one was an Eberline, Model E-530, Serial No. 977 meter which was calibrated on April 13, 1982, and the other was an Eberline, Model RO-2, Serial No. 387 meter which was calibrated on May 4, 1982.

A review of calibration records showed that the Model E-530 survey meter was not calibrated from February 2, 1981 to October 12, 1981, and the Model RO-2 meter was not calibrated from August 14, 1981 to May 4, 1982. This is an item of noncompliance with License Condition No. 17 of the -17 license which requires the licensee to possess and use licensed material in accordance with statements, representations, and procedures contained in application dated May 26, 1980. Item 11 in the referenced application shows these instruments are to be calibrated at a six month frequency.

A Nuclear Chicago, Model 2673, Serial No. 2121 neutron survey meter and a Victoreen, Model 440, Serial No. 2617 survey meter are used for radiation measurements in the IPD according to the Division Radiation Officer for that division. Calibration records for these two instruments showed that the neutron survey meter was not calibrated from November 25, 1979 to February 20, 1982. This is an item of noncompliance with License Condition No. 16 of the -05 license which references an application (letter) dated April 12, 1977. Item 11 in that application shows these instruments are to be calibrated once per year. The PRO said the neutron survey meter was out for a "long time" during that period for repairs; however, he was unable to provide dates when that instrument was unavailable to the user division.

Two apparent items of noncompliance were identified.

7. Radiological Protection Procedures

The licensee's radiation protection program for the -17 license is described in their application dated May 26, 1980, which is referenced in License Condition No. 17 of Amendment No. 05 which amended the license in its entirety as of July 15, 1980. The licensee is committed to the requirements in the above application in addition to those specified in license conditions.



Earlier amendments to this license were also discussed during the inspection since the allegations referred to in Section 2 of this report include periods prior to May 1980. The -17 license was previously amended in its entirety via Amendment No. 01 issued on December 31, 1975. The tie-in license condition (No. 16) in this amendment referenced an application dated March 24, 1975, and letter dated December 31, 1975. This license condition was amended with the addition of an application dated July 11, 1977, as shown in Amendment No. 04 issued on July 22, 1977.

The licensee's radiation protection program for the -05 license is described in their application dated April 12, 1977, plus several earlier applications and letters which are referenced in License Condition No. 16 of Amendment No. 03 issued on September 27, 1977. The April 12, 1977 date actually refers to the cover letter that accompanied the application; the application itself is dated April 1, 1977. The licensee is committed to the requirements in these applications and letters in addition to those specified in license conditions.

The May 26, 1980, application, referenced in the -17 license, included a supplementary sheet entitled, "Division Radiation Officer"; under Functions it states in Item 5, "Makes monthly physical inventory of sources and radiation survey of devices. Reports results to Plant Radiation Officer."

The above application also included "Administrative Procedures for Design, Installation, Operation and Maintenance of Radio-Isotope Level Gauges for Coke Battery Coal Charging System Bins", revised May 19, 1980. In Item 5.3.3 of these procedures it states, "Radiation surveys after the initial survey shall be made by the Division Radiation Officer." This statement is also made in Items 5.1.5 and 5.2.6 of the "Administrative Procedures for Design, Installation, Operation and Maintenance of Radio-Isotope Coke Moisture Gauging Equipment for Blast Furnaces", revised April 1, 1977, which was submitted with the April 12, 1977, application (letter) that is referenced in Condition No. 16 of the -05 license.

The inspectors were told that the Division Radiation Officer for the CCD is D. R. Larson and, for the IPD it is J. D. Derucki.

During a selective review of records of routine monthly radiation surveys in the CCD for May 1982, December 1981, and May 1981, it was noted that the survey sheets were signed (under, "Measured By") by various individuals including P. Lewis, R. Parsons, R. Stanley, W. Boyce, L. Ponds, L. Winkle, and H. Adams. The inspector contacted Mr. Larson and asked if the person who signs the sheet is the individual who surveys the level gauge identified on that sheet, and, the answer was, "yes." (See Exhibit 2)

In subsequent private interviews with three individuals (two Utilitymen and an Assistant Heater) who work in the CCD, the inspectors were told all three have performed the routine monthly



radiation surveys of level gauges containing licensed material. These surveys are made with the shutter open and with the shutter closed. One individual performed such surveys as recently as about two months ago and one individual has not made such surveys for approximately five years. They recorded their readings on a sheet that was passed on to their foreman; however, they did not sign any survey sheets.

Based on the above information, the licensee is in noncompliance with Condition No. 17 of the -17 license since individuals other than the Division Radiation Officer have been making radiation surveys of devices containing licensed material.

Records of routine radiation surveys of level gauges in the CCD during January and February of 1976, and May, June, August, and September, 1977 were also reviewed. The highest recorded reading that was observed on these sheets was 2.8 mR/hr; most readings were less than 1.0 mR/hr at the gauge surface.

Radiation surveys of devices in the IPD are performed by J. Marler as well as J. Derucki. This information was obtained during discussions with Messrs. Marler and Derucki and from records of surveys conducted in July 1982. This is an item of noncompliance with Condition No. 16 of the -05 license since at least one individual other than the Division Radiation Officer has been making radiation surveys of devices containing licensed material.

During an escorted tour on July 22, 1982, into several areas where devices containing licensed material are installed, it was noted that information on required labels and signs was not visible in all areas. Specifically, the labels on level gauges for No. 2 Precarbon PPT-A and No. 2 Precarbon PPT-B plus the radiation caution signs for these two areas appeared to be corroded. This is an item of noncompliance with 10 CFR 20.203(f) and Condition No. 17 of the -17 license.

10 CFR 20.203(f) requires each container of licensed material to bear a durable, clearly visible label identifying the radioactive contents. This label shall also bear the radiation caution symbol and the words "Caution, Radioactive Material" or "Danger, Radioactive Material." In the Administrative Procedures that were submitted with the application dated May 26, 1980, which is referenced in Condition No. 17 of the -17 license, it states in Item 4.6.1 that enameled steel "Radiation-Caution" signs with radiation symbol shall be located in area of gauge. A detailed description of the sign is shown in Drawing E-55 which was also submitted with the application.

Two apparent items of noncompliance were identified.

#### 8. Training and Instruction to Workers

Mr. Derucki stated that he was shown how to use radiation survey meters during a two-day training session at this plant about two years ago. He did not recall who gave the training.

The three individuals who were interviewed privately, as mentioned in the previous section of this report, stated that they were instructed on how to make radiation level measurements by either a foreman or another Utilityman who was experienced in the use of a survey meter.

Training received by Messrs. Larson and Marler is shown in applications that are referenced in the two licenses.

No items of noncompliance were identified.

9. Personnel Radiation Protection

The film badge services of R. S. Landauer, Jr. and Company are utilized by the licensee on a monthly basis. Only body badges are used. However, not all individuals who work occasionally in the area of devices containing licensed material are issued a badge. This is in compliance with the licensee's Administrative Procedures mentioned earlier for both licenses. Item 4.2.2 of those procedures states: "Maintenance, operating and supervisory personnel regularly assigned to the immediate area of the nuclear device shall be provided with universal film badges suitable for recording gamma radiation. The badges shall be changed at monthly or shorter intervals to provide diagnostic information, for a period of at least six months. This program may be altered or eliminated entirely upon accumulation of sufficient dosage data to establish compliance with radiation protection regulations. Personnel in the area infrequently or occasionally will not be required to wear film badges."

A review of film badge records for individuals in the CCD from February 1976 through April 9, 1982, showed a maximum quarterly exposure of 180 millirem. Most results showed an "M" (less than 10 millirems x or gamma). The records showed film badges were issued for the alleged from September 1976 to November 1977; all results for his badges showed an "M."

No items of noncompliance were identified.

10. Independent Measurements

Direct radiation level measurements were made by the inspectors on and around several gauges in the CCD and IPD on July 22, 1982, using Region III's Xetex 305B survey meter, NRC No. 008358, calibrated on July 10, 1982, and Region III's Eberline PNC-1 portable neutron counter, NRC No. 000699, calibrated on May 20, 1982. Maximum readings were 3.0 mR/hr around gauges containing Cs-137 sources and 2.5 mrem/hr on the surface of a gauge containing an Am-241 Be source.

No items of noncompliance were identified.

## 11. Alleger Interview

The inspectors met with the alleger in Gary, Indiana during the morning of July 8, 1982, to review his allegations in the June 8, 1982 letter, to obtain additional information, and to discuss the inspection at U.S. Steel Corporation later that day. During this meeting, it was learned that the alleger's statements regarding "areas of radiation contamination" did not refer to areas with removable radioactive contamination as determined by wipes (smears) but rather areas where he measured radiation emanating from level gauges containing sealed Cs-137 sources. He said the highest reading he ever got with the geiger counter was "0.29 mrem/hr." We also discussed internal and external radiation exposures plus tests for leakage and/or contamination, since the alleger referred to "radiation ingested into the functional systems of his body." In addition, the inspectors pointed out that film badges and dosimeters do not provide protection against radiation but rather are devices to measure radiation.

A list of licensee personnel, both supervisory and nonsupervisory, who work in the CCD was provided by the alleger. He identified certain individuals on this list who he said would be willing to substantiate some of the information he has provided thus far.

The alleger was told that an unannounced inspection of the licensee's activities conducted under a NRC license would be initiated that afternoon. (NOTE: At this time, Region III was not aware of the -17 license, which is maintained in Region I. The fact that CCD activities are conducted under the -17 license became known later that day as the inspectors were reviewing licensee records provided by the PRO.)

## 12. Exit Interview

Licensee personnel met with one of the inspectors during the afternoon on July 28, 1982, at which time the findings noted in the body of this report were summarized. The four items of noncompliance were discussed in addition to the alleger's letter. Those in attendance from the licensee's organization included the following individuals: S. H. Conkle, J. N. Martinsen, F. D. Karrie, R. B. MacLeod, G. T. Weber, Jr., F. M. Clark, E. E. Charbonneau, R. M. McDaniel, T. M. Zaberdac, A. W. Sellers, G. C. Popiela, D. M. Samson, and J. J. Nash.

The inspector stated that our findings did not indicate the constant use of film badges by individuals in the area of level gauges was warranted; this was based on their radiation survey results, our radiation level measurements, the licensee's film badge records, and their Administrative Procedures. Also, we found no evidence of a leaking source that could lead to radioactive contamination in the area of gauges.

In regard to a question concerning radiation surveys only by the Division Radiation Officer, the licensee was informed that they would have to submit a request to the NRC Licensing Branch for an amendment to their licenses if they wish to seek relief from this requirement.

In concluding remarks, the licensee was informed that some delay may be encountered in issuance of the Notice of Violation since the -17 license is maintained by Region I and representatives from that office may become involved in this matter. Also, if the alleged takes his complaints to a court of law, the court may request some followup action by our office.

NUCLEAR REGULATORY COMMISSION  
7799 Roosevelt Road  
Glen Ellyn, Illinois 60137

8 June 1982

COMPLAINANT

[REDACTED]

RESPONDANT

US Steel Corp. Gary Works  
Coke Plant, # 2 & 3 Pre Caro  
1 North Broadway  
Gary, Indiana 46402

COMPLAINT ALLEGES

The aboved named respondant is in violation of Nuclear  
Regulatory Standards for safety for work performed in areas of  
known radiation continuation. [REDACTED]

Whereas jurisdiction is conferred to the Nuclear Regulatory  
Commission to enforce and regulate the health and safety standards  
for workers in environments of radiation pursuant to 42 U.S.C. § 2282  
Public Health and Welfare, 10 C.F.R. 20.1 and parts thereof. US  
Steel as a licensee is in violation of accepted standards and such  
violation necessitates the NRC's investigation and intervention.

BACKGROUND

The above Pre Carbon facilities first began operation in  
1975, purpose being to pre heat crushed coal for stage charging  
into 30 ton capacity ovens (coke battery). The facilities employ  
gamma and beta emitting devices herein referred to as K-Rays. Each  
K-Ray consist of a source and detector unit. The source unit con-  
tains a measure of radioactive material, when energized is acknow-  
ledged by the detector unit. Their function is to measure a pre-  
determined level and weight of wet and pre heated coal tonnage in  
the storage bins and percipitors on the Pre Carbon units. There  
are more than 50 individual K-rays on both #2 & 3 precarbons.

VIOLATION

Pre Carbon production and maintenance employees, utilitymen,  
millwrights, motor inspectors, laborers, etc. are required to per-  
form assigned work in these areas of radiation continuation with-  
out the protection of continuous personal monitoring in the form of  
dosimeters and film badges. Further the complainant was not being  
provided with periodical occupational physicals from [REDACTED]  
to determine the amount of radiation injected into the functional  
systems of [REDACTED] body.

Attached is a report from R.S. Landauer Jr. & Co. the firm  
US Steel employs to measure the current radiation exposure. As you

JUN 11 1982  
Exhibit 1



cont  
small note in [redacted] of the report, [redacted] was the last date of personal monitoring for the complainant as well as other individuals assigned to pre carbon. Management and supervisory personnel assigned to Pre Carbon were and are to the present continually monitored. Moreover during [redacted] I was required to conduct the radioactive K-Ray readings, using a Geiger-Muller Counter. You will further note on the report, parts 22 thru 25 are sections in which US Steel are to complete. Parts 21, 23, & 24 are omitted and part 25 is penciled "NONE". Such is evident that if complainant was not monitored beyond [redacted] and was not provided with periodical occupational physicals there is no way possible to determine the amount of internal exposure from radiation. No matter what rubric is employed the entry of (None) is totally irrational and out of context.

By providing management personnel with continuous personnel monitoring is a clear indication of benign and neglect for the health and welfare of pre carbon workers. Management was made aware of its responsibility to provide like safety precaution for all employees, but instead chose to impose a program of oppressive supervision against complainant [redacted]

[redacted] Complainant as well as several other employees have began to develop physical disorders in the form of skin lesion, lung diseases, and premature graying. Management personnel have a very casual exposure to radiation and are mandated by the collective bargaining agreement not to perform any assigned work delegated to production and maintenance employees, therefore their exposure records would indicate a lower or lesser amount radiation than the employees.

It is impossible for me to gain access to all monitoring information from the respondent and K.S. Landauer Jr. & Co. but those records in conjunction with the individual employee medical records (Plant) will substantiate this complaint. The same conditions continue to exist at #2 & 3 Pre Carbons and such long range effects do pose as an imminent danger to the health and welfare of workers, therefore NRC's intervention and investigation is a must.

I hereby affirm and certify that the foregoing statements are true to the best of my knowledge and belief.

Respectfully submitted:

[redacted signature block]

1 incl  
report

Dated: 8 June 1982



# RADIATION PATTERN SURVEY SHEET

Rec'd.  
7-28-82

LEVEL GAUGE LOCATION 128C

DETECTOR SERIAL NUMBER 5081 U.S.S. LEVEL GAUGE NUMBER 943C

ISOTOPE: TYPE \_\_\_\_\_ AMOUNT (MC) 100

MEASURING INSTRUMENT GEIGER

MEASURED BY: R.M. Stanley DATE MEASURED \_\_\_\_\_

### RADIATION PATTERN

### READINGS IN MR/HR

READING NO.	1	2	3	4	5	6	7	8	9	10
SHUTTER OPEN	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1
SHUTTER CLOSED	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1

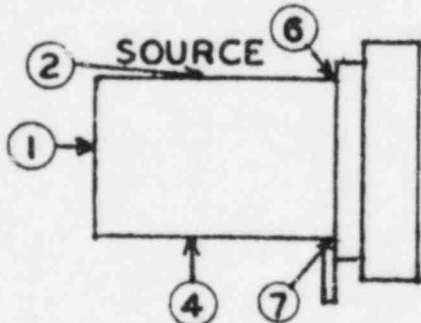
BIN FULL \_\_\_\_\_ EMPTY \_\_\_\_\_

BACKGROUND READING 0.1

SHUTTER POSITION LIGHTS

OK  FAULTY \_\_\_\_\_

SIDE VIEW



TOP VIEW

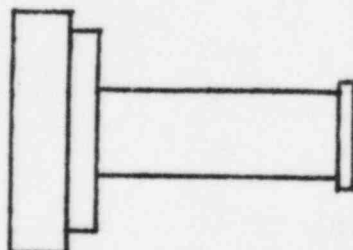
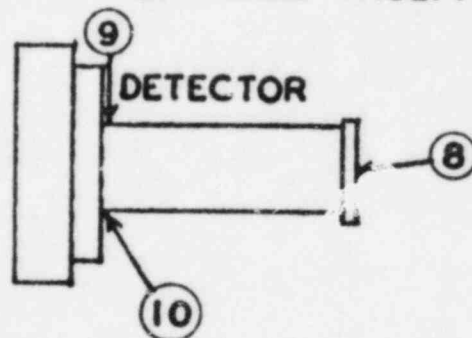
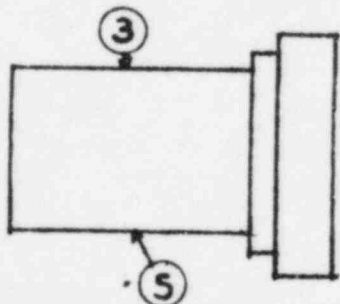


Exhibit 2