NRC FORM 464 Part I (6-1998)

U.S. NUCLEAR REGULATORY COMMISSION

RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) / PRIVACY ACT (PA) REQUEST

FOIA/PA	RESPONSE NUMBER
2000-0149	2

RESPONSE TYPE ☑ FINAL ☐ PARTIAL

REQUESTER: George D. Hess

DATE: JUL 20 2000

PART I. -- INFORMATION RELEASED

- ☐ No additional agency records subject to the request have been located.
- ☐ Requested records are available through another public distribution program. See Comments section.
- ☐ APPENDICES — Agency records subject to the request that are identified in the listed appendices are already available for public inspection and copying at the NRC Public Document Room.
- ☐ APPENDICES — Agency records subject to the request that are identified in the listed appendices are being made available for public inspection and copying at the NRC Public Document Room.
- ☐ Enclosed is information on how you may obtain access to and the charges for copying records located at the NRC Public Document Room, 2120 L Street, NW, Washington, DC.
- ☐ APPENDICES — Agency records subject to the request are enclosed.
- ☐ Records subject to the request that contain information originated by or of interest to another Federal agency have been referred to that agency (see comments section) for a disclosure determination and direct response to you.
- ☐ We are continuing to process your request.
- ☐ See Comments.

PART I.A -- FEES

AMOUNT * $ 66.35

* See comments for details

- ☑ You will be billed by NRC for the amount listed.
- ☐ You will receive a refund for the amount listed.
- ☐ None. Minimum fee threshold not met.
- ☐ Fees waived.

PART I.B -- INFORMATION NOT LOCATED OR WITHHELD FROM DISCLOSURE

- ☐ No agency records subject to the request have been located.
- ☑ Certain information in the requested records is being withheld from disclosure pursuant to the exemptions described in and for the reasons stated in Part II.
- ☑ This determination may be appealed within 30 days by writing to the FOIA/PA Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Clearly state on the envelope and in the letter that it is a "FOIA/PA Appeal."

PART I.C COMMENTS (Use attached Comments continuation page if required)

The actual fees for processing your request are as follows:

30 minutes clerical search:	**$ 9.45**
4 hours professional review:	**156.00**
5 hours clerical review:	**94.50**
Duplication - 1221 pgs @ $.20 per page:	**244.20**
TOTAL:	**$504.15**

Since you have already paid advance fees in the amount of $437.80, you will be billed by the NRC Division of Accounting for $66.35 for the additional fees.

SIGNATURE - FREEDOM OF INFORMATION ACT AND PRIVACY ACT OFFICER

Carol Ann Reed Carol Ann Reed

NRC FORM 464 Part II (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) / PRIVACY ACT (PA) REQUEST

FOIA/PA 2000-0149

DATE JUL 20 2000

PART II.A -- APPLICABLE EXEMPTIONS

APPENDICES C

Records subject to the request that are described in the enclosed Appendices are being withheld in their entirety or in part under the Exemption No.(s) of the PA and/or the FOIA as indicated below (5 U.S.C. 552a and/or 5 U.S.C. 552(b)).

- ☐ Exemption 1: The withheld information is properly classified pursuant to Executive Order 12958.
- ☐ Exemption 2: The withheld information relates solely to the internal personnel rules and procedures of NRC.
- ☐ Exemption 3: The withheld information is specifically exempted from public disclosure by statute indicated.
  - ☐ Sections 141-145 of the Atomic Energy Act, which prohibits the disclosure of Restricted Data or Formerly Restricted Data (42 U.S.C. 2161-2165).
  - ☐ Section 147 of the Atomic Energy Act, which prohibits the disclosure of Unclassified Safeguards Information (42 U.S.C. 2167).
  - ☐ 41 U.S.C., Section 253(b), subsection (m)(1), prohibits the disclosure of contractor proposals in the possession and control of an executive agency to any person under section 552 of Title 5, U.S.C. (the FOIA), except when incorporated into the contract between the agency and the submitter of the proposal.
- ☑ Exemption 4: The withheld information is a trade secret or commercial or financial information that is being withheld for the reason(s) indicated.
  - ☑ The information is considered to be confidential business (proprietary) information.
  - ☐ The information is considered to be proprietary because it concerns a licensee's or applicant's physical protection or material control and accounting program for special nuclear material pursuant to 10 CFR 2.790(d)(1).
  - ☐ The information was submitted by a foreign source and received in confidence pursuant to 10 CFR 2.790(d)(2).
- ☐ Exemption 5: The withheld information consists of interagency or intraagency records that are not available through discovery during litigation. Applicable privileges:
  - ☐ Deliberative process: Disclosure of predecisional information would tend to inhibit the open and frank exchange of ideas essential to the deliberative process. Where records are withheld in their entirety, the facts are inextricably intertwined with the predecisional information. There also are no reasonably segregable factual portions because the release of the facts would permit an indirect inquiry into the predecisional process of the agency.
  - ☐ Attorney work-product privilege. (Documents prepared by an attorney in contemplation of litigation)
  - ☐ Attorney-client privilege. (Confidential communications between an attorney and his/her client)
- ☑ Exemption 6: The withheld information is exempted from public disclosure because its disclosure would result in a clearly unwarranted invasion of personal privacy.
- ☐ Exemption 7: The withheld information consists of records compiled for law enforcement purposes and is being withheld for the reason(s) indicated.
  - ☐ (A) Disclosure could reasonably be expected to interfere with an enforcement proceeding (e.g., it would reveal the scope, direction, and focus of enforcement efforts, and thus could possibly allow recipients to take action to shield potential wrongdoing or a violation of NRC requirements from investigators).
  - ☐ (C) Disclosure would constitute an unwarranted invasion of personal privacy.
  - ☐ (D) The information consists of names of individuals and other information the disclosure of which could reasonably be expected to reveal identities of confidential sources.
  - ☐ (E) Disclosure would reveal techniques and procedures for law enforcement investigations or prosecutions, or guidelines that could reasonably be expected to risk circumvention of the law.
  - ☐ (F) Disclosure could reasonably be expected to endanger the life or physical safety of an individual.
- ☐ OTHER (Specify)

PART II.B -- DENYING OFFICIALS

Pursuant to 10 CFR 9.25(g), 9.25(h), and/or 9.65(b) of the U.S. Nuclear Regulatory Commission regulations, it has been determined that the information withheld is exempt from production or disclosure, and that its production or disclosure is contrary to the public interest. The person responsible for the denial are those officials identified below as denying officials and the FOIA/PA Officer for any denials that may be appealed to the Executive Director for Operations (EDO).

DENYING OFFICIAL	TITLE/OFFICE	RECORDS DENIED	APPELLATE OFFICIAL		
			EDO	SECY	IG
Hubert J. Miller	**Regional Administrator, Region I**	**Appendix C**	✓		

Appeal must be made in writing within 30 days of receipt of this response. Appeals should be mailed to the FOIA/Privacy Act Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, for action by the appropriate appellate official(s). You should clearly state on the envelope and letter that it is a "FOIA/PA Appeal."

RE: FOIA-2000-0149

APPENDIX C
RECORDS BEING WITHHELD IN PART

NO.	DATE	DESCRIPTION/(PAGE COUNT)EXEMPTIONS
1.	02/28/84	Ltr from P. Rosenthal to NRC(3 pages) Exemption #6
2.	10/20/88	Combustion Engineering, Inc Radiological Protection Instruction (102 pages) Exemption # 6
3.	03/30/90	Ltr from S. Sorensen to F. Costello (49 pages) Exemption #6
4.	07/17/90	Ltr from R. S. Bell, Jr. to NRC (27 pages) Exemption #4
5.	05/18/94	Ltr from S. M. Sorensen to Mr. Kinneman (7 pages) Exemption #6

C-E Power Systems
Combustion Engineering, Inc
1000 Prospect Hill Road
Windsor, Connecticut 06095

Tel 203/688-1911
Telex 99297

RETURN TO ORIGINAL

POWER SYSTEMS

~~"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"~~

Lic. # 06-00217-06
DOCKET NO. 30-03754

August 28, 1984
DDH-84-085
License 06-00217-06

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 6
FOIA- 2000-0149

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Gentlemen:

In accordance with the requirements of 10CFR 20.405, we hereby report the possible exposure of an employee's hands to radiation levels exceeding those specified by 10 CFR 20.101. The exposure occurred during the period of June 13 through June 21, 1984, while the employee was assisting in the testing of irradiated and contaminated Charpy specimens. On August 3, 1984, it was reported by the film badge processor that the employee was exposed to 19.5 rem to the hands as determined by TLD finger ring.

During the period June 13 through June 21, two employees were intermittently testing 72 irradiated and contaminated Charpy specimens in a testing laboratory located in Building #2 at the company's Windsor facility. Measured levels of dose rate for a single specimen was approximately 4.3 R/hr. at six inches and 1.5 R/hr. at 1 foot in air. Prior to commencing the test program, the specimens had been partially decontaminated and each specimen was placed in a paper envelope with groups of four envelopes placed in polyethylene bags. The poly bags in groups of four bags were then placed in shielded casks and moved to the testing laboratory. This procedure was implemented to expedite the identification of the specimens during testing and to keep the specimens in small groups in an effort to minimize exposure. During actual testing, the subject employee removed the specimens from their packaging and passed them to another employee who performed the tests.

It is our standard procedure to use long handled tongs where possible during the handling of the specimens, however, it has been our experience that grouping and identifying the specimens with tongs takes more time than by hand resulting in higher exposures. At the time of the exposure, it was felt that the necessary precautions had been taken since we had tested many specimens of this type with minimum whole body exposures and extremity exposures being no greater than 10% of the value specified by 10 CFR 20.101.

~~"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"~~

ITEM # 1

C/1

To prevent similar reoccurrences, all testing of irradiated material of this type has been stopped. A thorough review is being conducted to re-examine the use of long handled tongs or other remote handling equipment during testing of this type of material. The test procedure will be revised incorporating the recommendations of the safety review. This will be accomplished before any further testing takes place.

Very truly yours,

COMBUSTION ENGINEERING, INC.

Philip R. Rosenthal
Manager, Health Physics

PRR:amb

cc: W. P. Chernock
P. E. C. Bryant
U.S. Nuclear Regulatory Commission (Region 1)

Attachment to DDH-84-085

[redacted] EX 6

Social Security
Date of birth: [redacted] EX 6

Period of exposure: June 13 through June 21, 1984
Exposure: 19.5 rem to the hands

"CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT"

COMBUSTION ENGINEERING, INC.

RADIOLOGICAL PROTECTION INSTRUCTION

RPI-13
REV. 1

TRANSPORTATION OF RADIOACTIVE MATERIALS

PREPARED BY: _____ DATE: 10/20/88

APPROVED BY: _____ DATE: 11/8/88

CONTROL COPY NO.: 4

ITEM # 2

C/2

1.0 INTRODUCTION

This Radiological Protection Instruction (RPI) provides procedural steps for receiving, opening, packaging, and shipping radioactive materials under six different conditions. These six conditions have been selected because they are the most common type of radioactive materials transported to and from the Windsor site. The reader is cautioned that this RPI is not intended to be a substitute for regulatory requirements. Persons responsible for the receiving, packaging, and shipping of radioactive materials must be knowledgeable of U.S. Nuclear Regulatory Commissions regulations 10CFR parts 20, 30, 70, 71 and U.S. Department of Transportations regulations 49 CFR parts 100 through 400. Receiving, packaging and/or shipping of radioactive materials under different conditions than those covered by this
* RPI shall be approved by either the Radiation Safety Officer, or the Manager-Radiological Protection Services.

1.1 Procedure for the shipment of LSA materials under Exclusive Use rules from the Windsor site.

1.2 Procedure for the shipment of Limited Quantity of Radioactive Materials by surface transportation.

1.3 Procedure for Non-Exclusive Use Shipment of Normal Form Radioactive Materials by surface transportation.

1.4 Procedure for the shipment of Radioactive Materials by Air Freight.

1.5 Procedure for the shipment of Radioactive Materials via Company-owned or Leased Vehicles.

1.6 Procedure for the receipt of Radioactive Material

2.0 REFERENCES

2.1 Title 10, Part 71 of the Code of Federal Regulations.

2.2 Title 49, Parts 172, 173 and 175 of the Code of Federal Regulations.

3.0 ENCLOSURES

3.1 Notice of Shipment

3.2 Radioactive Materials Shipment Record and Supplement

3.3 Vehicle Survey Sheet

3.4 Connecticut State Permit Application

3.5 Exclusive Use Instruction Sheet.

3.6 C-E Bill of Lading Example

3.7 Shipper's Certificate of Hazardous Materials for Air Shipments

4.0 GENERAL INSTRUCTIONS

4.1 Any radioactive shipment incoming or outgoing which falls outside the specific instructions in this RPI must be * immediately brought to the attention; of the Radiological Safety Officer (RSO), or the Manager RPS.

4.2 Prior to the shipment of radioactive materials, verification that the consignee is authorized to receive the type, form, and quantity of radioactive material must be obtained.

Forms of acceptable verification are:

1. Current copy of the consignee's specific license or registration certificate issued by the NRC or an Agreement State.

2. A written certification by the consignee that he is authorized by license, registration certificate, or U.S. government contract to receive the type, form, and quantity of radioactive material. This certification must specify the license, registration number, or contract number, issuing agency, and the expiration date.

* 4.3 The above stated verification must be in the possession of the shipper.

4.4 All packages shall not have any dimension less than 4 * inches. If any liquids are present, there must be enough absorbent materials to absorb twice the amount of liquids and the liquids shall be in a sealed inner container.

5.0 INSTRUCTION

5.1 Procedure for the shipment of LSA radioactive materials under Exclusive Use Rules from the Windsor site.

5.1.1 Notice of Shipment

A signed "Notice of Shipment", Enclosure 1, giving as much information as possible will be the means of setting up a shipment of radioactive materials from the site. The cognizant engineer or supervisor is responsible for initiating this document. Using this document as a reference, start filling out a Radioactive Material Shipment Record RMSR, Enclosure 2.

5.1.2 Verify that the empty trailer is free of contamination. If the trailer was on site, then a record of the Release Survey is acceptable. If the trailer was just delivered. The vehicle must be * surveyed and the survey filed as a record.

5.1.3 All loading of the trailer should be under the cognizance of an RPS technician. All containers carrying radioactive material must have a "Radioactive LSA" sticker as well as a gross weight marking, per 172.302/310. In addition, each box should be marked UN 2912 for LSA materials. Each container should be marked as follows:

RADIOACTIVE-LSA UN 2912 GROSS WEIGHT _____

5.1.4 Each container will be surveyed for contamination and dose rates. The results will be recorded on the RMSR or supplement. The contamination survey shall include smears of both the contents and the outside of the container. The smears of the contents will be used to determine the isotopes by gamma spectroscopy.
* The dose rates should be used to determine the amount of radioactive material in curies in each container.

Note: Maximum Loose Surface Contamination levels on the outside of packages -

Beta-gamma	200 DPM/100 cm 2
Alpha	100 DPM/100 cm 2

* The Lead Senior H.P. Technician will determine the number and type of smears needed to determine if the above stated limits have been met.

The contamination levels, above, may be exceeded only by permission of the RSO or Manager, RPS.

5.1.5 No containers will be stacked unless the following conditions are met.

1. Gross weight less than 200 lbs.

2. Containers can be secured in place against movement during shipment.

3. Representatives of the RPS Group specifically approves the stacking.

5.1.6 All packages must be strong, tight containers. All containers must be banded or sealed. All packages must have an inner packaging of sealed plastic in order to prevent, as much as possible, contaminating the primary packaging. All closures, locks or devices used to attach the lids to the containers must be in place to qualify as "strong tight".
* In Shipments containing mixed lading (clean and hot), the clean packages must be packaged, labeled and secured according to the descretion of the Lead Senior H.P. Technician and a weight marked on all packages.

* Anytime banding is used to maintain LSA packaging as "strong tight", a banding tool and materials must be sent with the load to ensure the package can be made strong tight upon return from the site. The RMSR shall be initialed when the banding equipment is placed on the vehicle.

Should any dispute arise as to whether or not a package is strong tight, the Manager, RPS, or his designee will be the final judge.

5.1.7 Upon completion of loading, the trailer should be braced and shored to prevent, as much as possible, the shifting of the load during normal transportation. As a minimum, a senior H. P. technician shall inspect each load and initial the RMSR, if shored properly.

5.1.8 The vehicle should be locked and sealed, if applicable, and the seal number recorded on the RMSR. If the vehicle has more than one door, all doors should be sealed and the seal numbers recorded after the driver inspection. Drivers must be provided with keys to the locked vehicle.

* 5.1.9 The vehicle should be placarded with RADIOACTIVE placards and the RMSR initialed when complete.

* 5.1.10 The vehicle must be surveyed for dose rates on
* contact, and at 2 meters from the sides, and on contact with the bottom. The drivers cab area must also be surveyed to confirm that there is no place greater than 2 mrem/hr in the cab. The results of the survey should be recorded on the vehicle survey form and the form attached to the RMSR and the RMSR
* initialed by the technician making the survey. Maximum dose rate as per 49 CFR 173.441.

	Contact Dose
Packages only)	1000 mrem/hr (closed transport vehicle
	200 mrem/hr (open vehicle)

Note: Any package greater than 200 mrem/hr
* requires permission of the Manager RPS or RSO.

* Vehicle	surface - 200 mrem/hr 2 meters - 10 mrem/hr
Cab	any surface inside cab - 2 mrem/hr

5.1.11 A Connecticut State Permit, Enclosure 4, must be obtained prior to any LSA shipment leaving the Windsor site. All information on tractor, trailer and load must be completed on the application. The

application must be certified by both C-E representative and the Carrier representative. The Driver must have an approved permit in his possession when traveling in the State of Connecticut. The Driver must follow the specified route during the hours of 9:00 am to 4:00 pm, Monday thru Friday. The HP technician should initial the RMSR when the carrier receives the permit.

5.1.12 The carrier must be informed that the shipment is "Exclusive Use Only." A copy of Exclusive Use Instructions, Enclosure 5, should be signed by the C-E representative and driver and copies of the signed document issued to the driver and C-E representative. The RMSR should be initialed by the H.P. Technician when the signed instruction sheet has been presented to the driver.

5.1.13 A trip pack must include the following items:

A. A Bill of Lading should be filled out as per example, Enclosure 6. The information necessary for the proper completion is found on the RMSR.

B. A copy of the RMSR and supplement, if applicable.

C. A copy of the signed "Exclusive Use Instructions."

D. Vehicle Survey Form

E. Connecticut State Permit

F. The key to the trailer locks, if applicable.

* G. The Shipper's Certification Statement has been made a part of the Bill of Lading, and a signature of the H.P. Representative should appear in the designated Section.

5.1.14 A copy of all shipping information must be forwarded
* to the RSO and an entry made in the weekly report.

5.1.15 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.2 Limited Quantity Shipments by Surface Transportation

5.2.1 A signed Notice of Shipment, Enclosure 1, giving as much information as possible will be the means of setting up a limited quantity shipment from the Windsor site. The cognizant engineer or supervisor is responsible for initiating this document ng

this document as a reference, start filling out RMSR, Enclosure 2.

5.2.2 Determine isotopes and curie estimates using smear and meter surveys. Record results on RMSR.

5.2.3 Verify that quantities and isotopes qualify as limited quantity as specified by 49 CFR 173. The limits are less than 1×10^{-3} A_1 / A_2 quantities listed for each isotope. For instance, the maximum amount of Co^{60} would be 7 mci solid, or 0.7 mci liquid. Cs^{137} limits are 10 mci solid, 1 mci liquid.

5.2.4 All packages must be strong, tight containers. All containers must be sealed or banded. All packages must have an inner packaging of sealed plastic in order to prevent, as much as possible, contaminating the outer package. All closures, locks, and/or devices used to attach lids or covers to the container must be in place to qualify as strong, tight.

5.2.5 The maximum dose rate at the surface of the package, as determined by the required survey cannot exceed 0.5 mrem/hr.

5.2.6 A statement must be placed inside the package describing the radioactive materials being shipped as "RADIOACTIVE". In addition, the following statement must be placed inside the package:

CONSIGNOR: COMBUSTION ENGINEERING, INC.

"This package conforms to the conditions and limitations specified in 49 CFR 173. 421 for Exempted Radioactive Material Limited Quantity NOS UN 2910"

The RMSR should be initialed by the H.P. Technician at the proper location, to indicate completion of this requirement.

5.2.7 A trip pack should include the following items:

A. A completed RMSR.

B. A Bill of Lading giving information for carrier and billing information.

5.2.8 The package must have an address label with the name of the consignee durably attached to the top and sides.

5.2.9 A packing list with an RMSR and Bill of Lading should be attached to the side of the container.

5.2.10 A copy of all shipping information must be

* forwarded to the RSO and an entry made in the weekly report.

Note: Outside of package must not say "Radioactive".

5.2.11 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.3 Normal form shipments, non-exclusive use surface transportation containing A_2 quantities.

5.3.1 A signed Notice of Shipment, Enclosure 1, giving as much information as possible will be the means of setting up a shipment of radioactive material from the Windsor site. The cognizant engineer or supervisor is responsible for initiating this document. Using the Notice of Shipment, a RMSR can be started, Enclosure 2.

5.3.2 Determine isotopes and curie estimates using smear and meter surveys. Record results on RMSR and/or supplement form.

5.3.3 Ensure that the amount of curies listed is less than
* the maximum A_2 quantities allowed for each isotope listed, as per 49 CFR 173.

5.3.4 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.3.5 Check off proper shipping name as Radioactive Material, NOS UN 2982 and specify non-exclusive use.

5.3.6 All containers must be DOT 7A and must be stenciled with the marking DOT 7A TYPE A UN 2982. To
* ensure containers are in fact DOT 7A, check with the RSO who will verify that certification papers are available prior to use of the container. Write DOT 7A on RMSR in proper location if this condition is satisfied.

5.3.7 Determine label requirements; White I, Yellow II, Yellow III; from meter survey results of each container. Complete the information required by the label; curie content, major isotopic content, Transport Index (TI); and place labels on opposite sides of the package. Record the above information on the RMSR.

Label Type	White I	Yellow II	Yellow III
Max Dose Rate	0.5 mrem/hr contact	50 mrem/hr contact	200 mrem/hr contact
Transport Index(TI) maximum	--	1 mrem/hr at 1 meter	10 mrem/hr at 1 meter

NOTE: Transport Index is defined as the highest dose rate in millirem at 1 meter from the package rounded up to the nearest tenth of a mrem/hr.

5.3.8 Mark the gross weight of the container on top and side of the container and record on the RMSR.

5.3.9 Each package must be sealed or secured so as to easily determine if the package has been opened.

5.3.10 All packages must have an address label with the consignee's name and address durably attached to two locations on each package.

5.3.11 The trip pack must be completed and firmly affixed to the container with the packing list. The trip pack must include the following items:

A. Completed RMSR
B. Bill of Lading
C. Packing list of all materials inside each container.
D. If more than one package is shipped, then an RMSR supplement Sheet must be included as well as any individual package survey sheets.
E. Any special instructions, if required, as to hazards which might be encountered during opening of package.

5.3.12 A copy of all shipping information will be forwarded to the RSO and an entry made in the weekly report.

5.4 Shipment of Radioactive Materials by Air Freight.

5.4.1 With the exception of radiopharmaceuticals, the shipment of radioactive materials on passenger aircraft is prohibited. Therefore, no radioactive materials will be accepted for shipment by air unless they are designated for cargo aircraft.

5.4.2 Air shipments of limited quantities of radioactive materials must be prepared in accordance with Section 5.2, of this RPI.

The following items must be added to the air bill of lading:

1. "RADIOACTIVE MATERIAL LIMITED QUANTITY NOS-UN 2910"

2. "No label required".

5.4.3 Air shipment of normal form radioactive materials must be prepared in accordance with Section 5.3 of this RPI. In addition, an air carrier air bill and a shipper's Certification of Hazardous Material must be completed, Enclosure 5.

The certification form is usually a part of a carrier's air bill and has written instructions attached. If
* this is not the case, a blank copy of the form must be obtained from the carrier or the RSO.
Instructions on how to properly complete the form can
* be obtained from the RSO if not available from the carrier.

If the shipment is labeled as Yellow III, a permit must be obtained from the State of Connecticut to transport the material from the Windsor site to the carrier's terminal.

Contact the air carrier prior to shipment to determine weight or size limitations for the container being shipped. This applies whether or not the shipment is radioactive.

The Air Bill must have "cargo aircraft only" marked where required.

* A "Danger" "Cargo Aircraft Only" sticker is required on the outside of the package.

* 5.4.4 A copy of all shipping information must be forwarded to the RSO and an entry made in the weekly report.

* 5.4.5 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.5 Shipment of Radioactive Materials via Company-owned or leased vehicles.

5.5.1 The use of privately owned vehicles to ship radioactive materials is prohibited. Radioactive materials may, however, be shipped using Company owned or leased vehicles under certain conditions.

5.5.2 The use of Company owned or leased vehicles are limited to the following type of shipments:

a. Limited Quantity Shipments
b. Packages designated White I or Yellow II
c. Air shipments designated Yellow III being moved to or from the carrier's terminal only.

5.5.3 Personnel transporting radioactive material via company-owned or leased vehicles must be trained

radiation workers and the driver must be a DOT certified driver in accordance with DOT regulations 49 CFR Part 391.

5.5.4 Radioactive materials transported in company-owned or leased vehicles are limited to one day's travel defined as 300 miles or 8 hours' time, whichever comes first. In addition, the vehicle must travel directly from the shipping licensee to the receiving licensee.

5.5.5 All vehicles transporting radioactive materials must travel routes designated by the Manager, RPS, or his designee.

5.5.6 A copy of all shipping information must be forwarded * to the RSO and an entry made in the weekly report.

* 5.5.7 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.6 Receipt of Radioactive Material

5.6.1 A Notice of Shipment, Enclosure 1, will be made by anyone initiating a shipment of CE radioactive materials from any location to the Windsor site. This notice should include information on the consignor and load. The Notice of Shipment will * enable the RSO or his Designee to assign a carrier, obtain permits, and establish a schedule for shipment.

5.6.2 The Windsor Site Shipping and Receiving Department or the Windsor Site Security Force (after hours) shall notify one of the following individuals upon arrival of any Radioactive Shipments.

	Ext.	Home Phone	Pager
J. M. Limbert	X2145	[redacted]	
S. M. Sorensen	X5285		
W. A. Pagel	X5600		
* R. B. Clark	X2896		

5.6.3 Upon notification of arrival of radioactive material one of the individuals designated, above, will either direct exclusive use shipments to the Building 2 area or dispatch an RPS representative to Shipping and Receiving to perform a Receipt Survey.

5.6.4 Packages shall not be shipped to a carrier's * terminal and held for pickup by C-E unless the shipment is approved by the RSO or Manager, RPS at least 24 hours in advance.

5.6.5 Receipt Surveys

A. Exclusive Use Shipments

1. Using a Radioactive Materials Transport Vehicle Survey Sheet (Enclosure 3), measure and record the vehicle dose rates.

1 CONTACT

2. Verify that tractor and trailer information match the shipping papers.

3. Inspect the interior of the vehicle to determine if any packages have been damaged during shipment.

4. Conduct a smear survey of the interior of the vehicle to determine loose surface contamination levels.

5. If any one of the following conditions are found, notify the RSO or Manager of RPS immediately.

   a. Vehicle contact dose rates exceeding 200 mrem/hr.

   b. Dose rates at 2 meter from the vehicle exceeding 10 mrem/hr.

   c. Contamination levels inside the vehicle exceeding 1,000 Dpm/100 cm^2.

10 CFR 71

6. Conduct a Hot Particle Survey as per RPI 21.

7. During unloading a smear and meter survey of all packaging must be completed. Each package shall have a Caution Radioactive Material label affixed.

8. After unloading, conduct a trailer release survey and file for further reference.

B. Individual Package or Shipment Received as Type A quantity or less.

1. Using a Survey Form for Non-Routine Survey, sketch the package and make a smear and meter survey of the package and record the results on the survey form.
2. If dose rates exceed those specified by the shipping papers or labeling, notify RSO or Manager RPS, immediately.

3. If the smear survey indicates loose surface

contamination greater than 1000 DPM/100 cm 2, notify the RSO or Manager RPS, immediately.

4. All packages shall be opened in a Radiological Control Zone under continuous surveillance of an RPS technician.

5. A copy of shipping records are to be forwarded to the RSO and the information recorded in the weekly report.

6. Packages which contain radioactive material in excess of Type A quantities shall be monitored for radiation levels as soon as practicable after receipt but no later than 3 hours after receipt during normal working hours or 18 hours after receipt during secured hours.

   If contact dose rates exceed 200 mrem/hour or dose rates at three feet exceed 10 mrem/hour, the Manager RPS or the RSO shall be notified immediately.

7. All packages received and transferred to storage shall have a Caution Radioactive Material label attached.

ATTACHMENT NO. 8

REPLACES

ITEM	10	"RADIATION SAFETY PROGRAM
SECTION	10.5	"ADMINISTRATIVE PROCEDURES
PARAGRAPHS	10.5.9, 10.5.10 AND 10.5.11	

(PAGE 56 OF 56)

ITEM 10

RADIATION SAFETY PROGRAM

10.5 ADMINISTRATIVE PROCEDURES

10.5.8 ENVIRONMENTAL MONITORING

10.5.9 BIOASSAY PROGRAM

ITEM 10

RADIATION SAFETY PROGRAM

10.5 ADMINISTRATIVE PROCEDURES

10.5.8 ENVIRONMENTAL MONITORING

10.5.9 BIOASSAY PROGRAM

10.5.8 Environmental Monitoring- is accomplished by the Windsor Site Environmental Monitoring Program. This program examines uranium content, alpha radioactivity and beta radioactivity in surface and well waters, river sediment, soil, vegetation, and atmospheric fallout. Additionally, PH, fluoride, and nitrate levels are determined in well water, surface water, and river sediment. A gamma spectrum is performed on selected river sediment, soil, vegetation, and atmospheric fallout samples. Fourteen (14) on-site routine sampling stations have been established at designated points for collection of quarterly atmospheric fallout samples and twenty-seven (27) semi-annual soil and vegetation samples.

10.5.9 Bioassay Program -

10.5.9.1 Whole body counts are performed for mixed fission and corrosion products twice per calendar year. Personnel selected for whole body counts are those who have worked on a radiation work permit since their last count.

10.5.9.2 Personnel Monitoring - Breathing zone air samplers. Personnel intake of radioactive materials is monitored through the use of breathing zone air samples whenever work with loose contamination

Item 10 Radiation Safety Program (Cont'd)

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exceeds 10,000 DPM/100CM2. The sample filters are counted and if a calculated intake of greater than four (4) MPC-HRS is discovered, the filter is sent for gamma spectroscopy to identify the nuclides involved. Further, the individual may be sent for a whole body count. Also the work is reviewed and the individual is restricted from work requiring breathing zone air sampling for the remainder of the seven (7) day period.

10.5.9.3 Accidental Intakes - Should an individual be suspected of receiving in intake greater than forty (40) MPC-HRS, the work will be stopped and a complete evaluation and root cause analysis will be performed. Additionally, the individual will be given a whole body count and will not be allowed to work with radioactive materials until the Radiation Safety Committee is satisfied that appropriate corrective actions to prevent recurrence have been taken.

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ITEM 5

RADIOACTIVE MATERIAL

Item 5 RADIOACTIVE MATERIAL

a. Element and Mass No.	b. Chemical and/or Physical Form	c. Maximum Amount which will be possessed at any one time
A. Any by product material with Atomic Numbers between 1 and 103, inclusive.	A. Any	A. Not to exceed 2 curies total
B. Any by product material	B. Irradiated and/or contaminated reactor components, inspection and test equipment, reactor coolant samples, monitoring instruments, test samples and calibration sources.	B. Not to exceed 50 curies totals
C. Cesium 137	C. Sealed sources	C. 1.2 curies nominal
D. Cesium 137	D. Sealed sources	D. 215 curies
E. Cobalt 60	E. Sealed Sources	E. 259 Millicuries
F. Americium 241	F. Sealed neutron sources	F. 10 sources not to exceed 1.curie per source
G. Americium 241	G. Sealed neutron sources	G. 10 sources not to exceed 10 curies per source
H. Neptunium 237	H. Oxide Wires	H. 10 wires not to exceed .5 per wire
I. Uranium 233	I. Any	I. 1 gram
J. Uranium 235	J. Any	J. 7 gram
K. Plutonium	K. Any	K. 1 milligram
L. $U_3 O_8$	L. Fission Chambers	L. 8 Chambers not to exceed 1.7 grams U235 per chamber

Item 5 RADIOACTIVE MATERIAL (cont.)

Sealed Source Information

A. N/A
B. N/A
C. Cesium 137 - Amersham Model CDC.91, Type X.9 Capsule - 1.2 Curies
D. Cesium 137 - Listed below
   1. Technical Operations, Inc. - Model SK1936, S/N S-171 - 2.0 Curies
   2. International Chemical and Nuclear - Model 375, S/N -771 - 1.19 Millicuries
   3. Technical Operations, Inc. - Model #FM6, S/N 181 S/N 182 - 30 Curies each
   4. Measurements, Inc. - Model SK2085, S/N S-274 - 10 Curies
   5. New England Nuclear - Model NER-401H S/N CS-160 - 9.75 Millicuries
   6. Technical Operations, Inc. - Model 775 S/N-5136 S/N-5137 - 25 Curies each.
   7. Ohmart Corp. Model HM-8 S/N 6673 - 150 Millicuries
   8. Amersham - Model CDC.190 - S/N 7017GN - 500 Millicuries
E. Colbalt 60 - Listed below
   1. ICI - Model 375 S/N 1402 - 128 Millicuries
   2. ICN - Model 375 S/N 1339 - 120 Millicuries
F. Americium 241 - Monsanto Research Corp. - Model 2723A - 1 Curie
G. Monasanto Research Corp. - Model 2727B - 20 Curies
H. N/A

Item 5 RADIOACTIVE MATERIAL (cont)

Sealed Source Storage Container or Device

A. N/A
B. N/A
C. J. L. Shepherd, Model 28-6D Calibrator - Approved Device
D. Cesium 137 - Listed Below
    1. Gamma Densitometer - Model 660
    2. Lead Pig - Calibration Source
    3. Gamma Densitometer - Model 789
    4. Gamma Densitometer - Model 807 #35
    5. Lead Pig - Calibration Source
    6. Gamma Densitometer - Model 755
    7. Gamma Densitometer - Model RTR-N#221
    8. Lead Pig - Calibration Source
E. Cobalt 60 Listed Below
    1. Lead Pig - Calibration Source
    2. Lead Pig - Calibration Source
F. Americium 241 - Listed Below
    1. DOT 7A Type A Container - Certificate No. USA/0043/S
G. Americium 241 - Listed Below
    1. DOT 7A Type A Container - Certificate No. USA/0043/S
H. Device Model WL-637A by Imaging and Sensing Technology Corp.

ITEM 6

PURPOSES FOR WHICH

LICENSED MATERIAL

WILL BE USED

Item 6 Purposes For Which Radioactive Material Will Be Used

CATEGORY	USE(s)
A,B,D, & E	For use in research and development as defined in 10CFR30.4(q) and for possession incident to maintenance, repair, calibration, and decontamination of reactor related components, systems and instrumentation.
C.	For use in J. L. Shepherd Model 28-6 calibrator for calibration of dosimeters and instruments.
F.	For use in testing and calibration of boron measuring devices and for distribution to persons holding operating reactor licenses and/or to persons authorized to receive the licensed materials pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.
G. and H.	For possession, storage, and transfer to persons holding operating reactor licenses and/or to persons authorized to receive the licensed material pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.
I,J, and K	For possession as surface contamination on tools or equipment incident to maintenance, repair, calibration, modification or storage.
L.	For use in constructing fission chambers for distribution to persons holding operating reactor licenses and/or to persons authorized to receive the licensed materials pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.

ITEM 10

RADIATION SAFETY PROGRAM

Item 10 RADIATION SAFETY PROGRAM

10.1 Previous Licenses - This application requests continuation of the use of Radioactive Materials under License Number 06-00217-06 as renewed on January 31, 1984 under Control Number 16364 and Docket Number 030-03754 as amended through Amendment Number 35 dated October 30, 1987.

10.2 Organization - Receipt, acquisition, possession, use and transfer of licensed radioactive materials shall be under the control of Nuclear Power Business - Nuclear Services. The Vice-President, Nuclear Services has delegated through the Director, Outage Services to the Manager, Radiological Protection Services the responsibility for all Radiological Protection activities associated with Materials License 06-00217-06. The Manager and/or The Radiation Safety Officer have full authority to halt any operation which could violate License Conditions, Federal, State or Local applicable laws and/or safety standards.

Attachment 10.1 shows the current organization chart.

10.3 Radiation Safety Committee - The Radiation Safety Committee described in item 7.2 shall meet once each calendar quarter and minutes of these meetings shall be recorded and maintained on file.

10.3 The Committee shall perform an audit at least annually, of operations involving licensed material. The scope of this audit will depend upon the changes in proposed uses and handling of licensed materials within the previous year.

The Committee shall audit the Radiation Safety Officer in accordance with his job description and responsibilities.

The Radiation Safety Committee has the authority delegated by the Vice President - Nuclear Services, to halt any operation that is found to be a threat to Health, Safety or property.

10.4 Radiation Safety Officer - Job description is Attachment 10.2.

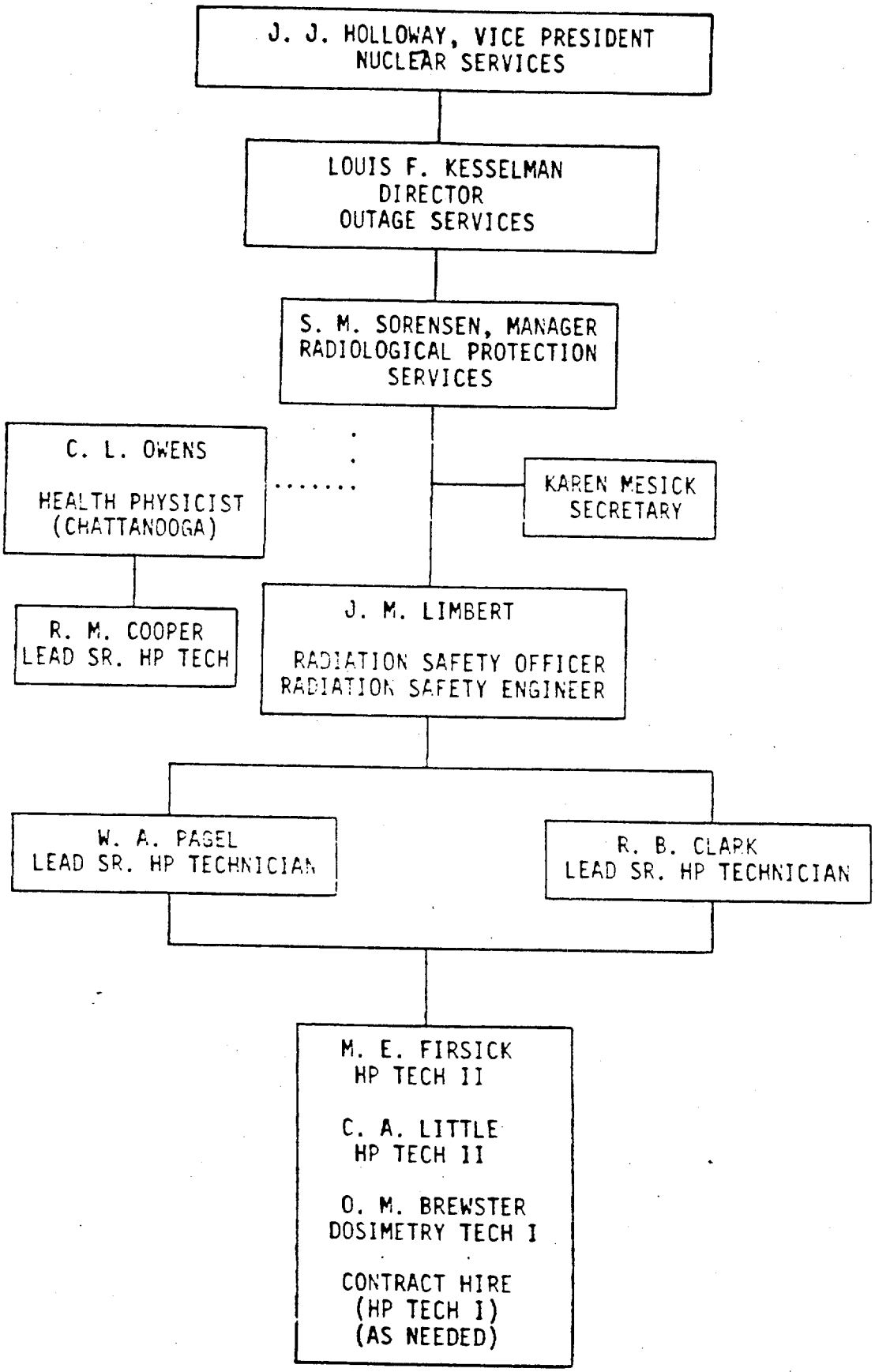
ATTACHMENT

10.1

NUCLEAR SERVICES ORGANIZATION

CHART

ATTACHMENT 10.1



ATTACHMENT 10.2

RADIATION SAFETY OFFICER

JOB DESCRIPTION

ATTACHMENT 10.2

JOB DESCRIPTION

RADIATION SAFETY OFFICER

The Radiation Safety Officer reports to the Director, Outage Services through the Manager, Radiological Protection Services. The Radiation Safety Officer has the authority as granted by the Vice President of Nuclear Services, to halt any operation involving radioactive materials, which he deems unsafe to personnel, property or the environment.

Specifically the Radiation Safety Officer is responsible for the following:

1. Supervising the personnel health physics program for all operations involving radioactive materials and non-radioactive hazardous substances.

2. Reviewing the environmental health physics and effluent monitoring program to ensure compliance with procedures for safeguarding the environment.

3. Developing, implementing and maintaining current procedures pertaining to radiation protection, hazardous materials and toxic substances.

4. Ensuring the NRC license conditions for the use of Radioactive Materials are met.

ATTACHMENT 10.2

(CONTINUED)

5. Scheduling and maintaining an inspection program to ensure compliance with NRC and other applicable requirements.

6. Ensuring the personnel dosimetry program is maintained adequately to ensure NVLAP certification.

7. Ensuring that employees are properly and adequately trained to work with radioactive, hazardous and toxic substances.

8. Ensuring that the procedures for calibration of radiation detection equipment are properly executed.

9. Ensuring the packaging of radioactive and other hazardous materials for shipment meet applicable requirements.

10. Supervising and maintaining in readiness; radiological emergency procedures.

COMPLEXITY OF TASKS

The Radiation Safety Officer must ensure that all procedures associated with a good radiological and hazardous materials health and safety program are implemented and maintained in a timely and efficient manner.

ATTACHMENT 10.2

(CONTINUED)

The Radiation Safety Officer shall execute the proper controls to ensure that the Company's license to use and handle radioactive and other materials is not jeopardized. To be found in non-compliance with Regulatory requirements could result in fines ranging from a few thousand to a million dollars. Of more significance, Company operations could be shut down, resulting in much greater commercial consequences. The Radiation Safety Officer is responsible for coordinating health physics and associated activities and procedures for all NPS Windsor organizations involved with field services and site support activities (e.g., training, personnel radiation exposure records, etc.). Radiation Safety Officer's experience and qualifications are established as an NRC license condition.

EDUCATION, EXPERIENCE, AND SPECIAL SKILLS REQUIRED

(a) University Degree in Sciences or Equivalent with advanced training in Health Physics and personnel management.

(b) Ten years experience in nuclear power technology with a thorough working knowledge of health physics.

(c) Requires mature approach, very often independent decision-making, initiative and integrity.

ITEM 10

RADIATION SAFETY PROGRAM

10.5 ADMINISTRATIVE PROCEDURES

10.5.1 RADIATION WORK PERMITS

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 MI 10

10.5 Administrative Procedures - In addition to any other requirements or procedures imposed by regulation or license, Specific Radiological Protection Instructions are prepared, approved and issued in accordance with Attachment 10.A.3.

"Radiological Protection Instructions (RPIs)"
(DDH-87-623 Memo)
and
"Radiological Protection Instructions (RPIs)
Submittal, Approval and Issuance"
(DDH-87-624 Memo)

10.5.1 Radiation Work Permits - All work with radioactive materials is controlled by Radiation Work Permit(s). Attachment 10.B.3 presents the procedure applicable to the use of these permits.

ATTACHMENT 10.A.3

RADIOLOGICAL PROTECTION INSTRUCTIONS

PREPARATION, ISSUANCE AND CONTROL

INTEROFFICE CORRESPONDENCE

To: Radiological Protection Services

Date: March 2, 1987

From: P. R. Rosenthal
DDH-87-623

Location: PSES-GC27

Subject: RADIOLOGICAL PROTECTION INSTRUCTIONS (RPIs)

In order to maintain consistency and clarity of RPIs, the following is required for all RPIs generated. These formats and associated contents will allow better control and auditability of the overall Radiological Protection Program to assure compliance with license conditions and that ALARA exposures are achieved.

FORMAT:

I.	PURPOSE	Statement as to why the RPI is issued.
II.	SCOPE	Who/what is being affected by the RPI.
III.	REFERENCES	Documents that are directly or indirectly utilized as a basis for the RPI.
IV.	SPECIFIC DEFINITIONS	Definitions of items that are procedure or site-specific.
V.	INSTRUCTION	Specific step-by-step instructions to accomplish the stated purpose of the RPI.
VI.	RECORDS	Documents (including computer disks) and their associated retention, protection and disposal methods associated with the implementation of the RPI.
VII.	QUALITY ASSURANCE	The description of the method that assures the RPI is functioning according to its intended purpose.
VIII.	APPENDICIES	Forms or examples associated with the RPI.

COMBUSTION ENGINEERING

To: Radiological Protection Services Personnel

May 11, 1987

P. R. Rosenthal
9400-0202
DDH-87-624

OMS for PRR.

Subject: RADIOLOGICAL PROTECTION INSTRUCTIONS (RPIs) SUBMITTAL, APPROVAL AND ISSUANCE

The following method shall be used to submit, review, approve and issue RPIs.

1) RPI writing shall be assigned by the Manager, RPS or his designee.

2) The author shall draft the RPI in accordance with the format shown in DDH-87-623 (attached).

3) The author shall submit the RPI to the "designated Word Processing Operator" who will type it on the "RPI" computer disk as a "DRAFT".

4) A "DRAFT RPI" shall be then submitted to P. R. Rosenthal, J. M. Limbert, S. M. Sorensen, R. B. Clark and W. A. Pagel for review and comment. Comments/suggestions shall be forwarded to S. M. Sorensen for review within two working weeks of receipt.

5) Once all comments have either been incorporated or addressed, the RPI shall be given to the "designated W.P. Operator" for final correction and issuance.

6) All RPIs will be issued as originals or reissued in their entirety as a "revision" with the appropriate revision number.

7) The "designated W.P. Operator shall maintain the "Master Copy" of the RPI manual and issue controlled copies as necessary.

8) Upon receipt of the original approved version of an RPI or revision, the designated W.P. Operator will issue a new table of contents reflecting changes, the new or revised RPI and a receipt form.

9) The receipt form is signed by the controlled copy holder and returned to the designated W.P. Operator as soon as the appropriate additions/ changes have been made to his/her manual.

10) These receipt forms are then filed with the master RPI book to assure all personnel with controlled copies have made the appropriate changes/ additions to their manual.

The designated Word Processor Operator and "Master RPI Manual Holder" is:

Controlled Copies:

#1	W. A. Pagel	9403-0201
#2	R. B. Clark	9403-0501
#3	P. R. Rosenthal	9400-0202
#4	S. M. Sorensen	9403-0202
#5	J. M. Limbert	9403-M088

ATTACHMENT 10.B.3

RADIATION WORK PERMITS

COMBUSTION ENGINEERING, INC.

RADIOLOGICAL PROTECTION INSTRUCTION

RPI-4

RADIATION WORK PERMITS

PREPARED BY: _____ DATE: 1/6/88

APPROVED BY: _____ DATE: 1/19/88

CONTROL COPY NO.: 4

1.0 Introduction

The purpose of this Radiological Protection Instruction (RPI) is to provide a method for implementation of the Radiation Work Permit (RWP) system. This system is used to maintain radiological control of personnel and work associated with radioactive materials.

Deviations from this RPI are not permitted without authorization of the Manager, Radiological Protection Services (RPS) or RSO.

2.0 References

2.1 RPI-1, Whole Body Exposure
2.2 RPI-2, Monitoring for Skin Exposure
2.3 RPI-3, Extremity Monitoring
2.4 RPI-9, Monitoring for Radiation and Contamination

3.0 Scope

3.1 Conditions Requiring an RWP

An RWP is required for any work with Radioactive Materials unless otherwise authorized by the Lead Senior Health Physics Technician or RSO.

4.0 Instruction

4.1 Initiating an RWP

4.1.1 The job coordinator shall complete the following sections on the RWP (numbering as shown - Appendix A): (1.) Requestor, (2.) Date Start, (5.) Work Area, (6.) Job Description, (7.) Authorized Personnel. Additional authorized personnel may be entered on RWP Continuation sheet (Appendix B) as required. (9.) Initial (see implementing an RWP section 4.2.1)

4.1.2 The job coordinator then submits the RWP to Health Physics.

4.1.3 Health Physics will complete the following sections: (3.) Date Expire, (4.) RWP No., (8.) "T" - Training, (11.) Allowable Weekly Exposure (as appropriate), (12.) H.P. Initial and Date, (13.), (14.) Radiation Levels, (15.), (16.) Contamination

Levels, (17) Requirements, (18) Special Instructions, (19) Approved by. Item 20 is filled in when RWP is terminated see 4.3.
These items are explained in detail below:

4.1.3.1 Date Expire (3)

RWP's are in effect for a 24 hour period and may be extended on a daily baisis up to 7 days.

4.1.3.2 RWP. No. (4)

RWP numbers make each RWP unique. This allows tracking of specific jobs and RWP's. The RWP Log (copy provided in Appendix C) is used to track RWP's and RWP numbers. The Log is used to note whether an RWP has been terminated and it provides the sequential RWP numbers. RWP numbers use the following format:

Xy-z-abc
where: Xy is the current year
z is the building number
abc is a sequential number

4.1.3.3 "T"-Training (5)

H.P. initials block to indicate that the person listed has current (within one (1) year) training in Health Physics.

4.1.3.4 Allowable Weekly Exposure (10)

Personnel are typically limited to 100 mrem per week. This level may be increased (see reference 2.1 for details) or decreased based upon the individuals current exposure and job requirements. The 100 mrem limit is a weekly limit regardless of the number of RWPs authorized. For example: an individual who receives 30 mrem under an RWP worked on Monday and Tuesday will only be authorized 70 mrem for an RWP to be worked during the balance of the 7 day week.

4.1.3.5 Daily Allowable Exposure (11)

100 mrem minus any previous exposure that week. This figure is calculated from the daily dosimeter log sheet (Appendix E).

4.1.3.6 HP/Date (12)

To be initialed and dated for each day an RWP is to

be used, up to seven (7) consecutive days, prior to start of work each day.

4.1.3.7 Radiation and Contamination Levels (13.) (4.) (5.) & (16.)

Radiation and Contamination levels are provided on the RWP to inform personnel of the typical radiological environment which can be expected. These levels are based upon the results of meter and smear surveys of the areas and items impacted by the RWP. Reference 2.4 provides guidelines on dose rate and contamination level restrictions applicable to RWP's and the associated action.

4.1.3.8 Requirements (17.)

Requirements specify the use of physical protection (eg. - protective clothing, gloves, booties, etc.) and administrative controls (eg. - BZ air samplers, TLD's, dosimeters, etc.)

4.1.3.9 Special Instructions (18.)

Special instructions are used when additional controls are necessary. Examples of special instructions include calculation of expected skin or extremity doses (References 2.2 and 2.3) prior to start of work. Special ventilation requirements may also be mandated.

4.1.3.10 Approved By (19.)

The RWP must be approved; as a minimum, by a Senior Health Physics Technician prior to issue. This applies only to RWP's lasting 7 days or less. RWP's with duration up to one month requires approval of the Mgr, RPS or RSO.

4.1.3.11 Terminated by (20.)

See section 4.3

4.2 Implementing an RWP

4.2.1 Prior to starting the work stated on the RWP, authorized personnel, listed on the RWP, must read and initial the RWP signifying that the individual has read and understands all requirements. Any individual failing to do so, may be restricted from any or all RWP work until the matter is resolved.

4.2.2 The original of the RWP as well as any associated surveys shall be posted near the work area. A copy of the RWP is placed in the active file in the Health Physics office.

4.2.3 Prior to the start of each day's RWP work, the health physics technician shall update the daily allowable exposure (12.) for all personnel listed on the RWP. The technician shall date and initial the proper column for daily exposure.

4.2.4 All authorized personnel, prior to entry in, departure from the control zone or area must make the proper entries on the Control Zone Entry Log sheet (copy provided in Appendix D). This allows the health physics technician to accurately track individual exposure to radiation and airborne contamination, on a job specific basis.

4.2.5 At the end of each working day, personnel authorized by the RWP shall update the weekly Dosimeter Log sheet (copy provided in Appendix E) in the space for the appropriate day. The total net increase on the pocket dosimeters are recorded, on a daily basis. This sheet is used to update the daily allowable exposure on the RWP.

4.3 Terminating an RWP (20.)

To terminate an RWP, it must be signed and dated by the cognizant H.P. Technicians in the "Terminated By" section. The termination date is entered on the RWP Log, and the RWP copy removed from the active file. The original and a copy, continuation sheets and related surveys shall be placed in the terminated RWP file for storage. They shall be kept until the Mgr, RPS authorizes disposition. Daily Dosimeter Log sheets and Control Zone Entry Log sheets shall also be kept until disposition is authorized by the Mgr, RPS.

4.4 RWP Restrictions

4.4.1 Only radiation workers with training recognized by the C-E Training Coordinator may be listed as authorized personnel.

4.4.2 No individual will be allowed to work on an RWP if that individual's BZ air sample results are four (4) MPC-hrs or greater within a seven (7) consecutive day period unless approval is authorized by the Manager RPS or the RSO.

4.4.3 Any daily BZ results greater than 1 MPC-hr shall be analyzed for isotopic identification, and recalculated for the most restrictive isotope. An investigation shall be performed to determine the reason(s) for the high BZ results.

Appropriate corrective action shall be taken prior to that individual resuming work on any RWP. The corrective action shall be decided by the Mgr. RPS or his designee.

RADIATION WORK PERMIT

;tor (1)	Date Start (2)	Date Expire (3)	R.W.P. No. (4)
(5)	Job Description (6)		

R.W.P. MUST BE INITIALED BY ALL AUTHORIZED PERSONNEL PRIOR TO STARTING WORK.

:ized Personnel (7)	T (8)	Initial (9)	Allowable Weekly Exposure (10)	HP Date	HP Date	HP Date (12)	HP Date	HP Date	HP Date	HP Date
						(11)				

ation Levels Mrem/Hr

ntact - (13)

(14)

Contamination Levels DPM/100 cm^2 Beta Alpha

Equipment - (15)

General Area - (16)

ements (17)

LD - Whole Body
osimeter
-Z Air Sampler
ab Coat
ta/Safety Glasses
ntilation in operation

- ☐ Full PC's
- ☐ Cloth/Plastic Booties
- ☐ Cloth Hood
- ☐ Rubbers
- ☐ Plastic Gloves
- ☐ No cutting, drilling, grinding without HP approval

- ☐ Rubber Gloves
- ☐ Cotton Gloves
- ☐ Plastic Suit
- ☐ Finger Ring - TLD
- ☐ Handling Estimate
- ☐ Approved Procedure
- ☐ Other (specify below)

l Instructions:

(18)

vl By: (19)	Date	Terminated By: (20)	Date

Appendix B
RWP Continuation Sheet

rk area | RWP#

thorized Personnel	T	Initial	Allowable Weekly Exposure	HP Date	HP Date	HP Date	HP Date	HP Date	HP Date	HP Date

Item 10 Page 24 of 76

No names are to be added to this list without prior approval from H.P. and the Job Supervisor.

Appendix C

R&P RECORD LOG

P No.	Date Approved	Date Terminated	Job Description

CONTROL ZONE ENTRY LOGSHEET

CONTOL ZONE NO.____ DATE:____

NAME	RWP NO.	IBZ No. DIGITS	TIME IN	DOSE IN	TIME OUT	DOSE OUT	TOTAL DOSE

RPI-4

NAME	DOSE IN MILLIREM							
	SUN	MON	TUS.	WED	THR.	FRI.	SAT.	TOTAL

ITEM 10

RADIATION SAFETY PROGRAM

10.5 ADMINISTRATIVE PROCEDURES

10.5.2 PROCUREMENT

10.5.3 A.L.A.R.A.

10.5.4 SEALED SOURCES

10.5 Administrative Procedures

10.5.2 Procurement- All procurement of radioactive materials is controlled by the Manager, Radiological Protection Services or the RSO through a controlled purchasing agent system.

10.5.3 As Low As Reasonably Achievable (ALARA)- In accordance with 10CFR20.I.(c) "As Low As Reasonably Achievable" provision Combustion Engineering, Inc. has an ALARA Program - See Attachment 10.4 which, in concert with, specific procedures and safety reviews meets the intent of the provision.

10.5.4 Sealed Sources are inventoried and leak tested semi-annually, upon receipt or transfer, and prior to use if no leak test had been required or performed within six (6) months. (Sources in storage are excepted from periodic leak tests until just prior to withdrawal from storage). If a leak test shows greater than .005 microcuries activity, the source shall be withdrawn from service until repaired and successfully tested.

ATTACHMENT 10.4

A.L.A.R.A. PROGRAM

COMBUSTION ENGINEERING, INC.

1000 PROSPECT HILL ROAD

WINDSOR, CT 06095-0500

RADIOLOGICAL PROTECTION STANDARD

RPS-01

A.L.A.R.A. PROGRAM

FOR MATERIALS LICENSE

NO. 06-00217-06

PREPARED BY — DATE 11/28/89

APPROVED BY — DATE 11/25/89

ALARA POLICY STATEMENT

"The management of Combustion Engineering, Inc. is committed to keep occupational radiation exposures as low as reasonably achievable (ALARA) with regard to operations conducted under U.S.N.R.C. Materials License No. 06-00217-06 as renewed or amended. The following program is adopted as the method to achieve this commitment."

Louis F. Kesselman
Director, Outage Services
Date: 11-28-89

I. Management Audit

A. "Management shall perform an annual audit to determine how exposures might be lowered."

B. As a minimum the following areas shall be reviewed and evaluated for ALARA:

1. Annual Exposure Report
2. Weekly Dosimeter Log Sheets
3. Radiation Work Permits
4. Radiation and Contamination Surveys
5. Whole Body Count Results

II. Radiation Protection Capability

A. "Management shall ensure that there is a well-supervised radiation protection capability with well-defined responsibilities."

B. This is accomplished by the following:

1. A formal organization chart (updated as necessary)
2. Formal Job descriptions for the positions identified in the organization.
3. Periodic professional training or retraining of the Radiation Protection Staff.

III. Worker Training

A. "Management shall see that Radiation Workers and other site personnel receive appropriate and sufficient training."

B. This is accomplished by the following methods:

1. Radiological Protection Instruction Number - 20 formally specifies various training procedures for individuals who work with radioactive materials.

2. Radiological Protection Instruction Number - 4 specifies the training required to work on a Radiation Work Permit (RWP).

3. RPI-1 - "Whole Body Exposure" specifies monitoring and training Requirements.

IV. Radiation Safety Officer Authority (RSO)

A. The Radiation Safety Officer RSO or his/her designee shall have the authority to enforce safe operations and has the authority to halt any work that he/she deems not in accordance with this program.

V. Modifications to Operating Procedures

A. Modifications to Operating Procedures should be made where they will substantially reduce exposures at a reasonable cost.

B. This is accomplished by the following:

1. Radiological Protection Instruction
Number - 1 "Whole Body Exposure"

(a) Administratively and Operationally limits Whole Body Exposure.

2. Radiological Protection Instruction
Number - 2 "Monitoring for Skin Exposure"

(a) Administratively and Operationally limits Skin Exposure.

3. Radiological Protection Instruction
Number - 3 "Extremity Monitoring"

(a) Administratively and Operationally limits Extremity Exposure.

4. Radiological Protection Instruction
Number - 4 "Radiation Work Permits"

(a) Administratively and Operationally provides for review of radiological conditions, operation reviews, and personnel exposure review.

5. Radiological Protection Instruction
Number - 9 "Monitoring for Radiation and Contamination"

(a) Administratively and Operationally specifies controls and action levels for Radiation and Contamination levels in the workplace.

C. Any operation that falls outside the scope of the above mentioned instructions shall be reviewed by the RSO as a minimum.

ITEM 10

RADIATION SAFETY PROGRAM

10.5 ADMINISTRATIVE PROCEDURES

10.5.5 RADIOLOGICAL SURVEYS

Item 10 Radiation Safety Program (Cont'd)

10.5 Administrative Procedures

10.5.5 Radiological Surveys- are conducted, on a routine basis, in and adjacent to, restricted areas. Attachment 10.5 provides the minimum frequency for performing these surveys.

ATTACHMENT 10.5

RADIOLOGICAL SURVEYS

COMBUSTION ENGINEERING, INC.

Windsor, Connecticut

Radiological Protection Instruction

RPI-9

Monitoring for Radiation and Contamination

Prepared by: W. A. Tagel Date: 11/15/89

Approved by: O M Thenen Date: 11/16/89

Control Copy No. 4

Subject: Monitoring for Radiation and Contamination

1.0 INTRODUCTION

This Radiological Protection Instruction (RPI) establishes the minimum requirements pertaining to monitoring of radiation and contamination in support of NRC License 06-00217-06.

This RPI details survey frequency and location, documentation requirements, and action levels corresponding to survey results.

For purposes of this instruction any of the following is considered to be equal to one (1) REM:

(1) A dose of 1r due to X or gamma radiation.
(2) A dose of 1 rad due to X-, gamma or beta radiation.
(3) A dose of 0.1 rad due to neutrons or high energy protons

2.0 REFERENCES

2.1 NRC By Product License 06-00217-06 as amended
2.2 RPI-7, Freon Decontamination Equipment
2.3 RPI-2, Monitoring for Skin Exposure
2.4 RPI-3, Extremity Monitoring

3.0 INSTRUCTIONS

3.1 Survey locations and frequencies

3.1.1 Routine radiation and contamination surveys are required by the references of section 2.0., Tables 1 and 2, provide information on routine survey locations, type and frequency. Appendix A provides the current survey maps (or sheets) applicable to Table 1 and Appendix B provides those for Table 2.

NOTE: Appendix A and B provide the survey maps and sheets used in the weekly reports for Building 2 (Nuclear Service buildings) and 5 (Nuclear Laboratory) surveys, respectively.

3.1.2 Radiation and contamination surveys shall only be performed by qualified health physics personnel. Qualifications of individuals shall be determined by the Manager, Radiological Protection Services or his authorized designee.

3.1.3 Instruments utilized for radiation and contamination surveys shall be calibrated according to the requirements in Reference 2.1.

3.1.4 Instruments used for radiation surveys shall be source response checked and battery checked at a minimum, daily.

3.1.5 Nonroutine surveys include package (or shipment) receipt surveys, equipment surveys, release surveys, and any special surveys. Forms for these surveys are provided in Appendix C along with guidelines for proper use.

3.1.6 Sealed Source Leak Tests

Each sealed source or detector cell acquired from another person and containing licensed material, other than hydrogen 3, with a half-life greater than 30 days and in any form other than gas shall be tested for contamination and/or leakage before use. In the absence of a certificate from a transferor indicating that a test has been made within 6 months before the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

Notwithstanding the periodic leak test required by this condition, any licensed sealed source or detector cell is exempt from such leak tests when the source or detector cell contains 100 microcuries or less of beta and/or gamma emitting materials or 10 microcuries or less of alpha emitting material.

Except for alpha sources, the periodic leak test required by this condition does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage before any use or transfer to another person unless thay have been leak tested within 6 months before the date of use or transfer.

Each sealed source or detector cell fabricated by the licensee shall be inspected and tested for contruction defects, leakage, and contamination prior to use or transfer as a sealed source or a detector cell. If the inspection or test reveals any construction defects or 0.005 micorcurie or greater of contamination, the source shall not be used or transferred as a sealed source or detector cell until it has been repaired, decontaminated and retested.

Each sealed source containing licensed material, other than hydrogen 3, with a half-life greater than 30 days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed 6 months except that each source designed for the purpose of emitting alpha particles shall be tested at intervals not to exceed 3 months.

The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. The test sample shall be taken from the sealed source or detector cell or from the surfaces of the device in which the sealed source or detector cell is permanently or semipermanently mounted or stored on which one might expect contamination to accumulate. Records of leak test results shall be kept in units of microcuries and maintained for inspection by the Nuclear Regulatory Commission.

If a leak test reveals the presence of 0.005 microcurie or more of removable contamination, that source shall be withdrawn from use and the Mgr. RPS or RSO immediately notified.

A list of all sealed sources for testing is located in the Source Accountability Book. The form used to track and record leak tests is located in Appendix D.

3.2 Documentation Requirements

All surveys records shall be kept indefinitely or until the Manager of Radiological Protection Services (Mgr., RPS) authorizes disposal.

3.3 Administrative Controls

Administrative controls and action levels are summarized in Table 3. Table 3 is not all inclusive but provides information sufficient for general health physics operations on this site. Health physics personnel must be familiar with all issued RPIs.

Table 1
Building 2 Complex (Nuclear Service Buildings) Survey Requirements

Survey Location	Frequency	Contamination Survey	Radiation Survey
1. Control Zone Buffer Zones	Daily[1,2]	X	
2. Building 2 Office Spaces	Weekly	X	
3. Building 2 Restricted Areas	Weekly	X	X
4. Building 2 Lower Mezzanine	Weekly[1]	X	X
5. Building 2A Restricted Area	Weekly	X	X
6. Control Zone 1	Weekly[1,4]	X	X
7. Control Zone 2	Weekly[1,4]	X	X
8. Control Zone 3	Weekly[1,4]	X	X
9. Control Zone 4	Weekly[1,4]	X	X
10. Control Zone 5	Weekly[1,4]	X	X
11. Building 1 Restricted Area	Weekly	X	X
12. Building 1 High Radiation Storage	Monthly	X	X
13. Building 1A Radiation Storage	Monthly	X	X
14. Building 1A Multi-Purpose Area	Weekly[1,4]	X	X
15. Trailer Storage Area	Monthly		X
16. Yard Storage Area	Monthly		X
17. Waste Pad	Monthly		X
18. Vault	Monthly	X	X
19. Freon Decon Machine	Daily[1,3]		X

[1] When in use, monthly when not in use.

[2] No map required, health physics personnel perform the required surveys and acceptability of survey results is acknowledged on the weekly report.

[3] See Reference 2.2 for details.

[4] Prior to a new RWP being issued for change of work scope when radiological conditions could materially change.

Table 2
Building 5 (Nuclear Laboratories) Survey Requirements

Survey Location	Frequency	Contamination Survey	Radiation Survey
1. Laboratory Buffer Zones	Daily[1,2]	X	
2. Building 5 General Area	Weekly	X	X[3]
3. Warm Metallography Lab - Room 224C	Weekly[1]	X	X
4. Radiochemistry Labs - Rooms 305 & 306	Weekly[1]	X	X
5. Radiochemistry Lab - Room 321	Weekly[1]	X	X
6. Boronometer Test Area - Building 16	Weekly[1]	X	X

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[1] When in use - monthly when not in use.

[2] No map required, health physics personnel perform the required surveys and acceptability of survey results is acknowledged on the weekly report.

[3] Monthly - Survey to be performed adjacent to areas where work with radioactive materials is being performed.

Table 3
Action Levels and Administrative Controls

Action Level		Administrative Control
1.	Radiation Surveys - General	
a)	.1 mR/hr - Contact (100 DPM/100cm^2 fixed contamination by RM.14 or equivalent).	Unconditional Release of Eqiupment (and requirements of 3a) of this table
b)	.6 mR/hr - area	Maximum allowable dose rate at perimeter of restricted area
c)	2.0 mR/hr - area	Dosimetry required
d)	2.0 mR/hr - area	Posted as a "RADIATION AREA"
e)	100 mR/hr - area	Posted as a "HIGH RADIATION AREA" and locked, guarded and/or alarmed

2. Radiation Surveys - for RWP Controls

a) Greater than 14 mrem/hour. Beta - @ 18".

1) Requires dose estimate for skin exposure. (See Reference 2.3)

b) Greater than 50 mrem/hour - Gamma - on contact.

1) Requires handling estimate for extremity exposure. (See Reference 2.4)

c) Greater than 100 mrem/hour - Beta plus gamma on contact.

1) Limit for freon decontamination machine work. (See Reference 2.2)

d) Greater than 500 mrem/hour - Beta - @ 18".

1) Requires dose estimate for skin exposure and additional RWP approvals. (See Reference 2.3)

e) Greater than 1000 mrem/hour Gamma - contact.

1) Requires handling estimate, extra extremity dosimetry and additional RWP approvals. (See Reference 2.4)

Table 3 (Cont.d)
Action Levels and Administrative Controls

Action Level		Administrative Control
3.	Contamination Surveys	
a)	200 dpm/100 cm^2-beta/gamma 10 dpm/100 cm^2-alpha	Limits for unrestricted area and for unconditional release (see 1a above)
b)	200 dpm/100 cm^2-beta/gamma 10 dpm/100 cm^2-alpha	area controlled as contaminated area, equipment must have proper controls in restricted area
c)	1000 dpm/100 cm^2 - beta/gamma items/equipment	B.Z.'s required only if grinding, cutting, or drilling performed on equipment or items
d)	10,000 dpm/100 cm^2-beta/gamma items/equipment	B.Z.'s required when working on items or equipment, no grinding, cutting or drilling unless approved by Health Physics
e)	10,000 dpm/100 cm^2-beta/gamma general area [1]	Area cleanup required within 24 hours
f)	11,100 dpm (.005 microcuries) sealed sources	Source must be removed from use and Mgr. RPS or RSO notified immediately.

[1] Action levels are based on smear averages, not individual smears.

NOTE: Limits for unconditional release may be increased to 1000 dpm/100cm^2 beta/gamma upon written approval by RSO or Mgr. RPS., however a reasonable effort must be made to decontaminate items to less than 200 dpm/100cm^2 beta/gamma.

NOTE: If any smear reveals the presence of more than 100,000 dpm/100cm^2 beta/gamma removable contamination that smear will be counted for alpha. If the alpha contamination is greater than 1% of the beta/gamma count, the BZ's used in that work area shall be counted for alpha.

ITEM 10

RADIATION SAFETY PROGRAM

10.5 ADMINISTRATIVE PROCEDURES

10.5.6 FORMAL TRAINING IN RADIATION SAFETY

10.5 Administrative Procedures

10.5.6 Formal Training in Radiation Safety- Prior to working with radioactive materials, each new employee is given a Radiation Workers Training Program. Each person who actively works with radioactive materials is given an annual refresher training program. The Radiation Workers Training Program meets the requirements of USNRC Regulatory Guide 8.27 "Radiation Protection Training for Personnel at Light Water Cooled Nuclear Power Plants, "Reg. Guide 8.29 " Instruction Concerning Risks from Occupational Radiation Exposure," and INPO 82-004 Guidelines for General Employee Training." This training program consists of approximately 16 hours of classroom instruction and 8 hours of practical applications. A copy of the lesson plans which comprise the training program is shown in Attachment 10.6.

Personnel not trained in accordance with the above, who require access to restricted areas, shall be escorted or under surveillance of a trained radiantion worker.

ATTACHMENT 10.6

RADIATION WORKERS TRAINING

PROGRAM

COMBUSTION ENGINEERING, INC.

RADIOLOGICAL PROTECTION INSTRUCTION

RPI-20

RADIATION WORKERS TRAINING PROGRAM

PREPARED BY: _____ DATE: 8/29/88

APPROVED: _____ DATE: 8/29/88

CONTROL COPY NO. _____

I. INTRODUCTION

This RPI establishes a procedure and controls for training and qualifying radiation workers. This RPI also specifies a program for maintaining the training current and provides a method for certifying previously trained or experienced radiation workers.

II. SCOPE

This instruction applies to all workers whose job requires on site exposure to radiation or radioactive materials associated with NRC License 06-00217-06. This instruction also applies to personnel who wish to take advantage of the Experienced Radiation Workers program at power plants.

III. REFERENCES

1. Initial Radiation Workers Training Course, DDH-83-129
2. Annual Refresher Course, DDH-87-660
3. Challenge Course, DDH-88-709
4. NRC Regulatory Guides 8.13, 8.27, 8.29
5. NRC License 06-00217-06, as amended
6. 10 CFR 19 and 10 CFR 20
7. INPO 82-004 General Employee Training (GET)
8. INPO 87-005

IV. DEFINITIONS

A. Certified Trained Radiation Worker	A worker whose training as a radiation worker may be certified to meet the requirements of INPO 82-004 Ref. #7 by attendance at a course and passing an exam as well as performing the required practical demonstration
B. GET-ILP-Challenge Exam	A 50 question multiple choice test covering prescribed areas of knowledge in the field of Radiation Protection and Nuclear Radiation Theory
C. Site Specific Course	A course of study designed to cover information which applies only to a specific site.

D. Annual Refresher Course — A course of study used to extend a Radiation Worker's qualifications for 12 months.

V. INSTRUCTIONS

A. Initial training requirements for a radiation worker

1. Prerequisites and Restrictions

a. All prospective radiation workers must complete a course of study as specified in Reference #4 or equivalent. The Initial Radiation Workers Course will be given to all new employees who will be required to work with radiation or radioactive materials. The course will be considered complete only with a passing score of 80% or better and completing a practical exercise check out sheet as specified in Reference #1. The test and check out sheet will be retained in the person's training history as documentaion of training requirements. This course will be considered as certification for Trained Radiation Workers for one year (12 months).

b. Any training course which can be documented as being equivalent to the Reference #4 requirement may be accepted in lieu of the Initial Radiation Workers Course provided the signed documentation is presented and the course was not completed more than 12 months previous to the date the person requests training.

c. In addition to the requirement for signed documentation of equivalent training, the respective radiation worker must pass, with a score of 80% or better, a Radiation Worker Challenge Course (Ref. 3) which includes the requirement of a site specific course and quiz. The successful completion of these requirements will certify the candidate for one year (12 months) as a Trained Radiation Worker.

2. Program Description

a. The Initial Radiation Workers Training Course (Ref. 1) was designed to meet the training objectives of References 4, 5, 6, and 7. The course consists of approximately 20 hours of lecture time and four hours of practical exercises as specified in Reference 1.

The course lecture and reference materials will be made consistent with current industry and regulatory standards and will be revised as these standards change. The Radiological Protection Group will also provide input to insure the site specific sections of this course is consistent with work practices in effect at the time of instruction.

B. Refresher Training requirements for a radiation worker

1. Pre-requisites and restrictions

a. Only radiation workers who can provide documentation of successfully completing either CE's Initial Radiation Workers Course or an equivalent course as specified in Section V.A., may be accepted for the Annual Refresher Course. No more than 24 months can elapse after completing an Initial Radiation Workers or an Annual Refresher Course to qualify an individual as a candidate for the Annual Refresher Course.

b. If more than 24 months has elapsed since the successful completion of an Initial Radiation Workers or Annual Refresher Course, an Initial Radiation Workers Course must be completed to requalify an individual as a Certified Trained Radiation Worker

2. Course Description

The Annual Refresher Course covers the same basic objectives as the Initial Radiation Workers Course but is designed to emphasize changes and new ideas to the employee as well as reinforce those already presented.

The Radiological Protection Group has established this training course as its standard refresher course for all radiation workers on the Windsor site who work with radioactive materials. This course was developed from USNRC Regulatory Guides 8.27 (Radiation Protection Training for Personnel at Light Water Cooled Nuclear Power Plants), 8.29 (Instruction Concerning Risks from Occupational Radiation Exposure), INPO 82-004 (Guidelines for General Employee Training Section 5.4.), and 8.13 Rev. 2 (Instruction Concerning Prenatal Radiation Exposure).

The course includes approximately 6 hours of classroom instruction and 1 hour of practical exercises in basic radiation protection practices.

Instructions are designed to present both a generic type of information which is applicable to any radiation worker, as well as specific information and procedures which deal with Windsor's unique requirements.

The Refresher Course will requalify an individual for one year (12 months) and may be repeated as often as necessary to maintain this qualification.

The course is considered successful only with a passing score of 80% or better and having the practical exercises signed off. Documentation is provided by retaining the test in the person's training file along with any documentation of previous training.

C. Challenge Course requirements for Radiation Workers

1. Prerequisite and Restrictions

a. Any candidate for the Challenge Course must provide Proof of Previous Training of either the CE Initial Radiation Workers Training Course or the CE Annual Refresher Course, within the last 24 months. The only alternative would be if the candidate could provide proof of previous training from a course which meets the requirement of Ref. #7 from another licensee within the last 12 months.

b. The Challenge Course can only be taken once to qualify the individual for work with Radiation or Radioactive materials. The course is only good for one year (12 months). If that person fails to complete an Annual Refresher course within that year, the individual must take and pass the Initial Radiation Workers course in order to be recertified as a radiation worker.

2. Course Description

The Challenge Course is composed of the following components:

a. A 50 question Challenge Test containing multiple choice answers based on INPO 87.005 exam questions. The test will be administered by the Radiation Protection Department and a passing score of 80% or better is required.

b. Complete a site specific lecture as per Ref. #3 and pass quiz with a score of 80% or better.

c. Complete a CE Radiation Workers Practical Exercises check out as per Ref. #3.

D. Instructions for providing documentation of Certification of Training

1. CE personnel may request to participate in a utility sponsored Experienced Radiation Workers Training Program. Only personnel who successfully complete the CE Initial Radiation Workers Training Course Ref. #1 and maintains his qualifications current (passes Annual Refresher Course) may request this service. When the request is received, the individuals training record will be reviewed and a letter issued to the utility and site being visited specifying the person's name, date, social security number, and last training date. The letter will also specify that the course meets INPO and NRC guidelines for Radiation Worker Training.

2. Non CE personnel who have completed and kept current their CE Initial Radiation Workers Training Program may also request this service, but the request must be in writing and must specify which utility and plant is being visited as well as date of arrival at the requested site.

3. No individual may be certified as a Trained Radiation Worker to participate in any experienced worker program if their Annual Refresher Training has lapsed (greater than 12 months). Passing the Challenge Program will not qualify an individual for this service.

E. Instructions for notification of imminent loss of qualifications as a Trained Radiation Worker

1. Monthly the R.P.S. Training Coordinator or his designee will issue a letter specifying who will lose their qualification or has already lost their qualifiation, for the coming month. The letter will also specify a date for a Refresher Course. Should someone not be available for training, the individual or his supervisor must notify the R.P.S. Training Coordinator or his designee as soon as possible to make arrangments for an alternate date.

VI. RECORDS

A. CE Employees

1. A record of training for all personnel classified as Trained Radiation Workers will be provided by the R.P.S. Staff monthly or when requested, giving: name, social security number and date of training.

2. An individual file containing all test and information concerning trained Radiation Workers will be maintained until the employee has terminated. The records will be placed in storage until the Manager, R.P.S. authorizes their disposal.

3. A Statement of Training will be provided to utilities or customers requiring documentation of training. This statement must specify as a minimum: name, Social Security Number, date of training, and criteria used to prepare the Initial Radiation Workers Training Course. The Training Coordinator will be required to provide these statements upon request of the individuals or supervisor of individuals being sent off site.

B. Visitors

1. A record of all training received to qualify visitors as Trained Radiation Workers will be maintained for two years after their last visit, and a letter of training will be sent to the individual or the individual's company upon request of the individual.

VII. QUALITY ASSURANCE

A. Annually the RSO and Lead Senior Health Physics Technician shall audit the Initial Radiation Workers Training Course and the Annual Refresher Course to insure the material being presented meets the intent and quality of the RPIs and NRC Guidelines.

B. The RSO and the Lead Senior Health Physics Technician shall submit a report to the Training Coordinator and Manager RPS which specifies any additions, deletions, or changes to the training course.

C. Annually, the Health Physics Training Coordinator shall audit the training records to determine if the following items are current:

1. All terminations have been logged and dropped from the active roll

2. All personnel have been offered refresher courses if they are due for requalification

3. Provide a list of radiation workers whose training has lapsed to their supervisors

ITEM 10

RADIATION SAFETY PROGRAM

10.5 ADMINISTRATIVE PROCEDURES

10.5.7 PERSONNEL DOSIMETRY

10.5 Administrative Procedures

10.5.7 Personnel Dosimetry- is accomplished using an in-house, NVLAP accredited, Panasonic TLD System in accordance with 20.202(c). The certificate of accreditation is Attachment 10.7.

Neutron monitoring is accomplished through the use of NVLAP accredited vendor badges for personnel requiring this monitoring.

In the event that either the in-house system is disabled or Combustion Engineering, Inc. no longer is eligible for accreditation arrangements are available to have our dosimeters processed according to regulations.

ATTACHMENT 10.7

NVLAP ACCREDITATION

PERSONNEL DOSIMETRY PROCESSING

National Institute of Standards and Technology

NVLAP

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION

PERSONNEL DOSIMETRY PROCESSING

NVLAP LAB CODE 0563

COMBUSTION ENGINEERING, INC.
1000 Prospect Hill Road, Windsor, CT 06095-0500
Stephen M. Sorensen Phone: 203-285-5285

Accreditation Renewal Date: October 1, 1990

This facility has been evaluated and deemed competent to process the radiation dosimeter listed below through employing a Panasonic Automatic reader model UD710A and Panasonic Manual reader UD702A.

This facility is accredited to process the following dosimeter by virtue of actual demonstration of compliance with ANSI-N13.11-1983 through testing.

Panasonic TLD model UD802 for ANSI-N13.11 category VII.

DEPARTMENT OF COMMERCE • UNITED STATES OF AMERICA •

For the National Institute of Standards and Technology

ITEM 10

RADIATION SAFETY PROGRAM

10.5 ADMINISTRATIVE PROCEDURES

10.5.8 ENVIRONMENTAL MONITORING

10.5.9 BIOASSAY PROGRAM

10.5.8 Environmental Monitoring- is accomplished by the Windsor Site Environmental Monitoring Program. This program examines uranium content, alpha radioactivity and beta radioactivity in surface and well waters, river sediment, soil, vegetation, and atmospheric fallout. Additionally, PH, fluoride, and nitrate levels are determined in well water, surface water, and river sediment. A gamma spectrum is performed on selected river sediment, soil, vegetation, and atmospheric fallout samples. Fourteen (14) on-site routine sampling stations have been established at designated points for collection of quarterly atmospheric fallout samples and twenty-seven (27) semi-annual soil and vegetation samples.

10.5.9 Bioassay Program -

10.5.9.1 Whole body counts are performed for mixed fission and corrosion products twice per calendar year. Personnel selected for whole body counts are those who have worked on a radiation work permit since their last count.

10.5.9.2 Personnel Monitoring - Breathing zone air samplers. Personnel intake of radioactive materials is monitored through the use of breathing zone air samples whenever work with loose contamination

exceeds 10,000 DPM/100CM2. The sample filters are counted and if a calculated intake of greater than four (4) MPC-HRS is discovered, the filter is sent for gamma spectroscopy to identify the nuclides involved. Further, the individual may be sent for a whole body count. Also the work is reviewed and the individual is restricted from work requiring breathing zone air sampling for the remainder of the seven (7) day period.

10.5.9.3 Accidental Intakes - Should an individual be suspected of receiving in intake greater than forty (40) MPC-HRS, the work will be stopped and a complete evaluation and root cause analysis will be performed. Additionally, the individual will be given a whole body count and will not be allowed to work with radioactive materials until the Radiation Safety Committee is satisfied that appropriate corrective actions to prevent recurrence have been taken.

ITEM 10

RADIATION SAFETY PROGRAM

10.5 ADMINISTRATIVE PROCEDURES

10.5.10 TRANSPORTATION OF RADIOACTIVE MATERIALS

COMBUSTION ENGINEERING, INC.

RADIOLOGICAL PROTECTION INSTRUCTION

RPI-13
REV. 1

TRANSPORTATION OF RADIOACTIVE MATERIALS

PREPARED BY: _____ DATE: 10/20/88

APPROVED BY: _____ DATE: 11/8/88

CONTROL COPY NO.: 4

1.0 INTRODUCTION

This Radiological Protection Instruction (RPI) provides procedural steps for receiving, opening, packaging, and shipping radioactive materials under six different conditions. These six conditions have been selected because they are the most common type of radioactive materials transported to and from the Windsor site. The reader is cautioned that this RPI is not intended to be a substitute for regulatory requirements. Persons responsible for the receiving, packaging, and shipping of radioactive materials must be knowledgeable of U.S. Nuclear Regulatory Commissions regulations 10CFR parts 20, 30, 70, 71 and U.S. Department of Transportations regulations 49 CFR parts 100 through 400. Receiving, packaging and/or shipping of radioactive materials under different conditions than those covered by this * RPI shall be approved by either the Radiation Safety Officer, or the Manager-Radiological Protection Services.

1.1 Procedure for the shipment of LSA materials under Exclusive Use rules from the Windsor site.

1.2 Procedure for the shipment of Limited Quantity of Radioactive Materials by surface transportation.

1.3 Procedure for Non-Exclusive Use Shipment of Normal Form Radioactive Materials by surface transportation.

1.4 Procedure for the shipment of Radioactive Materials by Air Freight.

1.5 Procedure for the shipment of Radioactive Materials via Company-owned or Leased Vehicles.

1.6 Procedure for the receipt of Radioactive Material

2.0 REFERENCES

2.1 Title 10, Part 71 of the Code of Federal Regulations.

2.2 Title 49, Parts 172, 173 and 175 of the Code of Federal Regulations.

3.0 ENCLOSURES

3.1 Notice of Shipment

3.2 Radioactive Materials Shipment Record and Supplement

3.3 Vehicle Survey Sheet

3.4 Connecticut State Permit Application

3.5 Exclusive Use Instruction Sheet.

3.6 C-E Bill of Lading Example

3.7 **Shipper's Certificate of Hazardous Materials for Air Shipments**

4.0 GENERAL INSTRUCTIONS

4.1 Any radioactive shipment incoming or outgoing which falls outside the specific instructions in this RPI must be * immediately brought to the attention; of the Radiological Safety Officer (RSO), or the Manager RPS.

4.2 Prior to the shipment of radioactive materials, verification that the consignee is authorized to receive the type, form, and quantity of radioactive material must be obtained.

Forms of acceptable verification are:

1. Current copy of the consignee's specific license or registration certificate issued by the NRC or an Agreement State.

2. A written certification by the consignee that he is authorized by license, registration certificate, or U.S. government contract to receive the type, form, and quantity of radioactive material. This certification must specify the license, registration number, or contract number, issuing agency, and the expiration date.

* 4.3 The above stated verification must be in the possession of the shipper.

4.4 All packages shall not have any dimension less than 4 * inches. If any liquids are present, there must be enough absorbent materials to absorb twice the amount of liquids and the liquids shall be in a sealed inner container.

5.0 INSTRUCTION

5.1 Procedure for the shipment of LSA radioactive materials under Exclusive Use Rules from the Windsor site.

5.1.1 Notice of Shipment

A signed "Notice of Shipment", Enclosure 1, giving as much information as possible will be the means of setting up a shipment of radioactive materials from the site. The cognizant engineer or supervisor is responsible for initiating this document. Using this document as a reference, start filling out a Radioactive Material Shipment Record RMSR, Enclosure 2.

5.1.2 Verify that the empty trailer is free of contamination. If the trailer was on site, then a record of the Release Survey is acceptable. If the trailer was just delivered. The vehicle must be * surveyed and the survey filed as a record.

5.1.3 **All loading of the trailer should be under the cognizance of an RPS technician. All containers carrying radioactive material must have a "Radioactive LSA" sticker as well as a gross weight marking, per 172.302/310. In addition, each box should be marked UN 2912 for LSA materials. Each container should be marked as follows:**

RADIOACTIVE-LSA UN 2912 GROSS WEIGHT _____

5.1.4 Each container will be surveyed for contamination and dose rates. The results will be recorded on the RMSR or supplement. The contamination survey shall include smears of both the contents and the outside of the container. The smears of the contents will be used to determine the isotopes by gamma spectroscopy. * The dose rates should be used to determine the amount of radioactive material in curies in each container.

Note: Maximum Loose Surface Contamination levels on the outside of packages -

Beta-gamma	200 DPM/100 cm 2
Alpha	100 DPM/100 cm 2

* The Lead Senior H.P. Technician will determine the number and type of smears needed to determine if the above stated limits have been met.

The contamination levels, above, may be exceeded only by permission of the RSO or Manager, RPS.

5.1.5 No containers will be stacked unless the following conditions are met.

1. Gross weight less than 200 lbs.

2. Containers can be secured in place against movement during shipment.

3. Representatives of the RPS Group specifically approves the stacking.

5.1.6 All packages must be strong, tight containers. All containers must be banded or sealed. All packages must have an inner packaging of sealed plastic in order to prevent, as much as possible, contaminating the primary packaging. All closures, locks or devices used to attach the lids to the containers must be in place to qualify as "strong tight". * In Shipments containing mixed lading (clean and hot), the clean packages must be packaged, labeled and secured according to the descretion of the Lead Senior H.P. Technician and a weight marked on all packages.

* Anytime banding is used to maintain LSA packaging as "strong tight", a banding tool and materials must be sent with the load to ensure the package can be made strong tight upon return from the site. The RMSR shall be initialed when the banding equipment is placed on the vehicle.

Should any dispute arise as to whether or not a package is strong tight, the Manager, RPS, or his designee will be the final judge.

5.1.7 Upon completion of loading, the trailer should be braced and shored to prevent, as much as possible, the shifting of the load during normal transportation. As a minimum, a senior H. P. technician shall inspect each load and initial the RMSR, if shored properly.

5.1.8 The vehicle should be locked and sealed, if applicable, and the seal number recorded on the RMSR. If the vehicle has more than one door, all doors should be sealed and the seal numbers recorded after the driver inspection. Drivers must be provided with keys to the locked vehicle.

* 5.1.9 The vehicle should be placarded with RADIOACTIVE placards and the RMSR initialed when complete.

* 5.1.10 The vehicle must be surveyed for dose rates on
* contact, and at 2 meters from the sides, and on contact with the bottom. The drivers cab area must also be surveyed to confirm that there is no place greater than 2 mrem/hr in the cab. The results of the survey should be recorded on the vehicle survey form and the form attached to the RMSR and the RMSR
* initialed by the technician making the survey. Maximum dose rate as per 49 CFR 173.441.

	Contact Dose
Packages only)	1000 mrem/hr (closed transport vehicle
	200 mrem/hr (open vehicle)

Note: Any package greater than 200 mrem/hr
* requires permission of the Manager RPS or RSO.

* Vehicle	surface - 200 mrem/hr 2 meters - 10 mrem/hr
Cab	any surface inside cab - 2 mrem/hr

5.1.11 A Connecticut State Permit, Enclosure 4, must be obtained prior to any LSA shipment leaving the Windsor site. All information on tractor, trailer and load must be completed on the application. The

application must be certified by both C-E representative and the Carrier representative. The Driver must have an approved permit in his possession when traveling in the State of Connecticut. The Driver must follow the specified route during the hours of 9:00 am to 4:00 pm, Monday thru Friday. The HP technician should initial the RMSR when the carrier receives the permit.

5.1.12 The carrier must be informed that the shipment is "Exclusive Use Only." A copy of Exclusive Use Instructions, Enclosure 5, should be signed by the C-E representative and driver and copies of the signed document issued to the driver and C-E representative. The RMSR should be initialed by the H.P. Technician when the signed instruction sheet has been presented to the driver.

5.1.13 A trip pack must include the following items:

A. A Bill of Lading should be filled out as per example, Enclosure 6. The information necessary for the proper completion is found on the RMSR.

B. A copy of the RMSR and supplement, if applicable.

C. A copy of the signed "Exclusive Use Instructions."

D. Vehicle Survey Form

E. Connecticut State Permit

F. The key to the trailer locks, if applicable.

* G. The Shipper's Certification Statement has been made a part of the Bill of Lading, and a signature of the H.P. Representative should appear in the designated Section.

5.1.14 A copy of all shipping information must be forwarded
* to the RSO and an entry made in the weekly report.

5.1.15 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.2 Limited Quantity Shipments by Surface Transportation

5.2.1 A signed Notice of Shipment, Enclosure 1, giving as much information as possible will be the means of setting up a limited quantity shipment from the Windsor site. The cognizant engineer or supervisor is responsible for initiating this document ng

this document as a reference, start filling out RMSR, Enclosure 2.

5.2.2 Determine isotopes and curie estimates using smear and meter surveys. Record results on RMSR.

5.2.3 Verify that quantities and isotopes qualify as limited quantity as specified by 49 CFR 173. The limits are less than 1×10^{-3} A_1 / A_2 quantities listed for each isotope. For instance, the maximum amount of Co^{60} would be 7 mci solid, or 0.7 mci liquid. Cs^{137} limits are 10 mci solid, 1 mci liquid.

5.2.4 All packages must be strong, tight containers. All containers must be sealed or banded. All packages must have an inner packaging of sealed plastic in order to prevent, as much as possible, contaminating the outer package. All closures, locks, and/or devices used to attach lids or covers to the container must be in place to qualify as strong, tight.

5.2.5 The maximum dose rate at the surface of the package, as determined by the required survey cannot exceed 0.5 mrem/hr.

5.2.6 A statement must be placed inside the package describing the radioactive materials being shipped as "RADIOACTIVE". In addition, the following statement must be placed inside the package:

CONSIGNOR: COMBUSTION ENGINEERING, INC.

"This package conforms to the conditions and limitations specified in 49 CFR 173. 421 for Exempted Radioactive Material Limited Quantity NOS UN 2910"

The RMSR should be initialed by the H.P. Technician at the proper location, to indicate completion of this requirement.

5.2.7 A trip pack should include the following items:

A. A completed RMSR.

B. A Bill of Lading giving information for carrier and billing information.

5.2.8 The package must have an address label with the name of the consignee durably attached to the top and sides.

5.2.9 A packing list with an RMSR and Bill of Lading should be attached to the side of the container.

5.2.10 A copy of all shipping information must be

forwarded to the RSO and an entry made in the weekly report.

Note: Outside of package must not say "Radioactive".

5.2.11 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.3 Normal form shipments, non-exclusive use surface transportation containing A_2 quantities.

5.3.1 A signed Notice of Shipment, Enclosure 1, giving as much information as possible will be the means of setting up a shipment of radioactive material from the Windsor site. The cognizant engineer or supervisor is responsible for initiating this document. Using the Notice of Shipment, a RMSR can be started, Enclosure 2.

5.3.2 Determine isotopes and curie estimates using smear and meter surveys. Record results on RMSR and/or supplement form.

5.3.3 Ensure that the amount of curies listed is less than the maximum A_2 quantities allowed for each isotope listed, as per 49 CFR 173.

5.3.4 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.3.5 Check off proper shipping name as Radioactive Material, NOS UN 2982 and specify non-exclusive use.

5.3.6 All containers must be DOT 7A and must be stenciled with the marking DOT 7A TYPE A UN 2982. To ensure containers are in fact DOT 7A, check with the RSO who will verify that certification papers are available prior to use of the container. Write DOT 7A on RMSR in proper location if this condition is satisfied.

5.3.7 Determine label requirements; White I, Yellow II, Yellow III; from meter survey results of each container. Complete the information required by the label; curie content, major isotopic content, Transport Index (TI); and place labels on opposite sides of the package. Record the above information on the RMSR.

Label Type	White I	Yellow II	Yellow III
Max Dose Rate	0.5 mrem/hr contact	50 mrem/hr contact	200 mrem/hr contact
Transport Index(TI) maximum	--	1 mrem/hr at 1 meter	10 mrem/hr at 1 meter

NOTE: Transport Index is defined as the highest dose rate in millirem at 1 meter from the package rounded up to the nearest tenth of a mrem/hr.

5.3.8 Mark the gross weight of the container on top and side of the container and record on the RMSR.

5.3.9 Each package must be sealed or secured so as to easily determine if the package has been opened.

5.3.10 All packages must have an address label with the consignee's name and address durably attached to two locations on each package.

5.3.11 The trip pack must be completed and firmly affixed to the container with the packing list. The trip pack must include the following items:

A. Completed RMSR
B. Bill of Lading
C. Packing list of all materials inside each container.
D. If more than one package is shipped, then an RMSR supplement Sheet must be included as well as any individual package survey sheets.
E. Any special instructions, if required, as to hazards which might be encountered during opening of package.

5.3.12 A copy of all shipping information will be forwarded to the RSC and an entry made in the weekly report.

5.4 Shipment of Radioactive Materials by Air Freight.

5.4.1 With the exception of radiopharmaceuticals, the shipment of radioactive materials on passenger aircraft is prohibited. Therefore, no radioactive materials will be accepted for shipment by air unless they are designated for cargo aircraft.

5.4.2 Air shipments of limited quantities of radioactive materials must be prepared in accordance with Section 5.2, of this RPI.

The following items must be added to the air bill of lading:

1. "RADIOACTIVE MATERIAL LIMITED QUANTITY NOS-UN 2910"

c. "No label required".

5.4.3 Air shipment of normal form radioactive materials must be prepared in accordance with Section 5.3 of this RPI. In addition, an air carrier air bill and a shipper's Certification of Hazardous Material must be completed, Enclosure 5.

The certification form is usually a part of a carrier's air bill and has written instructions attached. If
* this is not the case, a blank copy of the form must be obtained from the carrier or the RSO.
Instructions on how to properly complete the form can
* be obtained from the RSO if not available from the carrier.

If the shipment is labeled as Yellow III, a permit must be obtained from the State of Connecticut to transport the material from the Windsor site to the carrier's terminal.

Contact the air carrier prior to shipment to determine weight or size limitations for the container being shipped. This applies whether or not the shipment is radioactive.

The Air Bill must have "cargo aircraft only" marked where required.

* A "Danger" "Cargo Aircraft Only" sticker is required on the outside of the package.

* 5.4.4 A copy of all shipping information must be forwarded to the RSO and an entry made in the weekly report.

* 5.4.5 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.5 Shipment of Radioactive Materials via Company-owned or leased vehicles.

5.5.1 The use of privately owned vehicles to ship radioactive materials is prohibited. Radioactive materials may, however, be shipped using Company owned or leased vehicles under certain conditions.

5.5.2 The use of Company owned or leased vehicles are limited to the following type of shipments:

a. Limited Quantity Shipments
b. Packages designated White I or Yellow II
c. Air shipments designated Yellow III being moved to or from the carrier's terminal only.

5.5.3 Personnel transporting radioactive material via company-owned or leased vehicles must be trained

radiation workers and the driver must be a DOT certified driver in accordance with DOT regulations 49 CFR Part 391.

5.5.4 Radioactive materials transported in company-owned or leased vehicles are limited to one day's travel defined as 300 miles or 8 hours' time, whichever comes first. In addition, the vehicle must travel directly from the shipping licensee to the receiving licensee.

5.5.5 All vehicles transporting radioactive materials must travel routes designated by the Manager, RPS, or his designee.

5.5.6 A copy of all shipping information must be forwarded * to the RSO and an entry made in the weekly report.

* 5.5.7 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.6 Receipt of Radioactive Material

5.6.1 A Notice of Shipment, Enclosure 1, will be made by anyone initiating a shipment of CE radioactive materials from any location to the Windsor site. This notice should include information on the consignor and load. The Notice of Shipment will * enable the RSO or his Designee to assign a carrier, obtain permits, and establish a schedule for shipment.

5.6.2 The Windsor Site Shipping and Receiving Department or the Windsor Site Security Force (after hours) shall notify one of the following individuals upon arrival of any Radioactive Shipments.

	Ext.	Home Phone	Pager
J. M. Limbert	X2145	[redacted]	[redacted]
S. M. Sorensen	X5285		
W. A. Pagel	X5600		
* R. B. Clark	X2896		

5.6.3 Upon notification of arrival of radioactive material one of the individuals designated, above, will either direct exclusive use shipments to the Building 2 area or dispatch an RPS representative to Shipping and Receiving to perform a Receipt Survey.

5.6.4 Packages shall not be shipped to a carrier's * terminal and held for pickup by C-E unless the shipment is approved by the RSO or Manager, RPS at least 24 hours in advance.

5.6.5 Receipt Surveys

A. **Exclusive Use Shipments**

1. Using a Radioactive Materials Transport Vehicle Survey Sheet (Enclosure 3), measure and record the vehicle dose rates. CONTACT

2. Verify that tractor and trailer information match the shipping papers.

3. Inspect the interior of the vehicle to determine if any packages have been damaged during shipment.

4. Conduct a smear survey of the interior of the vehicle to determine loose surface contamination levels.

5. If any one of the following conditions are found, notify the RSO or Manager of RPS immediately.

   a. Vehicle contact dose rates exceeding 200 mrem/hr.

   b. Dose rates at 2 meter from the vehicle exceeding 10 mrem/hr.

   c. Contamination levels inside the vehicle exceeding 1,000 Dpm/100 cm^2.

6. Conduct a Hot Particle Survey as per RPI 21.

7. During unloading a smear and meter survey of all packaging must be completed. Each package shall have a Caution Radioactive Material label affixed.

8. After unloading, conduct a trailer release survey and file for further reference.

B. Individual Package or Shipment Received as Type A quantity or less.

1. Using a Survey Form for Non-Routine Survey, sketch the package and make a smear and meter survey of the package and record the results on the survey form.
2. If dose rates exceed those specified by the shipping papers or labeling, notify RSO or Manager RPS, immediately.

3. If the smear survey indicates loose surface

contamination greater than 1000 DPM/100 cm 2, notify the RSO or Manager RPS, immediately.

4. All packages shall be opened in a Radiological Control Zone under continuous surveillance of an RPS technician.

5. A copy of shipping records are to be forwarded to the RSO and the information recorded in the weekly report.

6. Packages which contain radioactive material in excess of Type A quantities shall be monitored for radiation levels as soon as practicable after receipt but no later than 3 hours after receipt during normal working hours or 18 hours after receipt during secured hours.

   If contact dose rates exceed 200 mrem/hour or dose rates at three feet exceed 10 mrem/hour, the Manager RPS or the RSO shall be notified immediately.

7. All packages received and transferred to storage shall have a Caution Radioactive Material label attached.

MS-16
K9

COMBUSTION ENGINEERING

March 30, 1990
DDH-90-011
Page 1 of 3

U. S. Nuclear Regulatory Commission
Nuclear Materials Safety Section B
Division of Radiation Safety and Safeguards
475 Allendale Road
King of Prussia, PA 19406

ATTENTION: Mr. Francis M. Costello
Control No. 111757

Dear Mr. Costello:

This letter is in response to your letter of March 12, 1990, which requested additional information concerning your review of License No. 06-00217-06, Docket No. 030-3754.

1. Information for the sealed sources and devices requested is contained in Attachment No. 1. (Please replace all pages in Items 5 and 6 with this information.)

2. In reference to Radiation Safety Committee Meetings: We confirm that our Radiation Safety Committee shall meet once each calendar quarter and minutes of these meetings will be recorded. (Please replace page 2 of 56 in Item 10 with the page in Attachment No. 2).

3. In reference to Radiological Protection Instructions: We confirm that licensed materials shall be used in accordance with the requirements of approved Radiological Protection Instructions. (Please replace pages 11 and 12 of Section 10.5 "Administrative Procedures" - Item 10 with Attachment No. 3.)

4. In reference to how our personnel monitoring will meet the requirements of 10CFR20.202.(C): Our NVLAP accreditation covers Category VII, which is mixed Beta and Gamma radiation fields. Any person who may be exposed to Neutron radiation is monitored with vendor supplied Neutron badges. The vendor shall be NVLAP accredited in categories appropriate to our monitoring requirements. (Please replace page 52 Section 10.5, 10.5.7 of Item 10 with Attachment No.3.)

C/3

ITEM # 3 OFFICIAL RECORD COPY ML 10

111757

Power Systems
Combustion Engineering, Inc.
1000 Prospect Hill Road
Post Office Box 500
Windsor, Connecticut 06095-0500
(203) 688-1911
Telex: 99297

APR 05 1990

5. In reference to criteria for the selection of personnel to receive whole body counts: The basic selection criterion is: "Any person who works on a radiation work permit, since his previous whole body count, is scheduled to be counted." (Please replace pages 55 and 56 of 56 with Attachment No. 8.)

6. In reference to a training program for ancillary personnel: Any person not trained who enters a restricted area, shall be escorted or under surveillance of a trained radiation worker. Security and other ancillary personnel are instructed not to enter restricted areas unless they have been trained in accordance with the radiation worker training program Item 10, Section 10.5 Paragraph 10.5.6. (Please replace page Item 10 page 42 of 56 with Attachment No. 5.)

7. In reference to laboratory instructions: All work with radioactive materials is conducted under radiation work permits by trained radiation workers. Further, all work with radioactive material is performed under the supervision of radiological controls personnel. However, a specific posting of "do's and dont's" will be made for each work area. A sample posting is included as Attachment No. 6.

8. In regard to emergency procedures:

   A. All work with radioactive materials is conducted under a radiation work permit and supervised by radiological protection personnel.

   B. Restricted areas containing radioactive material are locked with the keys being controlled by radiological protection personnel.

   C. The site security guard force has a call list of radiological protection personnel for after hours use in case of emergency.

   D. Personnel are not allowed to work with radioactive materials unless a radiological protection person is on site and available.

   E. We will draft a Radiological Protection Instruction (RPI) to address emergency and place conspicuous postings with personnel contacts in appropriate work areas.

9. In regard to procedures for examining incoming packages for leakage, contamination or damage and for safely opening packages in accordance with 10CFR20.205: Attachment No. 7 contains our complete procedure for packaging, transport and receipt of radioactive materials. (Please add this in Item 10 as Section 10.5.10.)

10. In regard to evaluations and actions to prevent recurrence resulting from intakes of radioactive materials:

    A. Breathing zone air sampling is required whenever loose contamination on equipment exceeds, 10,000 DPM/100 CM2.

    B. If a breathing zone air sample indicates an intake of four (4) MPC.HOURS or greater; an evaluation of the work is made and the individual is given a whole body count to quantify the suspected intake.

    C. Generally, a suspected intake of one (1) MPC.HOURS is cause for evaluation and application of work restrictions and/or greater engineered controls.

    D. If a suspected intake of greater than forty (40) MPC.HOURS should occur; a complete review of our system of controls and surveillance would take place. No further refurbishment work on contaminated equipment would be allowed without full-time radiological protection coverage; until the root cause for the intake was corrected. (Please see Item 10, Section 10.5.9 Bioassay Program-Attachment No. 8 replaces P.56 of 56 in Item 10.)

I trust that the enclosed information adequately answers your questions. If, however, you need additional information please contact me at 203-285-5285.

Very truly yours,

COMBUSTION ENGINEERING, INC.

Stephen M. Sorensen
Manager, Radiological
Protection Services

SMS/blm

Attachments

ATTACHMENT NO. 1

REPLACES

ITEM NO. 5 "RADIOACTIVE MATERIAL" (PAGE 2 OF 2)

AND

ITEM NO. 6 "PURPOSES FOR WHICH RADIOACTIVE MATERIAL WILL BE USED" (PAGE 2 OF 2)

ITEM 5

RADIOACTIVE MATERIAL

Item 5 RADIOACTIVE MATERIAL

a. Element and Mass No.	b. Chemical and/or Physical Form	c. Maximum Amount which will be possessed at any one time
A. Any by product material with Atomic Numbers between 1 and 103, inclusive.	A. Any	A. Not to exceed 2 curies total
B. Any by product material	B. Irradiated and/or contaminated reactor components, inspection and test equipment, reactor coolant samples, monitoring instruments, test samples and calibration sources.	B. Not to exceed 50 curies totals
C. Cesium 137	C. Sealed sources	C. 1.2 curies nominal
D. Cesium 137	D. Sealed sources	D. 215 curies
E. Cobalt 60	E. Sealed Sources	E. 259 Millicuries
F. Americium 241	F. Sealed neutron sources	F. 10 sources not to exceed 1.curie per source
G. Americium 241	G. Sealed neutron sources	G. 10 sources not to exceed 10 curies per source
H. Neptunium 237	H. Oxide Wires	H. 10 wires not to exceed .5 per wire
I. Uranium 233	I. Any	I. 1 gram
J. Uranium 235	J. Any	J. 7 gram
K. Plutonium	K. Any	K. 1 milligram
L. $U_3 O_8$	L. Fission Chambers	L. 8 Chambers not to exceed 1.7 grams U235 per chamber

Item 5 RADIOACTIVE MATERIAL (cont.)

Sealed Source Information

A. N/A
B. N/A
C. Cesium 137 - Amersham Model CDC.91, Type X.9 Capsule - 1.2 Curies
D. Cesium 137 - Listed below
    1. Technical Operations, Inc. - Model SK1936, S/N S-171 - 2.0 Curies
    2. International Chemical and Nuclear - Model 375, S/N -771 - 1.19 Millicuries
    3. Technical Operations, Inc. - Model #FM6, S/N 181 S/N 182 - 30 Curies each
    4. Measurements, Inc. - Model SK2085, S/N S-274 - 10 Curies
    5. New England Nuclear - Model NER-401H S/N CS-160 - 9.75 Millicuries
    6. Technical Operations, Inc. - Model 775 S/N-5136 S/N-5137 - 25 Curies each.
    7. Ohmart Corp. Model HM-8 S/N 6673 - 150 Millicuries
    8. Amersham - Model CDC.190 - S/N 7017GN - 500 Millicuries
E. Colbalt 60 - Listed below
    1. ICI - Model 375 S/N 1402 - 128 Millicuries
    2. ICN - Model 375 S/N 1339 - 120 Millicuries
F. Americium 241 - Monsanto Research Corp. - Model 2723A - 1 Curie
G. Monasanto Research Corp. - Model 2727B - 20 Curies
H. N/A

Item 5 RADIOACTIVE MATERIAL (cont)

Sealed Source Storage Container or Device

A. N/A
B. N/A
C. J. L. Shepherd, Model 28-6D Calibrator - Approved Device
D. Cesium 137 - Listed Below
    1. Gamma Densitometer - Model 660
    2. Lead Pig - Calibration Source
    3. Gamma Densitometer - Model 789
    4. Gamma Densitometer - Model 807 #35
    5. Lead Pig - Calibration Source
    6. Gamma Densitometer - Model 755
    7. Gamma Densitometer - Model RTR-N#221
    8. Lead Pig - Calibration Source
E. Cobalt 60 Listed Below
    1. Lead Pig - Calibration Source
    2. Lead Pig - Calibration Source
F. Americium 241 - Listed Below
    1. DOT 7A Type A Container - Certificate No. USA/0043/S
G. Americium 241 - Listed Below
    1. DOT 7A Type A Container - Certificate No. USA/0043/S
H. Device Model WL-637A by Imaging and Sensing Technology Corp.

ITEM 5

RADIOACTIVE MATERIAL

Item 5 RADIOACTIVE MATERIAL

a. Element and Mass No.	b. Chemical and/or Physical Form	c. Maximum Amount which will be possessed at any one time
A. Any by product material with Atomic Numbers between 1 and 103, inclusive.	A. Any	A. Not to exceed 2 curies total
B. Any by product material	B. Irradiated and/or contaminated reactor components, inspection and test equipment, reactor coolant samples, monitoring instruments, test samples and calibration sources.	B. Not to exceed 50 curies totals
C. Cesium 137	C. Sealed sources	C. 1.2 curies nominal
D. Cesium 137	D. Sealed sources	D. 215 curies
E. Cobalt 60	E. Sealed Sources	E. 259 Millicuries
F. Americium 241	F. Sealed neutron sources	F. 10 sources not to exceed 1.curie per source
G. Americium 241	G. Sealed neutron sources	G. 10 sources not to exceed 10 curies per source
H. Neptunium 237	H. Oxide Wires	H. 10 wires not to exceed .5 per wire
I. Uranium 233	I. Any	I. 1 gram
J. Uranium 235	J. Any	J. 7 gram
K. Plutonium	K. Any	K. 1 milligram
L. $U_3 O_8$	L. Fission Chambers	L. 8 Chambers not to exceed 1.7 grams U235 per chamber

Item 5 RADIOACTIVE MATERIAL (cont.)

Sealed Source Information

A. N/A
B. N/A
C. Cesium 137 - Amersham Model CDC.91, Type X.9 Capsule - 1.2 Curies
D. Cesium 137 - Listed below
    1. Technical Operations, Inc. - Model SK1936, S/N S-171 - 2.0 Curies
    2. International Chemical and Nuclear - Model 375, S/N -771 - 1.19 Millicuries
    3. Technical Operations, Inc. - Model #FM6, S/N 181 S/N 182 - 30 Curies each
    4. Measurements, Inc. - Model SK2085, S/N S-274 - 10 Curies
    5. New England Nuclear - Model NER-401H S/N CS-160 - 9.75 Millicuries
    6. Technical Operations, Inc. - Model 775 S/N-5136 S/N-5137 - 25 Curies each.
    7. Ohmart Corp. Model HM-8 S/N 6673 - 150 Millicuries
    8. Amersham - Model CDC.190 - S/N 7017GN - 500 Millicuries
E. Colbalt 60 - Listed below
    1. ICI - Model 375 S/N 1402 - 128 Millicuries
    2. ICN - Model 375 S/N 1339 - 120 Millicuries
F. Americium 241 - Monsanto Research Corp. - Model 2723A - 1 Curie
G. Monasanto Research Corp. - Model 2727B - 20 Curies
H. N/A

Item 5 RADIOACTIVE MATERIAL (cont)

Sealed Source Storage Container or Device

A. N/A
B. N/A
C. J. L. Shepherd, Model 28-6D Calibrator - Approved Device
D. Cesium 137 - Listed Below
    1. Gamma Densitometer - Model 660
    2. Lead Pig - Calibration Source
    3. Gamma Densitometer - Model 789
    4. Gamma Densitometer - Model 807 #35
    5. Lead Pig - Calibration Source
    6. Gamma Densitometer - Model 755
    7. Gamma Densitometer - Model RTR-N#221
    8. Lead Pig - Calibration Source
E. Cobalt 60 Listed Below
    1. Lead Pig - Calibration Source
    2. Lead Pig - Calibration Source
F. Americium 241 - Listed Below
    1. DOT 7A Type A Container - Certificate No. USA/0043/S
G. Americium 241 - Listed Below
    1. DOT 7A Type A Container - Certificate No. USA/0043/S
H. Device Model WL-637A by Imaging and Sensing Technology Corp.

ITEM 6

PURPOSES FOR WHICH

LICENSED MATERIAL

WILL BE USED

Item 6 Purposes For Which Radioactive Material Will Be Used

CATEGORY	USE(s)
A,B,D, & E	For use in research and development as defined in 10CFR30.4(q) and for possession incident to maintenance, repair, calibration, and decontamination of reactor related components, systems and instrumentation.
C.	For use in J. L. Shepherd Model 28-6 calibrator for calibration of dosimeters and instruments.
F.	For use in testing and calibration of boron measuring devices and for distribution to persons holding operating reactor licenses and/or to persons authorized to receive the licensed materials pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.
G. and H.	For possession, storage, and transfer to persons holding operating reactor licenses and/or to persons authorized to receive the licensed material pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.
I,J, and K	For possession as surface contamination on tools or equipment incident to maintenance, repair, calibration, modification or storage.
L.	For use in constructing fission chambers for distribution to persons holding operating reactor licenses and/or to persons authorized to receive the licensed materials pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.

ITEM 6

PURPOSES FOR WHICH

LICENSED MATERIAL

WILL BE USED

Item 6 Purposes For Which Radioactive Material Will Be Used

CATEGORY	USE(s)
A,B,D, & E	For use in research and development as defined in 10CFR30.4(q) and for possession incident to maintenance, repair, calibration, and decontamination of reactor related components, systems and instrumentation.
C.	For use in J. L. Shepherd Model 28-6 calibrator for calibration of dosimeters and instruments.
F.	For use in testing and calibration of boron measuring devices and for distribution to persons holding operating reactor licenses and/or to persons authorized to receive the licensed materials pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.
G. and H.	For possession, storage, and transfer to persons holding operating reactor licenses and/or to persons authorized to receive the licensed material pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.
I,J, and K	For possession as surface contamination on tools or equipment incident to maintenance, repair, calibration, modification or storage.
L.	For use in constructing fission chambers for distribution to persons holding operating reactor licenses and/or to persons authorized to receive the licensed materials pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.

ATTACHMENT NO. 2

REPLACES

ITEM NO. 10 "RADIATION SAFETY PROGRAM"
10.3 "RADIATION SAFETY COMMITTEE"
(PAGE 2 OF 56)

Item 10 RADIATION SAFETY PROGRAM

10.1 Previous Licenses - This application requests continuation of the use of Radioactive Materials under License Number 06-00217-06 as renewed on January 31, 1984 under Control Number 16364 and Docket Number 030-03754 as amended through Amendment Number 35 dated October 30, 1987.

10.2 Organization - Receipt, acquisition, possession, use and transfer of licensed radioactive materials shall be under the control of Nuclear Power Business - Nuclear Services. The Vice-President, Nuclear Services has delegated through the Director, Outage Services to the Manager, Radiological Protection Services the responsibility for all Radiological Protection activities associated with Materials License 06-00217-06. The Manager and/or The Radiation Safety Officer have full authority to halt any operation which could violate License Conditions, Federal, State or Local applicable laws and/or safety standards.

Attachment 10.1 shows the current organization chart.

10.3 Radiation Safety Committee - The Radiation Safety Committee described in item 7.2 shall meet once each calendar quarter and minutes of these meetings shall be recorded and maintained on file.

Item 10 RADIATION SAFETY PROGRAM

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Attachment 10.1 shows the current organization chart.

10.3 Radiation Safety Committee - The Radiation Safety Committee described in item 7.2 shall meet once each calendar quarter and minutes of these meetings shall be recorded and maintained on file.

ATTACHMENT NO. 3

REPLACES

ITEM NO.	10	"RADIATION SAFETY PROGRAM"
SECTION	10.5	"ADMINISTRATIVE PROCEDURES"
PARAGRAPH	10.5.7	"PERSONNEL DOSIMETRY" (PAGE 52 OF 56)

Item 10 Radiation Safety Program (Cont'd)

10.5 Administrative Procedures

10.5.7 Personnel Dosimetry- is accomplished using an in-house, NVLAP accredited, Panasonic TLD System in accordance with 20.202(c). The certificate of accreditation is Attachment 10.7.

Neutron monitoring is accomplished through the use of NVLAP accredited vendor badges for personnel requiring this monitoring.

In the event that either the in-house system is disabled or Combustion Engineering, Inc. no longer is eligible for accreditation arrangements are available to have our dosimeters processed according to regulations.

Item 10 Radiation Safety Program (Cont'd)

10.5 Administrative Procedures

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ATTACHMENT NO. 4

REPLACES

ITEM NO. 10	"RADIATION SAFETY PROGRAM"
SECTION 10.5	"ADMINISTRATIVE PROCEDURES" (PAGES 11 AND 12 OF 56)

Item 10 Radiation Safety Program (Cont'd)

10.5 Administrative Procedures - In addition to any other requirements or procedures imposed by regulation or license, Specific Radiological Protection Instructions are prepared, approved and issued in accordance with Attachment 10.A.3.

"Radiological Protection Instructions (RPIs)"
(DDH-87-623 Memo)
and
"Radiological Protection Instructions (RPIs)
Submittal, Approval and Issuance"
(DDH-87-624 Memo)

10.5.1 Radiation Work Permits - All work with radioactive materials is controlled by Radiation Work Permit(s). Attachment 10.B.3 presents the procedure applicable to the use of these permits.

Item 10 Radiation Safety Program (Cont'd)

10.5 Administrative Procedures - In addition to any other requirements or procedures imposed by regulation or license, Specific Radiological Protection Instructions are prepared, approved and issued in accordance with Attachment 10.A.3.

"Radiological Protection Instructions (RPIs)"
(DDH-87-623 Memo)
and
"Radiological Protection Instructions (RPIs)
Submittal, Approval and Issuance"
(DDH-87-624 Memo)

10.5.1 Radiation Work Permits - All work with radioactive materials is controlled by Radiation Work Permit(s). Attachment 10.B.3 presents the procedure applicable to the use of these permits.

ATTACHMENT 10.A.3

RADIOLOGICAL PROTECTION INSTRUCTIONS

PREPARATION, ISSUANCE AND CONTROL

ATTACHMENT 10.A.3

RADIOLOGICAL PROTECTION INSTRUCTIONS

PREPARATION, ISSUANCE AND CONTROL

INTEROFFICE CORRESPONDENCE

To: Radiological Protection Services

Date: March 2, 1987

From: P. R. Rosenthal
DDH-87-623

Location: PSES-GC27

Subject: RADIOLOGICAL PROTECTION INSTRUCTIONS (RPIs)

In order to maintain consistency and clarity of RPIs, the following is required for all RPIs generated. These formats and associated contents will allow better control and auditability of the overall Radiological Protection Program to assure compliance with license conditions and that ALARA exposures are achieved.

FORMAT:

I.	PURPOSE	Statement as to why the RPI is issued.
II.	SCOPE	Who/what is being affected by the RPI.
III.	REFERENCES	Documents that are directly or indirectly utilized as a basis for the RPI.
IV.	SPECIFIC DEFINITIONS	Definitions of items that are procedure or site-specific.
V.	INSTRUCTION	Specific step-by-step instructions to accomplish the stated purpose of the RPI.
VI.	RECORDS	Documents (including computer disks) and their associated retention, protection and disposal methods associated with the implementation of the RPI.
VII.	QUALITY ASSURANCE	The description of the method that assures the RPI is functioning according to its intended purpose.
VIII.	APPENDICIES	Forms or examples associated with the RPI.

BUSTION ENGINEERING

To: Radiological Protection Services Personnel

May 11, 1987

P. R. Rosenthal
9400-0202
DDH-87-624

DMS for PRR.

Subject: RADIOLOGICAL PROTECTION INSTRUCTIONS (RPIs) SUBMITTAL, APPROVAL AND ISSUANCE

The following method shall be used to submit, review, approve and issue RPIs.

1) RPI writing shall be assigned by the Manager, RPS or his designee.

2) The author shall draft the RPI in accordance with the format shown in DDH-87-623 (attached).

3) The author shall submit the RPI to the "designated Word Processing Operator" who will type it on the "RPI" computer disk as a "DRAFT".

4) A "DRAFT RPI" shall be then submitted to P. R. Rosenthal, J. M. Limbert, S. M. Sorensen, R. B. Clark and W. A. Pagel for review and comment. Comments/suggestions shall be forwarded to S. M. Sorensen for review within two working weeks of receipt.

5) Once all comments have either been incorporated or addressed, the RPI shall be given to the "designated W.P. Operator" for final correction and issurance.

6) All RPIs will be issued as originals or reissued in their entirety as a "revision" with the appropriate revision number.

7) The "designated W.P. Operator shall maintain the "Master Copy" of the RPI manual and issue controlled copies as necessary.

8) Upon receipt of the original approved version of an RPI or revision, the designated W.P. Operator will issue a new table of contents reflecting changes. the new or revised RPI and a receipt form.

9) The receipt form is signed by the controlled copy holder and returned to the designated W.P. Operator as soon as the appropriate additions/ changes have been made to his/her manual.

10) These receipt forms are then filed with the master RPI book to assure all personnel with controlled copies have made the appropriate changes/ additions to their manual.

The designated Word Processor Operator and "Master RPI Manual Holder" is:

Controlled Copies:

#1	W. A. Pagel	9403-0201
#2	R. B. Clark	9403-0501
#3	P. R. Rosenthal	9400-0202
#4	S. M. Sorensen	9403-0202
#5	J. M. Limbert	9403-M088

ATTACHMENT 10.B.3

RADIATION WORK PERMITS

ATTACHMENT NO. 5

REPLACES

ITEM NO.	10	"RADIATION SAFETY PROGRAM"
SECTION	10.5	"ADMINISTRATIVE PROCEDURES"
PARAGRAPH	10.5.6	"FORMAL TRAINING IN RADIATION SAFETY" (PAGE 42 OF 56)

Item 10 Radiation Safety Program (Cont'd)

10.5 Administrative Procedures

10.5.6 Formal Training in Radiation Safety- Prior to working with radioactive materials, each new employee is given a Radiation Workers Training Program. Each person who actively works with radioactive materials is given an annual refresher training program. The Radiation Workers Training Program meets the requirements of USNRC Regulatory Guide 8.27 "Radiation Protection Training for Personnel at Light Water Cooled Nuclear Power Plants, "Reg. Guide 8.29 " Instruction Concerning Risks from Occupational Radiation Exposure," and INPO 82-004 Guidelines for General Employee Training." This training program consists of approximately 16 hours of classroom instruction and 8 hours of practical applications. A copy of the lesson plans which comprise the training program is shown in Attachment 10.6.

Personnel not trained in accordance with the above, who require access to restricted areas, shall be escorted or under surveillance of a trained radiantion worker.

ATTACHMENT NO. 6

WORK AREA RADIATION

SAFETY INSTRUCTIONS

WORK AREA_____ WORK AREA RADIATION DATE_____

SAFETY INSTRUCTION

(1) NO EATING, DRINKING, SMOKING OR CHEWING.

(2) PERSONNEL MONITORING DEVICES TO BE WORN AT ALL TIMES.

(3) NO FOOD, DRINK OR PERSONAL EFFECTS IN THIS AREA.

(4) DISPOSE OF RADIOACTIVE WASTE PROPERLY.

(5) MONITOR (FRISK) YOURSELF UPON EXIT.

(6) KEEP HANDS AWAY FROM FACE AND MOUTH.

(7) READ, UNDERSTAND AND COMPLY WITH YOUR RWP.

(8) WHEN IN DOUBT CALL HP AT EXT. 5600

ATTACHMENT NO. 7

TRANSPORTATION OF RADIOACTIVE MATERIALS

BECOMES ITEM 10
SECTION 10.5
PARAGRAPH 10.5.10
PAGES

ITEM 10

RADIATION SAFETY PROGRAM

10.5 ADMINISTRATIVE PROCEDURES

10.5.10 TRANSPORTATION OF RADIOACTIVE MATERIALS

COMBUSTION ENGINEERING, INC.

RADIOLOGICAL PROTECTION INSTRUCTION

RPI-13
REV. 1

TRANSPORTATION OF RADIOACTIVE MATERIALS

PREPARED BY: _____ DATE: 10/20/88

APPROVED BY: _____ DATE: 11/8/88

CONTROL COPY NO.: 4

1.0 INTRODUCTION

This Radiological Protection Instruction (RPI) provides procedural steps for receiving, opening, packaging, and shipping radioactive materials under six different conditions. These six conditions have been selected because they are the most common type of radioactive materials transported to and from the Windsor site. The reader is cautioned that this RPI is not intended to be a substitute for regulatory requirements. Persons responsible for the receiving, packaging, and shipping of radioactive materials must be knowledgeable of U.S. Nuclear Regulatory Commissions regulations 10CFR parts 20, 30, 70, 71 and U.S. Department of Transportations regulations 49 CFR parts 100 through 400. Receiving, packaging and/or shipping of radioactive materials under different conditions than those covered by this * RPI shall be approved by either the Radiation Safety Officer, or the Manager-Radiological Protection Services.

1.1 Procedure for the shipment of LSA materials under Exclusive Use rules from the Windsor site.

1.2 Procedure for the shipment of Limited Quantity of Radioactive Materials by surface transportation.

1.3 Procedure for Non-Exclusive Use Shipment of Normal Form Radioactive Materials by surface transportation.

1.4 Procedure for the shipment of Radioactive Materials by Air Freight.

1.5 Procedure for the shipment of Radioactive Materials via Company-owned or Leased Vehicles.

1.6 Procedure for the receipt of Radioactive Material

2.0 REFERENCES

2.1 Title 10, Part 71 of the Code of Federal Regulations.

2.2 Title 49, Parts 172, 173 and 175 of the Code of Federal Regulations.

3.0 ENCLOSURES

3.1 Notice of Shipment

3.2 Radioactive Materials Shipment Record and Supplement

3.3 Vehicle Survey Sheet

3.4 Connecticut State Permit Application

3.5 Exclusive Use Instruction Sheet.

3.6 C-E Bill of Lading Example

3.7 Shipper's Certificate of Hazardous Materials for Air Shipments

4.0 GENERAL INSTRUCTIONS

4.1 Any radioactive shipment incoming or outgoing which falls outside the specific instructions in this RPI must be * immediately brought to the attention; of the Radiological Safety Officer (RSO), or the Manager RPS.

4.2 Prior to the shipment of radioactive materials, verification that the consignee is authorized to receive the type, form, and quantity of radioactive material must be obtained.

Forms of acceptable verification are:

1. Current copy of the consignee's specific license or registration certificate issued by the NRC or an Agreement State.

2. A written certification by the consignee that he is authorized by license, registration certificate, or U.S. government contract to receive the type, form, and quantity of radioactive material. This certification must specify the license, registration number, or contract number, issuing agency, and the expiration date.

* 4.3 The above stated verification must be in the possession of the shipper.

4.4 All packages shall not have any dimension less than 4 * inches. If any liquids are present, there must be enough absorbent materials to absorb twice the amount of liquids and the liquids shall be in a sealed inner container.

5.0 INSTRUCTION

5.1 Procedure for the shipment of LSA radioactive materials under Exclusive Use Rules from the Windsor site.

5.1.1 Notice of Shipment

A signed "Notice of Shipment", Enclosure 1, giving as much information as possible will be the means of setting up a shipment of radioactive materials from the site. The cognizant engineer or supervisor is responsible for initiating this document. Using this document as a reference, start filling out a Radioactive Material Shipment Record RMSR, Enclosure 2.

5.1.2 Verify that the empty trailer is free of contamination. If the trailer was on site, then a record of the Release Survey is acceptable. If the trailer was just delivered. The vehicle must be * surveyed and the survey filed as a record.

5.1.3 All loading of the trailer should be under the cognizance of an RPS technician. All containers carrying radioactive material must have a "Radioactive LSA" sticker as well as a gross weight marking, per 172.302/310. In addition, each box should be marked UN 2912 for LSA materials. Each container should be marked as follows:

RADIOACTIVE-LSA UN 2912 GROSS WEIGHT _____

5.1.4 Each container will be surveyed for contamination and dose rates. The results will be recorded on the RMSR or supplement. The contamination survey shall include smears of both the contents and the outside of the container. The smears of the contents will be used to determine the isotopes by gamma spectroscopy.
* The dose rates should be used to determine the amount of radioactive material in curies in each container.

Note: Maximum Loose Surface Contamination levels on the outside of packages -

Beta-gamma	200 DPM/100 cm 2
Alpha	100 DPM/100 cm 2

* The Lead Senior H.P. Technician will determine the number and type of smears needed to determine if the above stated limits have been met.

The contamination levels, above, may be exceeded only by permission of the RSO or Manager, RPS.

5.1.5 No containers will be stacked unless the following conditions are met.

1. Gross weight less than 200 lbs.

2. Containers can be secured in place against movement during shipment.

3. Representatives of the RPS Group specifically approves the stacking.

5.1.6 All packages must be strong, tight containers. All containers must be banded or sealed. All packages must have an inner packaging of sealed plastic in order to prevent, as much as possible, contaminating the primary packaging. All closures, locks or devices used to attach the lids to the containers must be in place to qualify as "strong tight".
* In Shipments containing mixed lading (clean and hot), the clean packages must be packaged, labeled and secured according to the descretion of the Lead Senior H.P. Technician and a weight marked on all packages.

* Anytime banding is used to maintain LSA packaging as "strong tight", a banding tool and materials must be sent with the load to ensure the package can be made strong tight upon return from the site. The RMSR shall be initialed when the banding equipment is placed on the vehicle.

Should any dispute arise as to whether or not a package is strong tight, the Manager, RPS, or his designee will be the final judge.

5.1.7 Upon completion of loading, the trailer should be braced and shored to prevent, as much as possible, the shifting of the load during normal transportation. As a minimum, a senior H. P. technician shall inspect each load and initial the RMSR, if shored properly.

5.1.8 The vehicle should be locked and sealed, if applicable, and the seal number recorded on the RMSR. If the vehicle has more than one door, all doors should be sealed and the seal numbers recorded after the driver inspection. Drivers must be provided with keys to the locked vehicle.

* 5.1.9 The vehicle should be placarded with RADIOACTIVE placards and the RMSR initialed when complete.

* 5.1.10 The vehicle must be surveyed for dose rates on
* contact, and at 2 meters from the sides, and on contact with the bottom. The drivers cab area must also be surveyed to confirm that there is no place greater than 2 mrem/hr in the cab. The results of the survey should be recorded on the vehicle survey form and the form attached to the RMSR and the RMSR
* initialed by the technician making the survey. Maximum dose rate as per 49 CFR 173.441.

	Contact Dose
Packages only)	1000 mrem/hr (closed transport vehicle
	200 mrem/hr (open vehicle)

Note: Any package greater than 200 mrem/hr
* requires permission of the Manager RPS or RSO.

* Vehicle	surface - 200 mrem/hr 2 meters - 10 mrem/hr
Cab	any surface inside cab - 2 mrem/hr

5.1.11 A Connecticut State Permit, Enclosure 4, must be obtained prior to any LSA shipment leaving the Windsor site. All information on tractor, trailer and load must be completed on the application. The

application must be certified by both C-E representative and the Carrier representative. The Driver must have an approved permit in his possession when traveling in the State of Connecticut. The Driver must follow the specified route during the hours of 9:00 am to 4:00 pm, Monday thru Friday. The HP technician should initial the RMSR when the carrier receives the permit.

5.1.12 The carrier must be informed that the shipment is "Exclusive Use Only." A copy of Exclusive Use Instructions, Enclosure 5, should be signed by the C-E representative and driver and copies of the signed document issued to the driver and C-E representative. The RMSR should be initialed by the H.P. Technician when the signed instruction sheet has been presented to the driver.

5.1.13 A trip pack must include the following items:

A. A Bill of Lading should be filled out as per example, Enclosure 6. The information necessary for the proper completion is found on the RMSR.

B. A copy of the RMSR and supplement, if applicable.

C. A copy of the signed "Exclusive Use Instructions."

D. Vehicle Survey Form

E. Connecticut State Permit

F. The key to the trailer locks, if applicable.

* G. The Shipper's Certification Statement has been made a part of the Bill of Lading, and a signature of the H.P. Representative should appear in the designated Section.

5.1.14 A copy of all shipping information must be forwarded
* to the RSO and an entry made in the weekly report.

5.1.15 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.2 Limited Quantity Shipments by Surface Transportation

5.2.1 A signed Notice of Shipment, Enclosure 1, giving as much information as possible will be the means of setting up a limited quantity shipment from the Windsor site. The cognizant engineer or supervisor is responsible for initiating this document ng

this document as a reference, start filling out RMSR, Enclosure 2.

5.2.2 Determine isotopes and curie estimates using smear and meter surveys. Record results on RMSR.

5.2.3 Verify that quantities and isotopes qualify as limited quantity as specified by 49 CFR 173. The limits are less than 1 x 10^{-3} A_1 / A_2 quantities listed for each isotope. For instance, the maximum amount of Co^{60} would be 7 mci solid, or 0.7 mci liquid. Cs^{137} limits are 10 mci solid, 1 mci liquid.

5.2.4 All packages must be strong, tight containers. All containers must be sealed or banded. All packages must have an inner packaging of sealed plastic in order to prevent, as much as possible, contaminating the outer package. All closures, locks, and/or devices used to attach lids or covers to the container must be in place to qualify as strong, tight.

5.2.5 The maximum dose rate at the surface of the package, as determined by the required survey cannot exceed 0.5 mrem/hr.

5.2.6 A statement must be placed inside the package describing the radioactive materials being shipped as "RADIOACTIVE". In addition, the following statement must be placed inside the package:

CONSIGNOR: COMBUSTION ENGINEERING, INC.

"This package conforms to the conditions and limitations specified in 49 CFR 173. 421 for Exempted Radioactive Material Limited Quantity NOS UN 2910"

The RMSR should be initialed by the H.P. Technician at the proper location, to indicate completion of this requirement.

5.2.7 A trip pack should include the following items:

A. A completed RMSR.

B. A Bill of Lading giving information for carrier and billing information.

5.2.8 The package must have an address label with the name of the consignee durably attached to the top and sides.

5.2.9 A packing list with an RMSR and Bill of Lading should be attached to the side of the container.

5.2.10 A copy of all shipping information must be

forwarded to the RSO and an entry made in the weekly report.

Note: Outside of package must not say "Radioactive".

5.2.11 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.3 Normal form shipments, non-exclusive use surface transportation containing A_2 quantities.

5.3.1 A signed Notice of Shipment, Enclosure 1, giving as much information as possible will be the means of setting up a shipment of radioactive material from the Windsor site. The cognizant engineer or supervisor is responsible for initiating this document. Using the Notice of Shipment, a RMSR can be started, Enclosure 2.

5.3.2 Determine isotopes and curie estimates using smear and meter surveys. Record results on RMSR and/or supplement form.

5.3.3 Ensure that the amount of curies listed is less than the maximum A_2 quantities allowed for each isotope listed, as per 49 CFR 173.

5.3.4 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.3.5 Check off proper shipping name as Radioactive Material, NOS UN 2982 and specify non-exclusive use.

5.3.6 All containers must be DOT 7A and must be stenciled with the marking DOT 7A TYPE A UN 2982. To ensure containers are in fact DOT 7A, check with the RSO who will verify that certification papers are available prior to use of the container. Write DOT 7A on RMSR in proper location if this condition is satisfied.

5.3.7 Determine label requirements; White I, Yellow II, Yellow III; from meter survey results of each container. Complete the information required by the label; curie content, major isotopic content, Transport Index (TI); and place labels on opposite sides of the package. Record the above information on the RMSR.

Label Type	White I	Yellow II	Yellow III
Max Dose Rate	0.5 mrem/hr contact	50 mrem/hr contact	200 mrem/hr contact
Transport Index(TI) maximum	--	1 mrem/hr at 1 meter	10 mrem/hr at 1 meter

NOTE: Transport Index is defined as the highest dose rate in millirem at 1 meter from the package rounded up to the nearest tenth of a mrem/hr.

5.3.8 Mark the gross weight of the container on top and side of the container and record on the RMSR.

5.3.9 Each package must be sealed or secured so as to easily determine if the package has been opened.

5.3.10 All packages must have an address label with the consignee's name and address durably attached to two locations on each package.

5.3.11 The trip pack must be completed and firmly affixed to the container with the packing list. The trip pack must include the following items:

A. Completed RMSR
B. Bill of Lading
C. Packing list of all materials inside each container.
D. If more than one package is shipped, then an RMSR supplement Sheet must be included as well as any individual package survey sheets.
E. Any special instructions, if required, as to hazards which might be encountered during opening of package.

5.3.12 A copy of all shipping information will be forwarded to the RSO and an entry made in the weekly report.

5.4 Shipment of Radioactive Materials by Air Freight.

5.4.1 With the exception of radiopharmaceuticals, the shipment of radioactive materials on passenger aircraft is prohibited. Therefore, no radioactive materials will be accepted for shipment by air unless they are designated for cargo aircraft.

5.4.2 Air shipments of limited quantities of radioactive materials must be prepared in accordance with Section 5.2, of this RPI.

The following items must be added to the air bill of lading:

1. "RADIOACTIVE MATERIAL LIMITED QUANTITY NOS-UN 2910"

2. "No label required".

5.4.3 Air shipment of normal form radioactive materials must be prepared in accordance with Section 5.3 of this RPI. In addition, an air carrier air bill and a shipper's Certification of Hazardous Material must be completed, Enclosure 5.

The certification form is usually a part of a carrier's air bill and has written instructions attached. If
* this is not the case, a blank copy of the form must be obtained from the carrier or the RSO. Instructions on how to properly complete the form can
* be obtained from the RSO if not available from the carrier.

If the shipment is labeled as Yellow III, a permit must be obtained from the State of Connecticut to transport the material from the Windsor site to the carrier's terminal.

Contact the air carrier prior to shipment to determine weight or size limitations for the container being shipped. This applies whether or not the shipment is radioactive.

The Air Bill must have "cargo aircraft only" marked where required.

* A "Danger" "Cargo Aircraft Only" sticker is required on the outside of the package.

* 5.4.4 A copy of all shipping information must be forwarded to the RSO and an entry made in the weekly report.

* 5.4.5 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.5 Shipment of Radioactive Materials via Company-owned or leased vehicles.

5.5.1 The use of privately owned vehicles to ship radioactive materials is prohibited. Radioactive materials may, however, be shipped using Company owned or leased vehicles under certain conditions.

5.5.2 The use of Company owned or leased vehicles are limited to the following type of shipments:

a. Limited Quantity Shipments
b. Packages designated White I or Yellow II
c. Air shipments designated Yellow III being moved to or from the carrier's terminal only.

5.5.3 Personnel transporting radioactive material via company-owned or leased vehicles must be trained

radiation workers and the driver must be a DOT certified driver in accordance with DOT regulations 49 CFR Part 391.

5.5.4 Radioactive materials transported in company-owned or leased vehicles are limited to one day's travel defined as 300 miles or 8 hours' time, whichever comes first. In addition, the vehicle must travel directly from the shipping licensee to the receiving licensee.

5.5.5 All vehicles transporting radioactive materials must travel routes designated by the Manager, RPS, or his designee.

5.5.6 A copy of all shipping information must be forwarded to the RSO and an entry made in the weekly report.

5.5.7 List chemical form on RMSR as metal oxides unless the material is specified otherwise.

5.6 Receipt of Radioactive Material

5.6.1 A Notice of Shipment, Enclosure 1, will be made by anyone initiating a shipment of CE radioactive materials from any location to the Windsor site. This notice should include information on the consignor and load. The Notice of Shipment will enable the RSO or his Designee to assign a carrier, obtain permits, and establish a schedule for shipment.

5.6.2 The Windsor Site Shipping and Receiving Department or the Windsor Site Security Force (after hours) shall notify one of the following individuals upon arrival of any Radioactive Shipments.

	Ext.	Home Phone	Pager
J. M. Limbert	X2145	[redacted]	[redacted]
S. M. Sorensen	X5285		
W. A. Pagel	X5600		
R. B. Clark	X2896		

5.6.3 Upon notification of arrival of radioactive material one of the individuals designated, above, will either direct exclusive use shipments to the Building 2 area or dispatch an RPS representative to Shipping and Receiving to perform a Receipt Survey.

5.6.4 Packages shall not be shipped to a carrier's terminal and held for pickup by C-E unless the shipment is approved by the RSO or Manager, RPS at least 24 hours in advance.

5.6.5 Receipt Surveys

A. Exclusive Use Shipments

1. Using a Radioactive Materials Transport Vehicle Survey Sheet (Enclosure 3), measure and record the vehicle dose rates.

1 CONTACT

2. Verify that tractor and trailer information match the shipping papers.

3. Inspect the interior of the vehicle to determine if any packages have been damaged during shipment.

4. Conduct a smear survey of the interior of the vehicle to determine loose surface contamination levels.

5. If any one of the following conditions are found, notify the RSO or Manager of RPS immediately.

   a. Vehicle contact dose rates exceeding 200 mrem/hr.

   b. Dose rates at 2 meter from the vehicle exceeding 10 mrem/hr.

   c. Contamination levels inside the vehicle exceeding 1,000 Dpm/100 cm^2.

6. Conduct a Hot Particle Survey as per RPI 21.

7. During unloading a smear and meter survey of all packaging must be completed. Each package shall have a Caution Radioactive Material label affixed.

8. After unloading, conduct a trailer release survey and file for further reference.

B. Individual Package or Shipment Received as Type A quantity or less.

1. Using a Survey Form for Non-Routine Survey, sketch the package and make a smear and meter survey of the package and record the results on the survey form.
2. If dose rates exceed those specified by the shipping papers or labeling, notify RSO or Manager RPS, immediately.

3. If the smear survey indicates loose surface

contamination greater than 1000 DPM/100 cm 2, notify the RSO or Manager RPS, immediately.

4. All packages shall be opened in a Radiological Control Zone under continuous surveillance of an RPS technician.

5. A copy of shipping records are to be forwarded to the RSO and the information recorded in the weekly report.

6. Packages which contain radioactive material in excess of Type A quantities shall be monitored for radiation levels as soon as practicable after receipt but no later than 3 hours after receipt during normal working hours or 18 hours after receipt during secured hours.

   If contact dose rates exceed 200 mrem/hour or dose rates at three feet exceed 10 mrem/hour, the Manager RPS or the RSO shall be notified immediately.

7. All packages received and transferred to storage shall have a Caution Radioactive Material label attached.

CERTIFICATION OF FINANCIAL ASSURANCE

Principal: Combustion Engineering, Inc.
1000 Prospect Hill Road
Windsor, Connecticut 06095-0500

NRC License No. 06-00217-06
Combustion Engineering, Inc.
1000 Prospect Hill Road
Windsor, Connecticut 06095-0500

Issued to: U. S. Nuclear Regulatory Commission

This is to certify that Combustion Engineering, Inc. is licensed to possess the types and amounts of material listed in the attached page from License 06-00217-06 and that financial assurance in the amount prescribed by 10CFR Part 30, $750,000, has been obtained for the purpose of decommissioning.

R. S. Bell, Jr.
Vice President and General Counsel
ABB Combustion Engineering Nuclear Power

July 17, 1990

ITEM # 4

C/4

CHUBB

CHUBB GROUP OF INSURANCE COMPANIES

100 William Street New York New York 10038-4666

FEDERAL INSURANCE COMPANY

PAYMENT SURETY BOND

Date bond executed: May 24, 1990

Effective date: May 24, 1990

Principal: Combustion Engineering, Inc.
1000 Prospect Hill Road
Windsor, CT. 06095

Type of organization: Corporation

State of incorporation: Delaware

NRC license number, name and address of facility, and amount(s) for decommissioning activity guaranteed by this bond:
Combustion Enginnering, Inc.
1000 Prospect Hill Road
Windsor, Ct. 06095
Byproduct License 06-00217-06

Surety: Federal Insurance Company
100 William Street
New York, N.Y. 10038

Type of organization: Corporation

Surety's qualification in jurisdiction where licensed facility(ies) is (are located).

Surety's bond number: [redacted] EX 4

Total penal sum of bond: $750,000.00

Know all persons by these presents, That we, the Principal and surety(ies) hereto, are firmly bound to the U.S. Nuclear Regulatory Commission (hereinafter called NRC), in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Sureties are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety; but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

WHEREAS, the U.S. Nuclear Regulatory Commission, an agency of the U.S. Government, pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, has promulgated regulations in Title 10, Chapter I of the Code of Federal Regulations, Part (30, 40, 70, or 72), applicable to the Principal, which require that a license holder or an applicant for a facility license provide financial assurance that funds will be available when needed for facility decommissioning;

NOW, THEREFORE, the conditions of the obligation are such that if the Principal shall faithfully, before the beginning of decommissioning of each facility identified above, fund the standby trust fund in the amount(s) identified above for the facility;

Or, if the Principal shall fund the standby trust fund in such amount(s) after an order to begin facility decommissioning is issued by the NRC or a U.S. district court or other court of competent jurisdiction;

Or, if the Principal shall provide alternative financial assurance and obtain the written approval of the NRC of such assurance, within 30 days after the date a notice of cancellation from the Surety(ies) is received by both the Principal and the NRC, then this obligation shall be null and void; otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above. Upon notification by the NRC that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the Principal and to the NRC provided, however, that cancellation shall not occur during the 90 days beginning on the date of receipt of the notice of cancellation by both the Principal and the NRC, as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to the NRC and to Surety(ies) 90 days prior to the proposed date of termination, provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond from the NRC.

If any part of this agreement is invalid, it shall not affect the remaining provisions which will remain valid and enforceable.

In Witness Whereof, the Principal and Surety(ies) have executed this financial guarantee bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies).

COMBUSTION ENGINEERING, INC.

By: Richard M Burt
Name: Richard M Burt
Title: Secretary

FEDERAL INSURANCE COMPANY
100 William Street
New York, N.Y. 10038

State of Incorporation: New Jersey
Liability limit: $750,000.00

By: Edward J. Reilly
Name: Edward J. Reilly
Title: Attorney-in-fact

Bond premium: $2,813.00

(Individual Principal)

STATE OF _____ } ss.:
COUNTY OF _____ }

On this _____ day of _____ 19 , before me personally came _____, to me known and known by me to be the individual described in and who executed the foregoing instrument, and he duly acknowledged to me that he executed the same.

_____ Notary Public

My commission expires _____

(When Principal is a Firm)

STATE OF _____ } ss.:
COUNTY OF _____ }

On this _____ day of _____ 19 , before me personally came _____, to me known and known by me to be a member of the firm of _____, described in and which executed the foregoing instrument, and the said _____ duly acknowledged to me that he executed the said instrument in the name of said firm and for its purposes and on its behalf.

_____ Notary Public

My commission expires _____

(When Principal is a Corporation)

STATE OF CONNECTICUT } ss.: WINDSOR
COUNTY OF HARTFORD }

On this 29TH day of JUNE 19 90 , before me personally came RICHARD M. BURT to me known, who being by me duly sworn, did depose and say; that he resides in GREENWICH, CT that he is the SECRETARY of COMBUSTION ENGINEERING, INC. the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

Clifton P. Stalph Notary Public.

CLIFTON P. STALPH
NOTARY PUBLIC
MY COMMISSION EXPIRES MARCH 31, 1992

My commission expires MY COMMISSION EXPIRES MARCH 31

Form 15-10-16 (Formerly 12251)

PRINTED IN U.S.A.

CERTIFICATION

STATE OF NEW JERSEY
County of Somerset } ss.

I, the undersigned, Assistant Secretary of the FEDERAL INSURANCE COMPANY, do hereby certify that the following is a true excerpt from the By-Laws of the said Company as adopted by its Board of Directors on March 11, 1953 and most recently amended March 5, 1986 and that this By-Law is in full force and effect.

"ARTICLE XVIII.

Section 2. All bonds, undertakings, contracts and other instruments other than as above for and on behalf of the Company which it is authorized by law or its charter to execute, may and shall be executed in the name and on behalf of the Company either by the Chairman or the Vice Chairman or the President or a Vice President, jointly with the Secretary or an Assistant Secretary, under their respective designations, except that any one or more officers or attorneys-in-fact designated in any resolution of the Board of Directors or the Executive Committee, or in any power of attorney executed as provided for in Section 3 below, may execute any such bond, undertaking or other obligation as provided in such resolution or power of attorney.

Section 3. All powers of attorney for and on behalf of the Company may and shall be executed in the name and on behalf of the Company, either by the Chairman or the Vice Chairman or the President or a Vice President or an Assistant Vice President, jointly with the Secretary or an Assistant Secretary, under their respective designations. The signature of such officers may be engraved, printed or lithographed. The signature of each of the following officers: Chairman, Vice Chairman, President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary and the seal of the Company may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such power of attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached."

I further certify that said FEDERAL INSURANCE COMPANY is duly licensed to transact fidelity and surety business in each of the States of the United States of America, District of Columbia, Puerto Rico, and each of the Provinces of Canada with the exception of Prince Edward Island; and is also duly licensed to become sole surety on bonds, undertakings, etc., permitted or required by [illegible]

I, the undersigned Assistant Secretary of FEDERAL INSURANCE COMPANY, do hereby certify that the foregoing Power of Attorney is in full force and effect.

Given under my hand and the seal of said Company at Warren, N.J., this 24th day of May 19[illegible]

Corporate Seal

L. Mo[illegible]
Assistant Secretary

Financial Statement of Federal Insurance Company as of December 31, 1988
IN THOUSANDS OF DOLLARS
STATUTORY BASIS

ASSETS		LIABILITIES AND SURPLUS TO POLICYHOLDERS	
United States Treasury Bonds	$ 551,842	Outstanding Losses and Loss Expenses	$ 2,307,420
United States Government and Federal Agency Guaranteed Bonds	205,197	Unearned Premiums	810,636
State and Municipal Bonds	1,634,541	Accrued Expenses	88,750
Other Bonds	312,407	Non-Admitted Reinsurance	25,234
Common Stocks	209,389	Dividends to Policyholders	21,543
Preferred Stocks	1,010	Loss Portfolio Transfer	(136,774)
Other Invested Assets	46,285	Other Liabilities	179,[illegible]
Short Term Investments	38,973		
TOTAL INVESTMENTS	2,999,644	TOTAL LIABILITIES	3,276,694
Investments in Affiliates:			
Vigilant Insurance Company	123,470	Common Stock	13,967
Great Northern Insurance Company	48,206	Paid-in Surplus	561,253
Pacific Indemnity Company	244,254	Unassigned Funds	496,772
Chubb Life Insurance Company	175,766	Unrealized Appreciation of Investments	269,136
Bellemead Development Corporation	290,252		
Chubb Insurance Company of Canada	49,876		
Other	43,314	SURPLUS TO POLICYHOLDERS	1,343,148
Cash	15,039		
Net Premiums Receivable	453,784		
Reinsurance Recoverable on Paid Losses	84,164		
Other Assets	112,073		
TOTAL ADMITTED ASSETS	$ 4,619,842	TOTAL LIABILITIES AND SURPLUS TO POLICYHOLDERS	$ 4,619,842

Investments are valued in accordance with requirements of the National Association of Insurance Commissioners.
Investments valued at $11,047 are deposited with government authorities as required by law.

PRINTED

POWER OF ATTORNEY

Know all Men by these Presents, That the FEDERAL INSURANCE COMPANY, 15 Mountain View Road, Warren, New Jersey, a New Jersey Corporation, has constituted and appointed, and does hereby constitute and appoint Richard G. Hight, Assistant Secretary, Gloria Warrick, David B. Norris, Jr., Anna Maria Lovecchio, Robert Ogle, Maria Scardigno, Earnestine Porter, Helen S. Brown, Lydia R. Schorr, Richard A. Ciullo, Mark M. Baker, Dekker M. Buckley, Michael Heningburg, Jr., Greg Kuruvilla, Edward J. Reilly, John J. Barry, Christopher E. Painter and Matthew R. Young of New York, New York each its true and lawful Attorney-in-Fact to execute under such designation in its name and to affix its corporate seal to and deliver for and on its behalf as surety thereon or otherwise, bonds or obligations given or executed in the course of its business, and any instruements amending or altering the same, and consents to the modification or alteration of any instruments referred to in said bonds or obligations.

In Witness Whereof, the said FEDERAL INSURANCE COMPANY has, pursuant to its By-Laws, caused these presents to be signed by its Vice President and Assistant Secretary and its corporate seal to be hereto affixed this 1st day of April, 1989.

Corporate Seal

FEDERAL INSURANCE COMPANY NEW JERSEY

FEDERAL INSURANCE COMPANY
By

Richard D. O'Connor
Assistant Secretary

James D. Dixon
Vice President

STATE OF NEW JERSEY
County of Somerset } ss.

On this first day of April, 1989, before me personally came Richard D. O'Connor to me known and by me known to be Assistant Secretary of the FEDERAL INSURANCE COMPANY, the corporation described in and which executed the foregoing Power of Attorney, and the said Richard D. O'Connor being by me duly sworn, did depose and say that he is Assistant Secretary of the FEDERAL INSURANCE COMPANY and knows the corporate seal thereof; that the seal affixed to the foregoing Power of Attorney is such corporate seal and was thereto affixed by authority of the By-Laws of said Company, and that he signed said Power of Attorney as Assistant Secretary of said Company by like authority; and that he is acquainted with James D. Dixon and knows him to be the Vice President of said Company, and that the signature of said James D. Dixon subscribed to said Power of Attorney is in the genuine handwriting of said James D. Dixon and was thereto subscribed by authority of said By-Laws and in deponent's presence.

Notarial Seal

ALICE LEONARD NOTARY PUBLIC NEW JERSEY

Acknowledged and Sworn to before me
on the date above written.

Notary Public

ALICE LEONARD
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires July 12, 1993

NOTARIAL ACKNOWLEDGEMENT

CITY, COUNTY & STATE OF NEW YORK, ss

On this 24th day of May 19 90 before me personally came Edward J. Reilly to me known, who, being by me duly sworn, did depose and say that he is an Attorney-in-Fact of the FEDERAL INSURANCE COMPANY, the Corporation described in and which executed the annexed instrument; that he knows the corporate seal; that it was so affixed by order and authority of the Board of Directors of said corporation, and that he signed his name thereto by like order and authority.

Sworn to and Acknowledged
before me on the date above written.

(Notary's Signature, Description and Seal)

HELEN S. BROWN
NOTARY PUBLIC, State of New York
No. [illegible]
Qualified in [illegible] County
Commission Expires [illegible]

Form 21-10-0344 (Rev. 4-89) METRO SPEC '89

OVER

PRINTED IN U.S.A.

STANDBY TRUST AGREEMENT
NRC LICENSE NO. 06-00217-06

TRUST AGREEMENT, the Agreement entered into as of July 1, 1990 by and between Combustion Engineering, Inc., a Delaware corporation, herein referred to as the "Grantor," and Citibank, N.A., New York, N.Y. 10043, herein referred to as the "Trustee."

WHEREAS, the U.S. Nuclear Regulatory Commission (NRC), an agency of the U.S. Government, pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, has promulgated regulations in Title 10, Chapter I of the Code of Federal Regulations, Part 70. These regulations, applicable to the Grantor, require that a holder of, or an applicant for, a Part 30, 40, 70, or 72 license provide assurance that funds will be available when needed for required decommissioning activities.

WHEREAS, the Grantor has elected to use a surety bond to provide all of such financial assurance for the facilities identified herein; and

WHEREAS, when payment is made under a surety bond, this standby trust shall be used for the receipt of such payment; and

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this Agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means Combustion Engineering, Inc., the NRC licensee who enters into this Agreement, and any successors or assigns of the Grantor.

(b) The term "Trustee" means the trustee who enters into this Agreement and any successor Trustee.

Section 2. Costs of Decommissioning. This Agreement pertains to the costs of decommissioning the materials and activities identified in License Number 06-00217-06 issued pursuant to 10 CFR Part 30, as shown in Schedule A.

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a standby trust fund (the Fund) for the benefit of the NRC. The Grantor and the Trustee intend that no third party have access to the Fund except as provided herein.

Section 4. Payments Constituting the Fund. Payments made to the Trustee for the Fund shall consist of cash, securities, or other liquid assets acceptable to the Trustee. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee are referred to as the "Fund," together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount of, or adequacy of the Fund, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by the NRC.

Section 5. Payment for Required Activities Specified in the Plan. The Trustee shall make payments from the Fund to the Grantor upon presentation to the Trustee of the following:

a. A certificate duly executed by the Secretary or an Assistant Secretary of the Grantor attesting to the occurrence of the events, and in the form set forth in the attached Specimen Certificate, and

b. A certificate attesting to the following conditions;

(1) that decommissioning is proceeding pursuant to an NRC-approved plan

(2) That the funds withdrawn will be expended for activities undertaken pursuant to that Plan, and

(3) that the NRC has been given 30 days' prior notice of Grantor's intent to withdraw funds from the escrow fund.

c. An order for payment of a stated amount to be withdrawn.

No withdrawal from the fund can exceed ten percent of the outstanding balance of the Fund or 100,000 dollars, whichever is greater, unless NRC approval is attached.

In the event of the Grantor's failure or inability to direct decommissioning activities, the Trustee shall make payments from the Fund as the NRC shall direct in writing to provide for the payment of the costs of required decommissioning activities for the licensed facility covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the NRC from the Fund for expenditures for such required activities in such amounts as the NRC shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the NRC specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 6. Trust Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in

accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge its duties with respect to the Fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(a) Securities or other obligations of the Grantor, or any other owner or operator of the licensed facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended (15 U.S.C. 80a-2(a)), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(b) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal government.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940 (15 U.S.C. 80a-1 et seq.), including one that may be created, managed, underwritten, or

to which investment advice is rendered, or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretion conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale, as necessary for prudent management of the Fund;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name, or in the name of a nominee, and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, to reinvest interest payments and funds from matured and redeemed instruments, to file proper forms concerning securities held in the Fund in a timely fashion with appropriate government agencies, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee or such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the U.S. Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but

the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. After payment has been made into this standby trust fund, the Trustee shall annually, at least 30 days before the anniversary date of receipt of payment into the standby trust fund, furnish to the Grantor and to the NRC a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days before the anniversary date of the establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the NRC, or State agency, shall constitute a conclusively binding assent by the Grantor, barring the grantor from asserting any claim or liability against the Trustee with respect to the matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting on the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing with the Grantor. (See Schedule C.)

Section 13. Successor Trustee. Upon 90 days notice to the NRC, the Trustee may resign; upon 90 days notice to NRC and the Trustee, the Grantor may replace the Trustee; but such resignation or replacement shall not be effective until the Grantor has appointed a successor Trustee and this successor accepts the appointment. The successor Trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor Trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor Trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor Trustee or for instructions. The successor Trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the NRC or State agency, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are signatories to this agreement or such other designees as the Grantor may designate in writing. The Trustee shall be fully protected in acting without inquiry in accordance with the grantor's orders, requests, and instructions. If the NRC or State

agency issues orders, requests, or instructions to the Trustee these shall be in writing, signed by the NRC, or State agency, or their designees, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor, the NRC, or State agency, hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instruction from the Grantor and/or the NRC, or State agency, except as provided for herein.

Section 15. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee and the NRC, or State agency, or by the Trustee and the NRC or State Agency, if the Grantor ceases to exist.

Section 16. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 15, this trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the NRC or State agency, or by the Trustee and the NRC or State agency, if the Grantor ceases to exist. Upon termination of the trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor or its successor.

Section 17. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this trust, or in carrying out any directions by the Grantor, the NRC, or State agency, issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the trust fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official

capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 18. This Agreement shall be administered, construed, and enforced according to the laws of the State of New York.

Section 19. Interpretation and Severability. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement. If any part of this agreement is invalid, it shall not affect the remaining provisions which will remain valid and enforceable.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed by the respective officers duly authorized and the incorporate seals to be hereunto affixed and attested as of the date first written above.

COMBUSTION ENGINEERING, INC.

By: _____

Title: Secretary

ATTEST: _____

Title: Assistant Secretary -SEAL-

CITIBANK, N.A.

By: _____

Title: PETER M. GLAZIK
Assistant Vice President

ATTEST: _____

Title: Mary LaGumina
Trust Officer -SEAL-

ACKNOWLEDGEMENT

STATE OF NEW YORK

COUNTY OF MANHATTAN

CITY OF NEW YORK

On this 10 day of July 1990, before me, a notary public in and for the city and State aforesaid, personally appeared PETER M. GLAZIK, and she/he did depose and say that she/he is the ASSISTANT VICE PRESIDENT, of Citibank, N.A., Trustee, which executed the above instrument, that she/he knows the seal of said association; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of said trustee; and that she/he signed her/his name thereto by like order.

Nancy H. Forte

Notary Public

My Commission Expires: _____

NANCY H. FORTE
Notary Public, State of New York
No. 41-4902389
Qualified in Queens County
Certificate Filed in New York County
Commission Expires Aug. 3, 1991

Specimen Certificate of Events

Citibank, N.A.
Corporate Trust/Escrow Administration
120 Wall Street - 13th Floor
New York, N.Y. 10043

Attention: Peter M. Glazik, Assistant Vice President

Gentlemen:

In accordance with the terms of the Agreement with you dated _____, I, _____, Secretary of [insert name of licensee], hereby certify that the following events have occurred:

1. [Insert name of licensee] is required to commence the decommissioning of its facility located at [insert location of facility] (hereinafter called the decommissioning).

2. The plans and procedures for the commencement and conduct of the decommissioning have been approved by the United States Nuclear Regulatory Commission, or its successor, on _____ (copy of approval attached).

3. The Board of Directors of [insert name of licensee] has adopted the attached resolution authorizing the commencement of the decommissioning.

_____
Secretary of [insert name of licensee]

_____
Date

Form of

Certificate of Resolution

I, _____, do hereby certify that I am Secretary of [insert name of licensee], a [insert state of incorporation] corporation, and that the resolution listed below was duly adopted at a meeting of this Corporation's Board of Directors on _____, 19__.

RESOLVED, that this Board of Directors hereby authorizes the President, or such other employee of the Company as he may designate, to commence decommissioning activities at [insert name of facility] in accordance with the terms and conditions described to this Board of Directors at this meeting and with such other terms and conditions as the President shall approve with and upon the advice of Counsel.

IN WITNESS WHEREOF, I have hereunto signed my name and affixed the seal of this Corporation this ___ day of _____, ____.

_____

Secretary

SCHEDULE A

NRC License No. 06-00217-06

NRC FORM 374
(10-89)

U.S. NUCLEAR REGULATORY COMMISSION

CORRECTED COPY

MATERIALS LICENSE

Amendment No. 36

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee	
1. ABB Combustion Engineering Nuclear Power 2. 1000 Prospect Hill Road P. O. Box 500 Windsoe, Connecticut 06095	In accordance with application dated December 14, 1989, 3. License number 06-00217-06 is amended in its entirety to read as follows: 4. Expiration date June 30, 1995 5. Docket or Reference No 030-03754

6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Any byproduct material with Atomic Numbers 1 through 83	A. Irradiated and/or contaminated reactor components, inspection and test equipment, test samples, monitoring instruments, reactor coolant samples, or calibration sources	A. 50 curies
B. Any byproduct material with Atomic Numbers 84 through 103	B. Irradiated and/or contaminated reactor components, inspection and test equipment, calibration sources or reactor coolant samples	B. Not to exceed 3 millicuries per nuclide and 30 millicuries total
C. Cesium 137	C. Sealed sources	C. 215 curies
D. Americium 241	D. Sealed neutron sources	D. Not to exceed 1 curie per source and 10 curies total
E. Americium 241	E. Sealed neutron sources	E. Not to exceed 10 curies per source and 100 curies total
F. Neptunium 237	F. Oxide wires	F. Not to exceed 0.5 millicuries per wire and 5 millicuries total
G. Uranium 233	G. Any	G. 1 gram
H. Uranium 235	H. Any	H. 7 grams
I. Uranium 235	I. Fission Chambers	I. Not to exceed 1.7 grams per chamber and 13.6 grams total
J. Plutonium	J. Any	J. 1 milligram

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 06-00217-06
Docket or Reference number: 030-03754

CORRECTED COPY

Amendment No. 36

9. Authorized use

A. through D. For use in research and development as defined in Section 30.4(q) 10 CFR Part 30, and for possession incident to maintenance, repair, decontamination and study of reactor components.

E. For use in testing and calibration of boron measuring devices and for distribution to persons holding operating reactor licenses and/or to persons authorized to receive the licensed materials pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.

F. through I. For possession, storage, and transfer to persons holding operating reactor licenses and/or to persons authorized to receive the licensed material pursuant to the terms and conditions of specific licenses issued by the Nuclear Regulatory Commission or an Agreement State.

J. For possession as surface contamination on tools or equipment incident to maintenance, repair, modification or storage.

CONDITIONS

10. Licensed material shall be used only at the licensee's facilities at 1000 Prospect Hill Road, Windsor, Connecticut.

11. A. Licensed material shall be used by, or under the supervision of, individuals designated by the Radiation Safety Committee.

B. The Radiation Safety Officer for this license is James M. Limbert.

12. A(1) Each sealed source or detector cell acquired from another person and containing licensed material, other than hydrogen 3, with a half-life greater than 30 days and in any form other than gas shall be tested for contamination and/or leakage before use. In the absence of a certificate from a transferor indicating that a test has been made within 6 months before the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

(2) Notwithstanding the periodic leak test required by this condition, any licensed sealed source or detector cell is exempt from such leak tests when the source or detector cell contains 100 microcuries or less of beta and/or gamma emitting materials or 10 microcuries or less of alpha emitting material.

(3) Except for alpha sources, the periodic leak test required by this condition does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage before any use or transfer to another person unless they have been leak tested within 6 months before the date of use or transfer.

B. Each sealed source or detector cell fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to use or transfer as a sealed source or detector cell. If the inspection or test reveals any construction defects or 0.005 microcurie or greater of contamination, the source shall not be used or transferred as a sealed source or detector cell until it has been repaired, decontaminated and retested.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number: 06-00217-06
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(12. Continued) CONDITIONS

C. Each sealed source containing licensed material, other than hydrogen 3, with a half-life greater than 30 days and in any form other than gas shall be tested for leakage and/or contamination at intervals not to exceed 6 months except that each source designed for the purpose of emitting alpha particles shall be tested at intervals not to exceed 3 months.

D. The test shall be capable of detecting the presence of 0.005 microcurie or radioactive material on the test sample. The test sample shall be taken from the sealed source or detector cell or from the surfaces of the device in which the sealed source or detector cell is permanently or semipermanently mounted or stored on which one might expect contamination to accumulate. Records or leak test results shall be kept in units of microcuries and maintained for inspection by the Commission. Records may be disposed of following Commission inspection.

E. If the test required by Subsection A. or C. of this condition reveals the presence of 0.005 microcurie or more of removable contamination, the licensee shall immediately withdraw the sealed source or detector cell from use and shall cause it to be decontaminated and repaired or to be disposed of in accordance with Commission regulations. A report shall be filed within 5 days of the date the leak test result is known with the U. S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406, describing the equipment involved, the test results, and the corrective action taken.

13. In lieu of using the conventional radiation caution colors (magenta or purple on yellow background) as provided in Section 20.203(a)(1), of 10 CFR Part 20, the licensee is hereby authorized to label detector cells and cell baths, containing licensed material and used in gas chromatography devices, with conspicuously etched or stamped radiation caution symbols without a color requirement.

14. Detector cells containing titanium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 225 degrees Centigrade.

15. Detector cells containing scandium tritide foil shall only be used in conjunction with a properly operating temperature control mechanism which prevents foil temperatures from exceeding 325 degrees Centigrade.

16. The licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license. Records of inventories shall be maintained for 3 years from the date of each inventory.

17. The licensee may transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

18. Licensed material shall not be used in or on human beings.

MATERIALS LICENSE
SUPPLEMENTARY SHEET

License number
06-00217-06

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(Continued) CONDITIONS

19. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders or detector cells by the licensee.

20. The licensee shall not acquire licensed material in a sealed source or in a device that contains a sealed source unless the source or device has been registered with the Nuclear Regulatory Commission under 10 CFR 32.210 or with an Agreement State.

21. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

A. Application dated December 14, 1989
B. Letter dated March 30, 1990
C. Letter dated April 24, 1990

For the U.S. Nuclear Regulatory Commission

Date JUL 12 1990

By Francis M. Costello

Nuclear Materials Safety Branch
Region I
King of Prussia, Pennsylvania 19406

Schedule B

Initial Funds in Trust

None

Schedule C

Trustee Fees

- Prior to Funding of Trust -- $2,500.00 per annun

- After Funding of Trust -- per attached table of Escrow Fees

ESCROW ADMINISTRATION FEE SCHEDULE

ANNUAL ADMINISTRATIVE (based on asset value):

	CUMULATIVE
10 Basis Points on the first $5MM or any part thereof;	$5,000
6 Basis Points on the next $5MM;	8,000
3 Basis Points on next $90MM;	35,000
1 1/2 Basis Points on balance;	
Minimum annual administrative	$5,000

Activity fee $40.00 per securities transaction.

Out-of-town closings $600.00 per diem plus expenses.

New York closing $75.00 per hour.

July 29, 1988

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030-03754

May 18, 1994
DDH-94-004

Mr. John D. Kinneman, Chief
Research, Development and
Decommissioning Section
Division of Radiation Safety
and Safeguards
U.S. Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

License No. 06-00213-06
Docket No. 030-03754
Control No. ~~117490~~ 119777

Dear Mr. Kinneman:

Combustion Engineering, Inc. requests that ~~Materials License~~ 06-00217-06 be amended as follows:

(1) Change condition 11B to read "The Radiation Safety Officer for this license is Stephen M. Sorensen."

Mr. Sorensen was the Radiation Safety Officer for this license from 1986 - 1988 when he was promoted to Manager, Radiological Protection Services. An updated resume is attached for your review.

(2) Please remove the following personnel from licensed activities:

A. Carol A. Little (no longer employed)
B. Philip R. Rosenthal (no longer employed)

(3) Please add the following personnel to the list of personnel "Authorized to use or supervise the Use of Radioactive Materials."

Steven L. Kapetan

Mr. Kapetan has been employed by Combustion Engineering Inc. under contract from PSESI as a Junior HP Tech for the past 5 years. During that time Mr. Kapetan has obtained the appropriate Health Physics experience as delineated in ANSI N 3.1 - 1988 for this license. A copy of Mr. Kapetan's resume is attached for your review. Although Mr. Kapetan will continue as a contractor, we feel that the need for increased flexibility in the Health Physics staff requires that he be named in the license.

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Telephone (203) 688-1911

119777
MAY 23 1994

ITEM # 6

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A check in the amount of $540.00, in accordance with 10CFR170.31, is enclosed.

If you have any questions or require additional information please contact me, on 203-285-5285, at your convenience.

Very truly yours,

Combustion Engineering, Inc.

Stephen M. Sorensen, Manager
Radiological Protection Services

SMS:ksm
Attachment: S. M. Sorensen Resume
S. L. Kapetan Resume
cc: J. F Conant
J. E. McConnell
M. A. Michaelson
D. Everhart (NRC)
J. Noggle (NRC)

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Resume of:
Stephen M. Sorensen
[redacted] EX6

EDUCATION:

EX6
[redacted]

Hoosic Valley Central High School - College Prep	1963-1964
Rensselaer Polytechnic Institute - Engineering	1/66-6/66
U.S. Naval Nuclear Power School - Nuclear Engineering	6/66-12/66
U.S. Naval Nuclear Prototype - Nuclear Engineering	
U.S. Navy - Various Electronic and Electro Mechanical Service Schools	1965-1972
Panasonic Dosimetry School - University of Michigan	1988
Dale Carnegie Management Seminar - Completed	1975

EXPERIENCE:

6/23/80 to Present

COMBUSTION ENGINEERING, INC.
1000 Prospect Hill Road
Windsor, Connecticut 06095

Senior Nuclear Service Engineer
Responsible for assisting in development of Health Physics/Chemistry/Instrumentation and Control Technical Services Section, providing services and consultation to Nuclear Power Generating Facilities. Performed duties of Health Physics Site Coordinator as required.

Promoted to NUCLEAR SERVICES SITE MANAGER - 1982
Duties expanded to include more extensive customer presentations and technical assistance. Performed duties of shift coordinator during thermal shield removal and core barrel repair at FP&L, St. Lucie Nuclear Plant.

Promoted to SECTION MANAGER, PROFESSIONAL RECRUITING SERVICES - 1984
Responsible for the development, operation and maintenance of computerized recruiting system. Directed staffing efforts of department to supply temporary Health Physics, Engineering and Instrumentation personnel for Nuclear, Fossil and Industrial customers.

Promoted to RADIATION SAFETY OFFICER - WINDSOR SITE - 1986
Duties and responsibilities included oversight, review and maintenance activities associated with NRC Broad Scope Radioactive Materials License.

Telephone 203 688 1911
Fax 203 285 9512
Telex 99297 COMBEN WSOR

EXPERIENCE:
(cont'd)

Special Project: Assisted in the preparation of the Decommissioning plan for the C-E Canada Nuclear Fuel Manufacturing Facility. Acted as a Radiation Safety Officer and later Project Manager. This project was successfully completed and the site released for unrestricted use in November 1987.

Promoted to MANAGER, RADIOLOGICAL PROTECTION SERVICES - 1988
Responsibilities include management of NRC Broad Scope Radioactive Materials License. Nine (9) Radiation Protection personnel reporting. Also responsible for the Administrative support and oversight of Outage Services Radioactive Materials Facility in Chattanooga, Tennessee.

2/76 to 5/80

RAD SERVICES, INC.
500 Penn Center
Pittsburgh, Pennsylvania 15235

MARKETING/SALES MANAGER
Responsible for sales efforts to nuclear power plants, providing Health Physics Technicians, Consultants, Instrumentation and Calibration Technicians, and Radiochemistry Technicians. Contract Administrator concurrently. Was responsible for increase of sales from $2 million/year to $12 million/year in two-and-one-half-years in this position.

Promoted to PERSONNEL MANAGER
Responsible for recruitment, hiring, personnel development and wage administration of over 300 technical and professional nuclear personnel encompassing sixteen contracts.

Promoted to QUALITY ASSURANCE MANAGER
Responsible for overall Quality Assurance for Nuclear Services Division and Instrument Services Division.

Promoted to CORPORATE SAFETY AND RADIATION SAFETY OFFICER
Responsible for NRC Byproduct Materials License for Radioactive Waste Storage Facility and Instrument Calibration and Repair Facility. Concurrently responsible for Safety Program for Hazardous Waste Division.

EXPERIENCE:
(cont'd)

9/73 to 2/76

APPLIED HEALTH PHYSICS, INC.
2985 Industrial Boulevard
Bethel Park, Pennsylvania 15102

HEALTH PHYSICS TECHNICIAN
Worked at various nuclear power plants performing routine and special functions including: radiation, contamination and airborne surveys, waste packaging and shipping, work crew coverage, dosimetry and general employee training instructor.

Promoted to DECOMMISSIONING COORDINATOR
Responsible for onsite decontamination efforts during the decommissioning (for unrestricted release) of the W. R. Grace facility (6.5 acres plus structures) in Wayne, New Jersey. The facility produced thorium bearing waste materials from a polishing powder manufacturing process.

Promoted to MARKETING MANAGER
Responsible for advertising, sales and technical assistance for Health Physics related products and services.

2/72 to 8/73

PRUDENTIAL INSURANCE COMPANY
Troy, New York

Licensed Life and Health Insurance Agent during this period.

MILITARY EXPERIENCE:

1965 to 1972

UNITED STATES NAVY

Served aboard two nuclear powered submarines. Attended schools in reactor, electric, and mechanical plant operations, also trained in radiological controls and specialized electro-mechanical and electronic equipment repair and calibration. Participated in Project RIM (Effects of Ecological Factors on small crew adjustment and Performance) -Letter of appreciation 1969.

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Resume of:
Steven L. Kapetan
[redacted] EX 6

EDUCATION:

New London High School - [redacted]
East Lyme High School - [redacted] EX 6
Teachers Memorial School - Norwich - [redacted] GED

EXPERIENCE:

9/12/89 to Present

POWER SYSTEMS ENERGY SERVICES, INC.

Assigned to: Combustion Engineering, Inc.
Windsor, CT 06095

JR. HEALTH PHYSICS TECHNICIAN

Perform radiation, contamination and airborne surveys. Prepare radiation work permits, provide on the job Health Physics coverage for normal and special tasks. Assist with duties related to the by-product license as well as duties related to the SNM license in building 5. Assist with radiation worker training as required. Perform all necessary surveys on packages and vehicles associated with shipments and receipt of radioactive materials. Knowledge of NRC and DOT rules and regulations concerning transportation of radioactive materials.

9/5/88 to 10/16/88

FLUOR DANIEL

Assigned to: Byron Station
Commonwealth Edison
Byron, Illinois

CONTROL POINT/JR. HEALTH PHYSICS TECHNICIAN

Worked as a Control Point Technician. Duties included issuance of high range and electronic dosimetry. Monitoring of personnel frisking, surveying tools equipment and rad waste. Assisted senior health physics's in steam generator jumper coverage including suit-up and multi-badge procedures. Performed routine radiation and contamination

Combustion Engineering ... Telephone (203) 688-1911
Fax (203) 285-9512
Telex 99297 COMBEN WSOR

EXPERIENCE
(cont'd)

2/16/87 to 5/2/87

RAD SERVICES

Assigned to: Byron Station
Commonwealth Edison
Bryon, Illinois

CONTROL POINT TECHNICIAN

Duties included monitoring of personnel egress, issuance of high range and electronic dosimetry, portal monitor usage, surveying of tools, equipment and rad-waste. Also performed routine radiation and contamination surveys.