U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 030-04441/82-01(DETP)

Docket No. 030-04441

License No. 14-11999-01 Category K Priority VII

Licensee: Chemplex Company
Box 819
Clinton, Iowa 52732

Inspection At: Chemplex Company, Clinton, Iowa

Inspection Conducted: September 13 and 14, 1982

Inspector: J. R. Madera
Radiation Specialist — 12-15-82

Reviewed By: D. G. Wiedeman, Chief
Materials Radiation Protection
Section 1 — 12-15-82

Approved By: J. R. Miller, Chief
Technical Inspection Branch — 12/15/82

Inspection Summary

Inspection on September 13 and 14, 1982 (Report No. 030-04441/82-01(DETP))
Areas Inspected: Organization, review of reported missing sealed source; licensed program; training and instruction to workers; radiological protection procedures; receipt and transfer of material; security of material; surveys; leak test; exposure controls - external; and confirmatory measurements. The inspection involved a total of fourteen inspector-hours onsite by one inspector.
Results: Twelve items of noncompliance were identified: (1) 10 CFR 20.207(a) - licensee failed to secure licensed material stored in an unrestricted area from unauthorized removal - paragraph 9; (2) 10 CFR 20.402(a) - licensee failed to make immediate notification to the NRC office of the loss or theft of licensed material - paragraph 4; (3) License Condition 13 - licensee performed unauthorized procedures in order to relocate sealed sources - paragraph 5; (4) License Condition 8.E - licensed material possession limits were exceeded - paragraph 8; (5) 10 CFR 20.105(b)(2) - levels of radiation in unrestricted areas were exceeded - paragraph 7; (6) License Condition 16 - leak tests were performed by unauthorized individuals - paragraph 11; (8) License Condition 14.B - results of leak tests were not maintained in

units of microcuries - paragraph 11; (9) 10 CFR 19.11(a) (b) and (c) - copies of Parts 19, 20 and a Form NRC-3 were not available for examination by the workers - paragraph 6; (10) 10 CFR 19.12 - licensee failed to instruct individuals working in restricted areas in the applicable provisions of the Commission's regulations and license conditions - paragraph 6; (11) 10 CFR 30.51 - no records of receipt or transfer of licensed material were maintained - paragraph 8; (12) License Condition 16 - licensee failed to maintain records of surveys performed on 19 sealed source devices after their installation - paragraph 10.

DETAILS

1. Persons Contacted

#James Schoor, President
***Pat Jarratt, Vice President of Manufacturing
***Bill Reeve, Vice President of Administration and General Counsel
**John Eisenhauer, Plant General Manager
*Gus Stehle, Maintenance Supervisor
*Richard Powell, Radiation Safety Officer
*Rodney T. Johnson, General Supervisor, Instrument and Electrical Maintenance

#Contacted by telephone on September 22, 1982.

*Denotes those present at the exit interview on September 14, 1982.

**Denotes those present at the exit interview on September 14, 1982 and present at the enforcement conference on October 4, 1982.

***Denotes those present at the enforcement conference on October 4, 1982.

2. Purpose of Inspection

This was a special inspection to review the facts surrounding a Texas Nuclear Model A/S 850263 cesium-137, 3 millicurie calibration sealed source that was reported missing by the licensee on September 1, 1982 and to perform a routine safety inspection.

3. Organization

The President of Chemplex Company is Mr. James Schoor; Mr. Pat Jarratt is the Vice President of Manufacturing. Mr. Bill Reeve is the Vice President of Administration and Legal Counsel. The Radiation Safety Officer is Richard Powell and his assistant is the General Supervisor of the Instrument and Electrical Maintenance Shop, Mr. Rodney T. Johnson.

No violations were identified.

4. Review of Reported Missing Sealed Source

On August 24, 1982 a licensee maintenance technician discovered that the Texas Nuclear Model A/S 850263, cesium-137, 3 millicurie sealed calibration source was missing from its place of storage when he attempted to perform a calibration procedure using the source. At this time the technician reported to his supervisor that the calibration source was missing. The maintenance supervisor reported the missing sealed source to the Company radiation safety officer who then initiated an investigation into the loss. Individual workers were interviewed and their log books, of work orders performed, were

examined to determine who was the last person to have used the calibration source. A search of the entire plant and the local sanitary land fill site was conducted by licensee representatives using two Nuclear Chicago Model 2652 G-M instruments. On September 2 and 4, 1982 news media releases were made by the licensee informing the public of the loss and potential hazard of the licensed sealed source. On September 14, 1982 the NRC inspector and licensee representatives conducted a search of the Denver-Allen scrap metal yard, a possible location of the lost source, and performed area surveys.

The licensee contacted the NRC Region III office by telephone on September 1, 1982 and reported the loss or theft of the Texas Nuclear sealed calibration source seven days after the occurrence was known by the licensee. This constitutes noncompliance with 10 CFR 20.402(a) which requires immediate notification by telephone to the appropriate NRC office any loss or theft of licensed material in such quantities and under such circumstances that it appears that a substantial hazard may result to persons in unrestricted areas.

One violation was identified.

Photostatic copies of the news media release of September 2 and 4, 1982, and drawings of the missing sealed calibration source and its shielded container are included in this report as Attachments No. 1 and No. 2.

5. Licensed Program

NRC Byproduct Material License No. 14-11999-01 was originally issued on December 2, 1966 and was renewed in its entirety on September 1, 1982. The license currently authorizes the possession and use of cesium-137 and cobalt-60 byproduct material in the form of sealed sources in certain density and level gauges.

Licensed activities include periodic calibration of density gauge detector heads, six month leak testing of all sealed source devices, relocation and/or replacement of any density or level gauge device and the monitoring of external exposures utilizing whole body film badges and dosimeters.

According to the Ohmart Corporation, Model A-5771 sealed source specifications contained in drawings numbered A5571, B11244 and HWE-44595 describe the sources as being six feet long double encapsulated cesium-137 strip sources, 200 millicuries each in activity. The four strip sources are then placed in individual source enclosure tubes which are then placed inside their respective source holders within the low pressure separator vessels. Chemplex Company representatives stated that on several occasions dating back prior to 1974 and as recently as May 1981, have removed four Ohmart Corporation Model A-5771, 200 millicurie cesium-137 sealed sources from their respective source well holders located inside two low pressure separator vessels, S-231(a) and S-231(b), and placed them in their storage and shipping containers. These source removals were carried

out at intervals of 12-24 months. This constitutes noncompliance with License Condition No. 13 which states that sealed sources containing licensed material shall not be opened or removed from their respective source holders by the licensee.

One violation was identified.

6. Training and Instruction to Workers

The radiation safety officer and other users named on the license have attended a course of instruction given by the Texas Nuclear, Division of Nuclear Chicago. The course covers the fundamentals of radiation, units of dose and quantity of radioactivity, hazards of radiation exposure, detection devices, regulatory controls, industrial devices, and specific training on installation and leak testing of Nuclear-Chicago density, level and weight gauges.

According to statements made by licensee representatives, individuals who have not received training from Texas Nuclear, Division of Nuclear Chicago, have performed procedures in restricted areas, such as leak testing, device calibrations and source removals without receiving instructions on the provisions of the regulations or the license. Furthermore, no training sessions have been held to instruct workers who occasionally work in restricted areas on the provisions of the regulations or the license. This constitutes noncompliance with 10 CFR 19.12 which requires that the licensee instruct all individuals working in restricted areas in the applicable provisions of the Commission's regulations and license conditions.

In addition, it was found through statements of licensee representatives that Parts 19 and 20, Form NRC-3 and other pertinent documents, or a notice describing these documents and where they may be examined were not posted. This constitutes noncompliance with 10 CFR 19.11(a)(b) and (c) which requires that current copies of Part 19, Part 20, license conditions, documents incorporated into the license, license amendments, and operating procedures and Form NRC-3, be posted or that a notice describing these documents and where they may be examined, be posted.

Two violations were identified.

7. Radiological Protection Procedures

Leak tests, sealed source device installation, relocation, and gauge calibration procedures are to be performed by or under the direct supervision of the Radiation Safety Officer or his assistant named on the license. These procedures are outlined in several manuals provided by the density and level gauge manufacturers.

During the September 13 and 14, 1982 inspection it was found through statements of licensee representatives that the storage container and the Texas Nuclear, 3 millicurie cesium-137 calibration source had been stored in an unrestricted area outside the Electrical Work

Shop. According to the blue prints and technical specifications of the source and source container which the licensee submitted to NRC on October 27, 1969 in support of a license application, the radiation levels at one foot from the surface of the storage container were 1 mR to 2 mR per hour. This could result in an exposure of 336 millirems in seven consecutive days if an individual were continuously present in the unrestricted area. This constitutes noncompliance with 10 CFR 20.105(b)(2) which states that no licensee shall possess, use, or transfer licensed material in such a manner as to create in any unrestricted area from radioactive material and other sources of radiation in his possession: radiation levels which, if an individual were continuously present in the area, could result in him receiving a dose in excess of 100 millirems in any seven consecutive days.

One violation was identified.

8. Receipt and Transfer of Material

License No. 14-11999-01 in Conditions 6, 7, and 8 stipulates the type, chemical and/or physical form, and the maximum amount of byproduct material that the licensee may possess at any one time. On September 14, 1982, at the request of the NRC inspector, the licensee performed an inventory of the byproduct material in their possession. The inventory showed that four In-Val-Co, Model B20-14A sealed sources contained in In-Val-Co, Model B20-100 source holders for level measurements are each one curie in activity. This constitutes noncompliance with License Condition No. 8.E which requires that the four In-Val-Co, Model B20-14A cobalt-60 sealed sources possessed under this license shall not exceed 850 millicuries each. The licensee exceeded the possession limits outlined in License Condition No. 8.E by 150 millicuries per each In-Val-Co, Model B20-14A cobalt-60 sealed source at the time the sources were purchased in 1969.

Records of receipt and transfer of the various density and level gauges possessed by the licensee were examined. According to the inventory performed on September 14, 1982, a total of 30 sealed sources and their source holders had been received; however, the licensee had receipt records for only 11 of the sealed sources. This constitutes noncompliance with 10 CFR 30.51 which requires that each licensee keep records showing the receipt, transfer, and disposal of licensed material. The licensee failed to maintain records of the receipt of 19 sealed sources containing licensed material.

A photostatic copy of the September 14, 1982 inventory record is included in this report as Attachment No. 3.

One violation was identified.

9. Security of Material

It was found through statements of licensee representatives that on occasion the Texas Nuclear Model A/S 850263, 3 millicurie cesium-137

sealed calibration source was not secured with a section lock and was stored in an unrestricted area outside the Electrical Work Shop within its portable shielded storage container and the storage container was not secured in any fashion to prevent unauthorized removal. This constitutes noncompliance with 10 CFR 20.207(a) which states that licensed material stored in an unrestricted area shall be secured from unauthorized removal from the place of storage. The licensee's failure to comply with 20.207(a) resulted in the loss of the above mentioned sealed source.

The remaining 29 sealed sources are maintained within their respective density or level gauge devices which are securely bolted to various vessels and piping throughout the plant.

One violation was identified.

A copy of the licensee's 30 day report is included in this report as Attachment No. 4.

10. Surveys

License Condition No. 16 of license dated August 30, 1977 requires that the licensee possess and use licensed material in accordance with statements, representations, and procedures referenced in the letter dated April 11, 1968. This letter states in the "Inspection and Installation Procedures" that a radiation survey will be made by the installer of the gauge and that the radiation survey sheet will be filled out and filed as a permanent record.

During the September 13 and 14, 1982 inspection it was found through the NRC inspector's review of past installation survey records, that only 11 survey record sheets out of a total of 29 sealed source devices installed were available for inspection. The licensee's failure to maintain records of all installation surveys, constitutes noncompliance with License Condition No. 16.

The licensee performs the required radiation surveys with one of two Nuclear Chicago Model 2625 G-M survey instruments on hand.

One violation was identified.

11. Leak Tests

According to the license application dated May 27, 1982, sealed sources and containers are tested for leakage or contamination using the Q-tip swab method and a Nuclear-Chicago Corporation model 2652 survey meter or an equivalent survey meter capable of detecting .005 microcuries of the radioactive source being tested. The leak test results are compared to a cesium-137 disc (0.0026 mCi ±5%) or a radium-226 (0.0017 mCi ±5%) comparison standard found in the Nuclear Chicago Radioactive Material Standard kit.

During the inspection it was found through the NRC inspector's review of the leak test records that the Texas Nuclear A/S 850263 cesium-137 3 millicurie calibration sealed source had not been tested for leakage and/or contamination since April 30, 1981. This constitutes noncompliance with License Condition No. 14.A which states that each sealed source containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months.

License Condition No. 16 of license dated August 30, 1977 requires that the licensee possess and use licensed material in accordance with statements, representations, and procedures referenced in the letter dated April 11, 1968, and the application dated March 28, 1977. The above referenced documents state that leak tests performed on sealed sources containing licensed material shall be performed by Richard I. Powell, John N. Trumpeter or Rodney T. Johnson.

During the inspection of September 13 and 14, 1982, it was found through statements of licensee representatives that leak tests were performed by individuals other than those authorized and without the authorized individuals direct supervision. This constitutes noncompliance with License Condition No. 16 of license dated August 30, 1977.

License Condition No. 14.B of license dated August 30, 1977 requires that records of leak test results shall be kept in units of microcuries and maintained for inspection by the Commission. During the September 13 and 14, 1982 inspection it was found through the NRC inspector's review of records that the results of the leak tests were not kept in units of microcuries. Specifically, the results were kept in the form of a check off system. This constitutes noncompliance with License Condition No. 14.B of license dated August 30, 1977.

Three violations were identified.

12. Exposure Controls - External

Whole body exposures are evaluated using film badges supplied monthly by R. S. Landauer, Jr. Company. During installation and relocation procedures Model No. 862 (0-200 mR) whole body dosimeters from Dosimeter Corporation of America are used. All persons working in the vicinity of radioactive materials are supplied with whole body badges. In addition, any individual involved with installation or relocation of sealed source devices is issued whole body dosimeters and film badges.

The inspector reviewed film badge reports from 1977 through August 1982. The maximum yearly whole body exposure was 90 mrem.

No violations were identified.

13. Confirmatory Measurements and Dose Assessment

The gamma constant for cesium-137 is .33 mR/hr/millicurie at a distance of one meter. A 3 millicurie source of cesium-137 would produce a dose

rate of approximately 1 mR/hr at one meter, 10 mR/hr at one foot and 9 R/hr at one centimeter.

The inspector made independent measurements during the inspection using a Xetex 305B, NRC Serial No. 008993, calibrated on August 10, 1982 and an Eberline E-520, NRC Serial No. 009573, calibrated on August 10, 1982.

The results were as follows:

a. Instrument and Electrical Maintenance Building

(1) office areas - , .05 mR/hr.
(2) general work area - , .05 mR/hr.

b. Polyethelene Synthesis High Density Control Room

(1) general area - , .05 mR/hr.

c. Polyethelene Synthesis High Density Area

(1) area grounds - , .05 mR/hr.
(2) Nuclear Chicago density gauges

(a) surface - 2.3 to 3.5 mR/hr.
(b) at 18 inches from surface - , .1 mR/hr.

d. Scrap Metal Yard

(1) yard grounds - , .05 mR/hr.

No violations were identified.

14. Exit Interview

On September 14, 1982, an exit interview was held at the conclusion of the inspection with licensee representatives identified in Section 1. The apparent items of noncompliance and the possibility of escalated enforcement action were reviewed and discussed.

15. Enforcement Conference

An enforcement conference was held in the Region III office on October 4, 1982. The meeting was attended by Mr. Pat Jarratt, Mr. John Eisenhauer, and Mr. Bill Reeve of Chemplex Company and Mr. A. B. Davis and members of his staff.

During the meeting the NRC enforcement policy and the items of noncompliance were discussed. Also discussed were causes and corrective actions taken as a result of the loss of licensed radioactive material. The licensee was informed that escalated enforcement action is being considered.

Attachments:

1. News Media Release dtd 9/2/82
2. Sealed Source Calibration Device Diagram
3. Inventory Sheet dtd 9/14/82
4. Chemplex Co. ltr dtd 9/24/82

Chemplex seeks lost isotope

Chemplex Company employees and the Nuclear Regulatory Commission have been notified that a radiation souce has been found missing from its storage space at the Clinton plant.

The NRC has advised Chemplex the missing Cesium 137 radiation source is not life-threatening and does not present a major health hazard.

And Clinton County Board of Health chairman Mark Barnes confirmed the isotope was not dangerous though, "it depends on the size of it."

The age, value of radiation count and the age of the isotope would determine the danger to life from the isotope, Barnes said.

"I wouldn't want to carry it in my hand," he said. "It should not be picked up as a souvenir."

Chemplex officials said the low-level radiation source is used for the routine calibration of instruments in several plant facilities.

The radiation source is about the size of an aspirin pill. It was permanently held in a marked T-shaped box about 5½ inches by 8½ inches in size. It had been last used in May.

Plant Manager John Eisenhauer said anyone who knows where the element might be should be aware the radiation source has no commercial value, cannot be sold without a license and that possession is a federal offense, subject to arrest.

Eisenhause said in a prepared statement: "We recommend anyone with knowledge of the missing material may anonymously contact either the NRC at 312-932-2500 or Eisenhauser at 319-243-5500 or at 319-243-93. No questions will be asked."

As a precaution, Chemplex is issuing dosimeters to all employees working in areas where the missing radiation source is normall used. The dosimeters are designed to measure any radioactivity that might be in the areas.

The Nuclear Regulatory Commission limits radiation levels in unrestricted areas, such as those open to the public, to two millirems per hour, The missing radiation source will produce two millirems per hour of exposure to someone who is two feet away from it and directly in line with the opening of the container.

NEWS MEDIA RELEASE DATED 9/2/82.

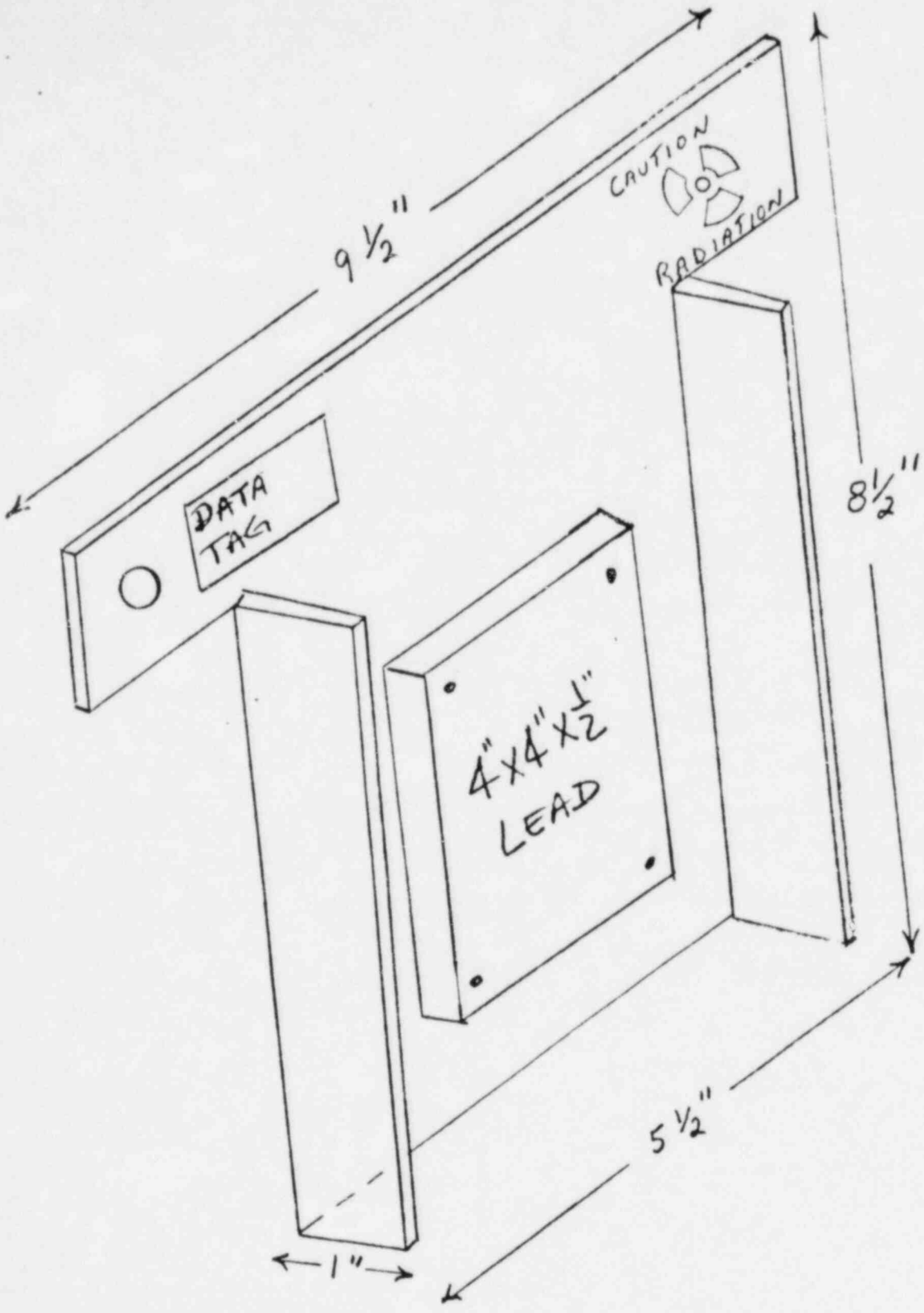
Search for Cesium source continues

Search continued today at the Chemplex Company plant for a missing Cesium 137 radiation source which turned up missing Thursday.

Plant Manager John Eisenhauer said there has been no trace of the radiation source used in routine calibration of instruments in several of the plant's facilities.

RELEASE DATED 9/4/82

ATTACHMENT 1.



SEALED SOURCE CALIBRATION DEVICE

ATTACHMENT 2.

700-702621

570-576952

SECTION A-A

ATTACHMENT 2.

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DO NOT SCALE DRAWING	
		TOLERANCES UNLESS OTHERWISE SPECIFIED X = ± DECIMALS = .005 X.X = ± DECIMALS = .01 FRACTIONS = 1/64 ANGLES = 1°	ENGINEER CHECKED DRAFTSMAN
		MATERIAL	FINISH
NEXT ASSY	USED ON		
APPLICATION			

TEXAS NUCLEAR

AUSTIN TEXAS

[illegible] CALIBRATION [illegible]

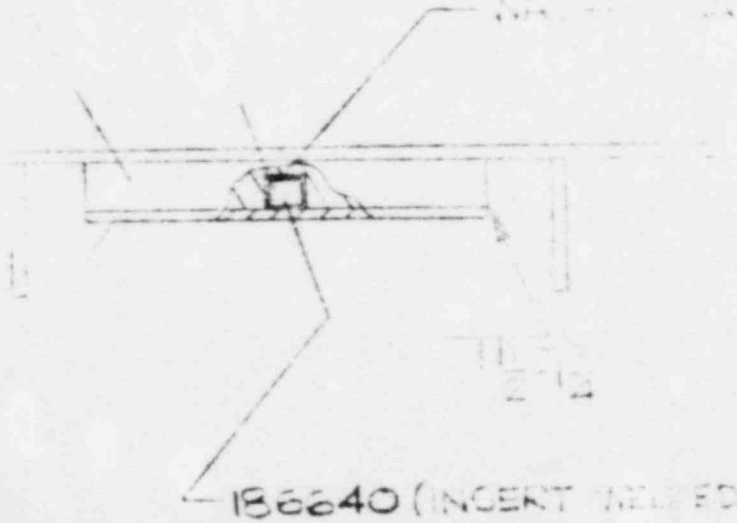
SIZE	CODE IDENT NO	DRAWING NO	REV
C	21279		

SCALE [illegible] SHEET [illegible] OF [illegible]

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

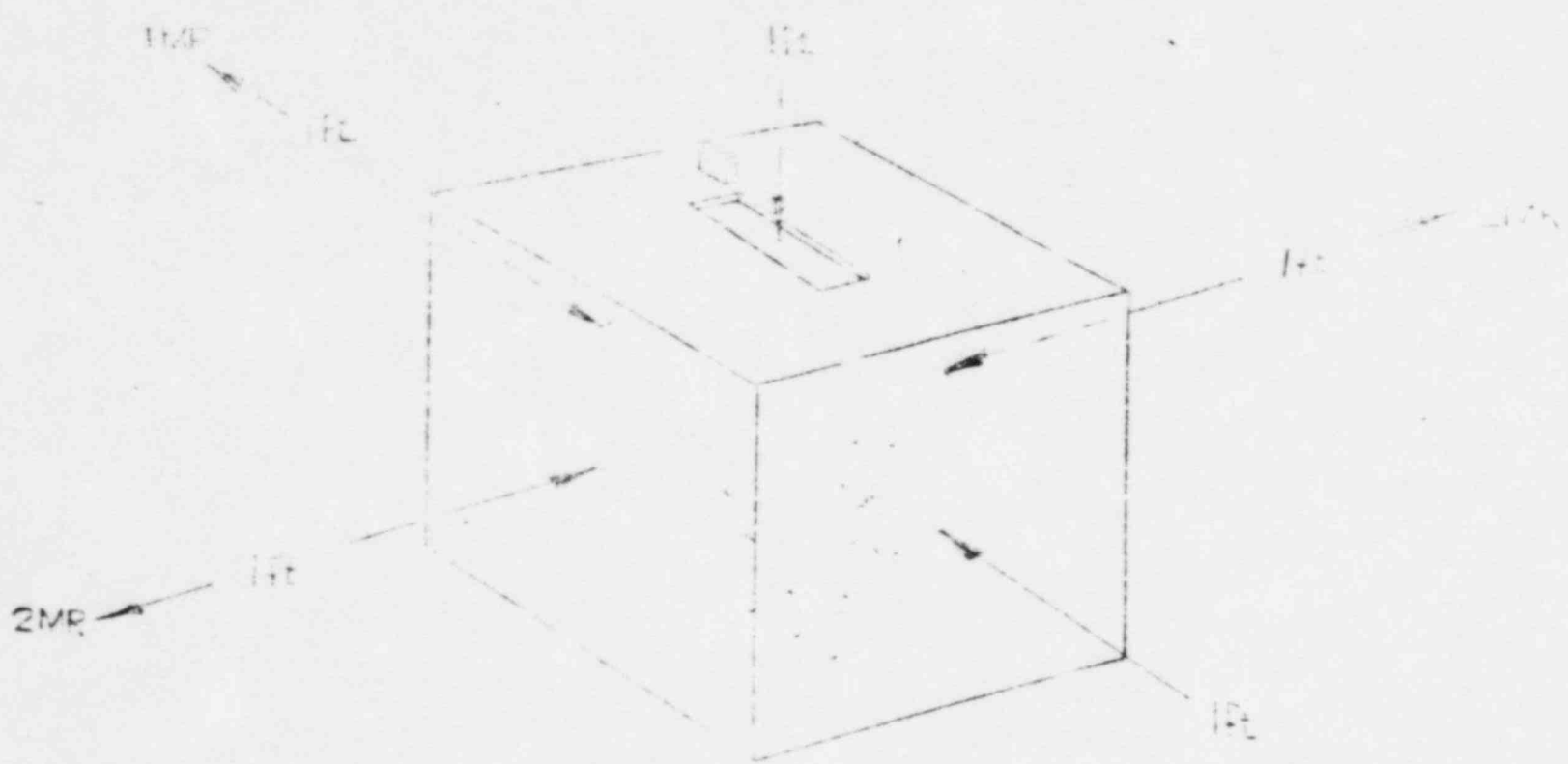
ATTACHMENT 2.

SOURCE A/S [illegible]
Cs 137 3mCi



2)

186640 (INSERT [illegible] END FIRST)



ATTACHMENT 2.

		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DO NOT SCALE DRAWING		TEXAS NUCLEAR AUSTIN, TEXAS		
		TOLERANCES UNLESS OTHERWISE SPECIFIED 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 1°	ENG'R'D DRAWN CHECKED			
NEXT ASSY	USED ON	MATERIAL	FINISH	SIZE C	CODE IDENT NO 21279	DRAWING NO	REV
APPLICATION				SCALE		SHEET	

RECEIVED
OCT 27 PM 1 42
COMPLETE

B

A

INVENTORY 9/14/82

LD I HPS OHMART Level gauge

✓ (1) OHMART source holder model A-2092
Co-60 500 MC
Detector Model RTSN S/N 5232

LD I LPS "A" OHMART Level gauge
OHMART Corp No A5771 special strip sources (2)
200 MC Cs-137
✓ (2) SER # 1477
Model = B-11244-A5771
Detector Model RTSN S/N 5234

LDI LPS "B" OHMART Level gauge
OHMART CORP. Dwg No A5771 special strip sources (2)
200 MC Cs-137
✓ (2) Detector Model RTSN S/N 5233

LDI LPS "C" ACCURAY Level gauge
General Nuclear Source
✓ (1) Model VD-HP Cs-10 S/N A30
300 MC Co-60
Holder General Nuclear No. B-119

9/14/82 Inventory. (1)

PF I — Nuclear Chicago Qualicon 5120
model 5176 source holder S/N 541
model 5151 Detector housing S/N 593
Sealed source Model 850233 — Cs 137 1000 MCi ✓

PF II — NUCLEAR Chicago Qualicon 5120 (1)
Liquid Density GAUGE
Model 5176 SOURCE holder S/N 703
Model 5151 Detector housing S/N 703
Sealed Source Cs - 137 1000 MCi ✓ date 3/4/67
Model 850233

PF III — Nuclear Chicago Qualicon 5120 (1)
Liquid Density GAUGE
Model 5176 source holder S/N 702
Model 5151 Detector housing S/N 702
Sealed source Model 850233 — Cs-137 1000 MCi ✓ date 3/4/67

HSSF — Nuclear Chicago Qualicon 5120
(3) (3 units) Liquid Density GAUGE S/N 007, S/N 005, S/N 400
Model 5176 Source holder
Model 5151 Detector housing
Sealed source Model 850233 — Cs-137 500 MCi date 3/13/67

HSSF — Nuclear Chicago 5100 Level gauge
(3) (3) Model 5180 source holder S/N 91, S/N 92
(3) sealed sources Cs-137 500 mc each - S/N 43

✓ Pilot Plant
LPS

Nuclear Chicago Qualicon 5100
Level gauge
Model 5180 source holder
CS-137 100 MC (1)

Nuclear Chicago
Sealed source
Model 850233

✓ Pilot Plant
HPS
(1)

Nuclear Chicago Qualicon 5100
Level gauge
Model 5180 source holder S/N 12
CS-137 3000 MC
Detector Model 5400 S/N 31

Pilot Plant
H₂O Reactor
✓ (1)

Nuclear Chicago Qualicon 5120
Liquid density gauge
Model 5176 source holder S/N 970
Model 5151 detector S/N 995
CS-137 2000 MC ✓

Nuclear Chicago
Model 850233

LD ~~II~~ HPS "A" N/C INVALCO Level Gauge
Source B-20-14A 1000 mc Co 60
special well in vessel
(1)

unaccessible in high pressure area controlled

LD II HPS "B" N/C INVALCO Level Gauge
Source B-20-14A 1000 Mc Co
(1)

LD II LPS "A"
INVALCO Level Gauge
Source holder B-20-100 (2)
Source B-20-14A (2)
one Source 700 mc Co 60
N/C one source 1000 mc Co 60
(2)

LD II LPS "B"
INVALCO Level Gauge
Source holder B-20-100 (2)
Source B-20-14A (2)
one Source 700 mc Co 60 3/N 99
N/C one Source 1000 mc Co 60 3/N 98
(2)

* TEST SOURCE (1)
AMERSHAM / SEARLE
(1) 3 mCi MODEL 850263

unaccessible controlled area

LD III HPS
Ohmart Level Gauge
5000 mCi
Cs-137
OK (1)

OHMART Shipping & Storage Container S.O. -43461

(2) Ser # 1879-1883

Material CS-137 MC 2-100

OHMART Shipping & Storage Container

Model C-11247-A5771 SO-16605-2

✓ (1) Ser # 1477 Material CS-137 200 MC

1478 Material CS-137 200 MC

OHMART Shipping & Storage Container

Model B-11242-A2092 SO-16605-1

LD I (1) Ser # W-356

Material Co-60 MC 500

30 sealed sources total minus one lost = (29) onhand as of 9/14/82.

Last actual physical inventory was performed in 1977.

CHEMPLEX COMPANY
CLINTON, IOWA 52732 • 319—243-5500

SEPTEMBER 24, 1982

UNITED STATES NUCLEAR
REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, IL 60137

ATTENTION: MR. DARRELL WIEDEMAN

GENTLEMEN:

THIS REPORT AND A COPY TO THE DIRECTOR OF INSPECTION AND ENFORCEMENT, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, D.C., IS CONCERNING THE LOSS OF A CALIBRATION SOURCE REPORTED POTENTIALLY LOST OR STOLEN TO YOU BY TELEPHONE SEPTEMBER 1, 1982.

DESCRIPTION OF SOURCE

THE SEALED SOURCE, 3 MILLICURIES OF CESIUM 137 WAS AN AMERSHAM/SEARLE MODEL NO. 850263 ADDED TO OUR MATERIAL LICENSE 14-11999-01 AS AMENDMENT 11, NOVEMBER 3, 1969. THE SEALED SOURCE IS EMBEDDED IN A LEAD BLOCK 4" X 4" X 1/2" THAT IS MOUNTED TO A "T" SHAPED PIECE OF METAL PLATE. ENCLOSURE ONE (1) IS AN ISOMETRIC SKETCH OF THE SOURCE HOLDER.

CIRCUMSTANCES SURROUNDING INCIDENT

THE SOURCE AND ITS HOLDER WERE NOTICED MISSING FROM ITS STORAGE CONTAINER WHICH WAS OUTSIDE AND NEXT TO THE HIGH DENSITY AREA INSTRUMENT AND ELECTRICAL SHOP. THERE WAS NO LOCK ON THE STORAGE CONTAINER WHICH NORMALLY WAS SECURED BY AN INSTRUMENT DEPARTMENT LOCK.

THE LAST DOCUMENTED USE OF THE CALIBRATION SOURCE, FOUND BY REVIEW OF INSTRUMENT DEPARTMENT TECHNOLOGISTS' DAILY WORK LOGS, WAS MAY 7, 1982. THE TECHNOLOGIST THAT USED THE CALIBRATION SOURCE STATED THAT HE RETURNED IT TO THE STORAGE CONTAINER AND LOCKED IT IN PLACE.

PROBABLE DISPOSITION OF SOURCE

THE SOURCE AND ITS HOLDER ARE MOST LIKELY BURIED IN THE CLINTON COUNTY (IOWA) LANDFILL. AS A RESULT OF BEING IMPROPERLY STORED IN THE STORAGE CONTAINER OR NOT RETURNED TO THE STORAGE CONTAINER, THE SOURCE AND HOLDER WERE PROBABLY MISTAKEN AS SCRAP AND DISCARDED INTO ONE OF THE TRASH DUMPSTERS WHICH ARE EMPTIED AT THE LANDFILL.

ATTACHMENT 4

SEP 27 1982

Home Office

THEFT CAN NOT BE TOTALLY RULED OUT, BUT IS NOT LIKELY BECAUSE OF THE LIMITED ACCESS TO THE PLANT AND THE SECURITY CHECKS AT THE TWO GATES ON THE PLANT SITE.

EXPOSURE HAZARD

NO KNOWN RADIATION EXPOSURE TO INDIVIDUALS HAS OCCURRED. THE POSSIBLE HAZARD TO PERSONS IN UNRESTRICTED AREAS IS SMALL BECAUSE OF THE SOURCE SIZE AND THE AMOUNT OF LEAD SHIELDING, AND PROBABLE LOCATION IN THE CLINTON COUNTY LANDFILL.

RECOVERY EFFORTS

AFTER NOTIFICATION TO THE N.R.C. BY PHONE ON SEPTEMBER 1, 1982, THE LOCAL NEWS MEDIA WAS INFORMED OF THE LOST SOURCE IN AN ATTEMPT TO AID IN ITS RECOVERY. A DESCRIPTION OF THE SOURCE HOLDER WAS PUBLISHED IN THE CLINTON HERALD NEWSPAPER ALONG WITH THE TELEPHONE NUMBER OF THE REGION III, NUCLEAR REGULATORY COMMISSION OFFICE ON SEPTEMBER 2, 1982.

ALL CLINTON WORKS' CHEMPLEX EMPLOYEES WERE NOTIFIED OF THE LOSS AND SKETCHES OF THE SOURCE HOLDER WERE PLACED ON ALL THE COMPANY BULLETIN BOARDS REQUESTING AID OR INFORMATION IN LOCATING THE SOURCE ON SEPTEMBER 2, 1982.

THE ISOMETRIC SKETCH OF THE SOURCE HOLDER WAS GIVEN TO THE DRIVER WHO HAULS TRASH TO THE CLINTON COUNTY LANDFILL AND TO THE BUYER AND HAULER OF SCRAP METAL FROM THE CHEMPLEX SALVAGE YARD.

MULTIPLE SEARCHES OF THE HIGH DENSITY, LOW DENSITY, AND PILOT PLANT AREAS OF THE PLANT WERE PERFORMED AND AIDED BY THE USE OF SURVEY METERS. THE SALVAGE YARD WAS ALSO SEARCHED WITH THE AID OF SURVEY METERS.

THE CLINTON COUNTY LANDFILL WAS SEARCHED WITH THE AID OF SURVEY METERS ON SEPTEMBER 7, 1982.

THE SALVAGE YARDS OF DENVER ALLEN WHO BUY SCRAP METAL FROM THE CHEMPLEX SALVAGE YARD WERE SEARCHED BY THREE PEOPLE WITH SURVEY METERS. THE SALVAGE YARD IS LOCATED IN DEWITT, IOWA.

POCKET DOSIMETERS WERE GIVEN TO OUTSIDE WORKERS IN THE HIGH DENSITY AREA WHERE THE SOURCE WAS MISSING FROM ITS STORAGE CONTAINER. THESE DOSIMETERS WERE MONITORED FOR SIX DAYS IN AN ATTEMPT TO LOCATE ANY RADIATION IN THE UNIT.

MEASURES TO PREVENT REOCCURRENCE

THIS IS THE AREA OF MAJOR CONCERN TO THE MANAGEMENT OF CHEMPLEX. WE HAVE INSTITUTED THE ATTACHED CHEMPLEX PROCEDURE (ENCLOSURE 2) WHICH WE FEEL, ALONG WITH AUDIT OF COMPLIANCE BY OUR SAFETY DEPARTMENT, WILL PREVENT REOCCURRENCE.

SINCERELY,

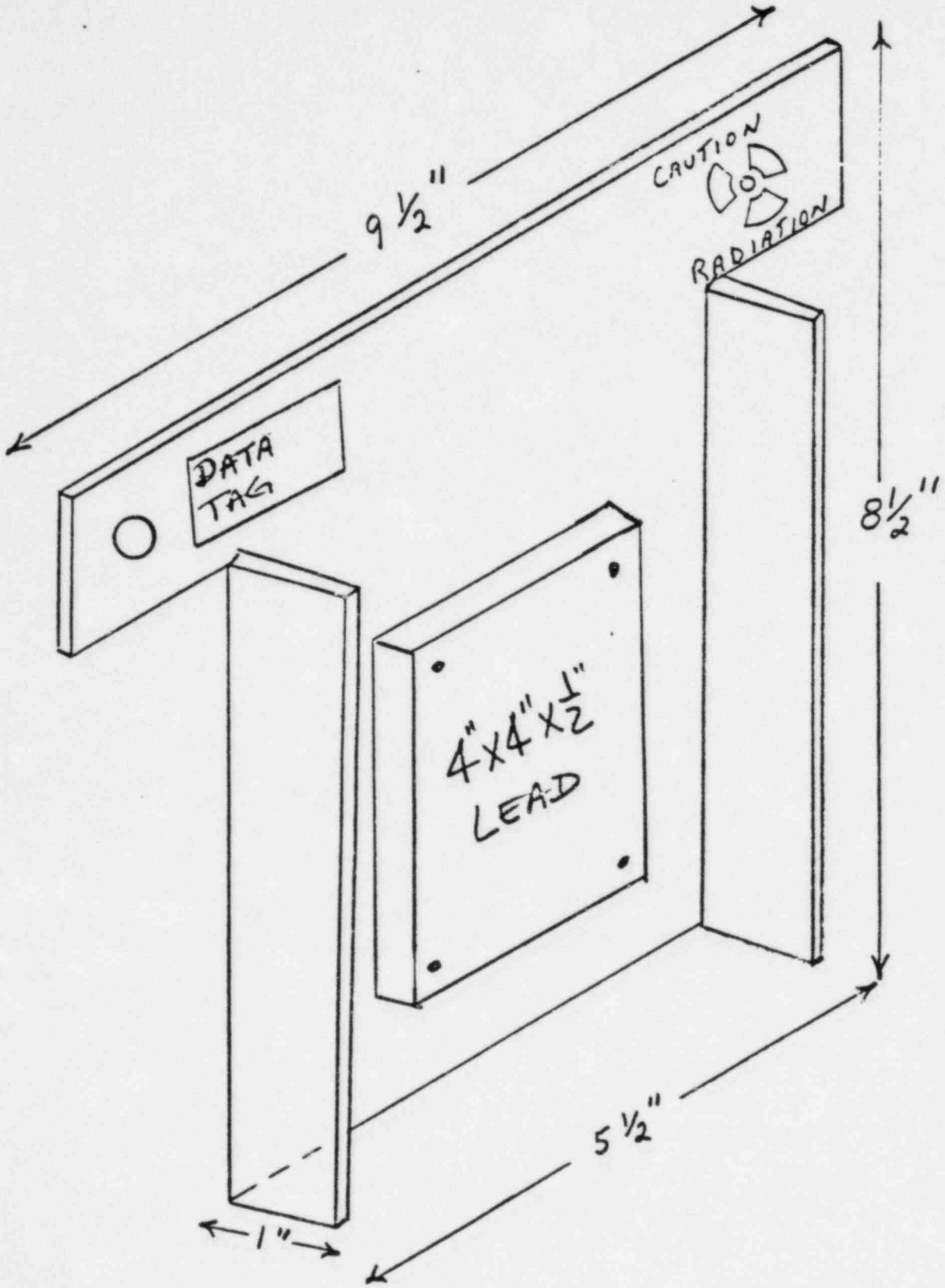
John I. Eisenhauer

JOHN I. EISENHAUER
GENERAL MANAGER-CLINTON WORKS

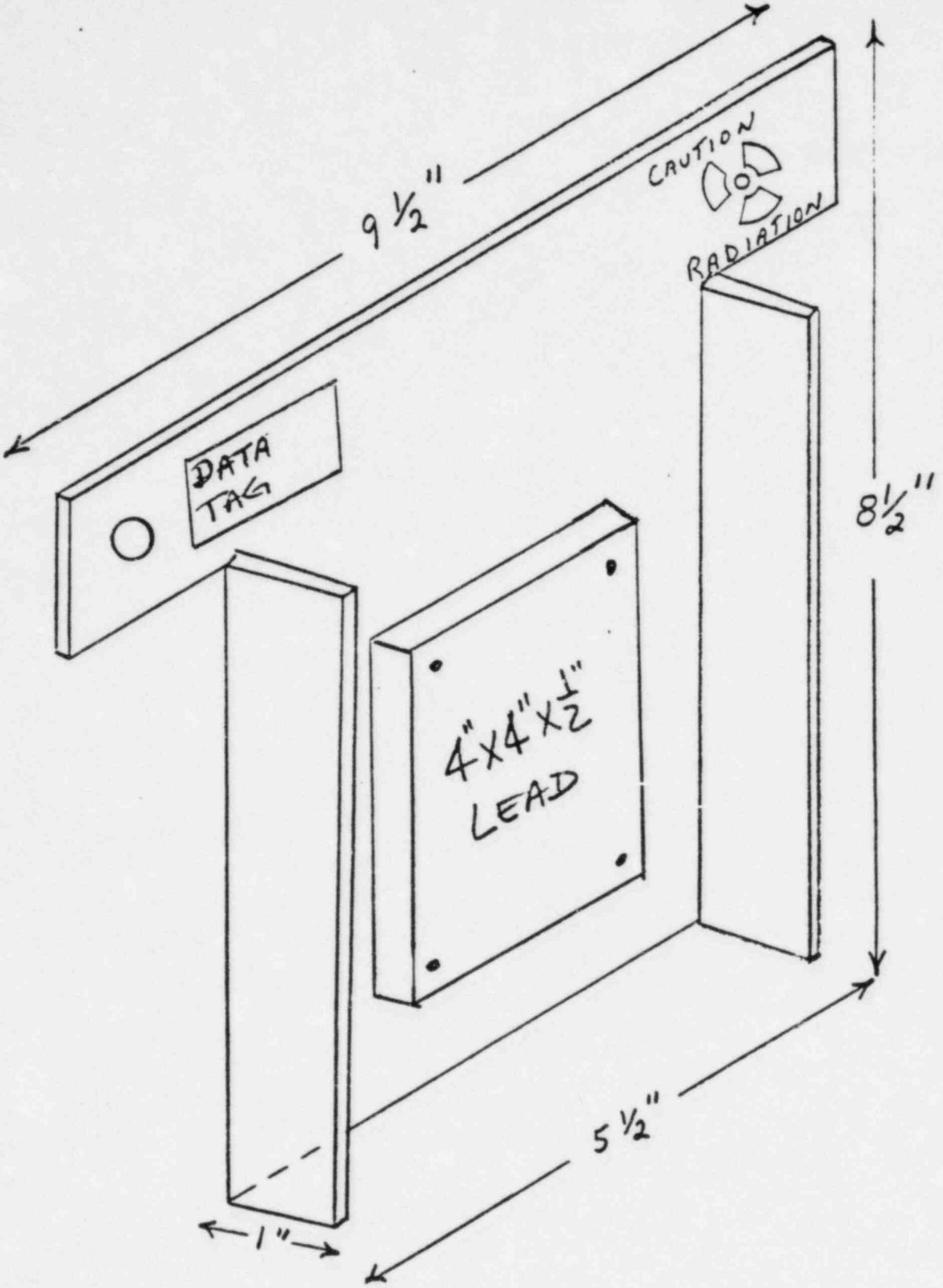
SMM

ENCLOSURES: (1) SOURCE HOLDER SKETCH
(2) RADIOACTIVE CALIBRATION SOURCE CONTROL PROCEDURE

XC: DIRECTOR OF INSPECTION AND ENFORCEMENT
U. S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20355



ENCLOSURE (1)



ENCLOSURE (1)

STANDARD PROCEDURE — CHEMPLEX — CLINTON

Number 343

SUBJECT:	TITLE:
SAFETY	RADIOACTIVE CALIBRATION SOURCE CONTROL PROCEDURE

Date First Issue 9/9/82	Date Revised	Page 1 of 2

I. PURPOSE

The purpose of this procedure is to ensure that the radioactive calibration source is checked out of the radioactive storage compound by licensed users and returned to the storage compound after use.

II. POLICY

The radioactive calibration source is to be used by or under the supervision of a licensed user in accordance with provisions of Materials License 14-11999-01. Radiation safety and prevention of loss or theft of the source and adherence to Federal regulations is to be ensured.

III. SCOPE

This procedure fixes responsibility for control of the removal of the radioactive calibration source from the storage area. It assigns responsibility for the safe use of and return of the source to the storage area.

IV. PROCEDURE

1. The calibration source and storage container are to be stored in the locked fenced in radioactive material storage area north east of the Pilot Plant.

2. The keys to the fenced storage area will be controlled by the Radiation Safety Officer. When the calibration source and storage container are removed from the storage area by one of the licensed users, a material pass will be issued by the Radiation Safety Officer.

3. The calibration source in its storage container must be returned to the fenced storage area by the licensed user and locked in by the Radiation Safety Officer.

4. The licensed user who has been on the material license the longest will act as the Radiation Officer during times when the Radiation Safety Officer is absent from the plant.

5. The calibration source will be secured in place in its storage container by a lock that only the Radiation Safety Officer and the licensed users have keys to.

6. The calibration source will be removed from its storage container when the container is at the site of use for the source and not before.

7. The calibration source and container will be returned to the fenced in storage area as soon as calibration procedures have been completed.

8. The material pass book with returned signed off material passes will be kept by the Radiation Safety Officer as a record of use for the calibration source.

The Radiation Safety Officer and the licensed users are named on the Material License, which is available at the Safety Office.

Author: Rod Johnson
R. T. Johnson

Approved by: Gus Stehley
Maintenance Superintendent

Ronald J. Reiser
Safety Manager

John L. Eisenhauer 9/17/82
General Work Manager