

OCT 31 1988

release

Docket No. 70-36
License No. SNM-33
Amendment No. 10

R

Combustion Engineering, Inc.
ATTN: Dr. P. L. McGill, Vice President
Nuclear Fuel
1000 Prospect Hill Road
Windsor, CT 06095-0500

Gentlemen:

In accordance with the amendment application dated October 12, 1988, and pursuant to Title 10, Code of Federal Regulations, Part 70, Materials License No. SNM-33 is hereby amended to delete Buildings 250 and 251 as authorized places of use. Condition 35 which required Buildings 250 and 251 to remain as authorized places of use is deleted.

All other conditions of the license shall remain the same.

In your September 30, 1988, letter, you discussed the construction of additional manufacturing space at the Hematite facility. It is our understanding that the initial phase of the construction includes the pouring of a concrete footer and the erection of a roof. The staff has no objection to CE initiating construction of the additional manufacturing space. However, prior to constructing any flooring, soil survey results must be submitted for NRC review and confirmation. Once the NRC has confirmed the soil survey results, the floor may be constructed.

Prior to the introduction of special nuclear material to the facility, an application for amendment to Materials License No. SNM-33 and a safety demonstration will be required. In addition, the application for amendment should be supplemented by environmental information to evaluate the impacts of expanded operations.

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Revised License No. SNM-33 incorporating Amendment No. 10 and our Safety Evaluation Report are enclosed.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By:

Leland C. Rouse, Chief
Fuel Cycle Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

Enclosures:

1. Revised License No. SNM-33
2. Safety Evaluation Report

cc w/ encls:

Mr. A. E. Scherer, Director
Nuclear Licensing

Mr. C. B. Brinkman, Manager
Washington Nuclear Operations

Mr. J. A. Rode, Plant Manager
Hematite Fuel Manufacturing

Mr. H. E. Eskridge, Supervisor
Licensing, Safety and Accountability

DISTRIBUTION: w/ encl.

Docket No. 70-36

PDR

NRC File Center

NMSS R/F

IMUF R/F

IMSB R/F

VLTharpe

DAMcCaughey (2)

Region III

GFrance, RIII

GJackson, LFMB

GBennington, SGTB

CNSmith, SGLB

SHO

LCRouse

GHBidinger

OFC :	IMUF :	:IMUF	:IMUF	:IMSB
NAME:	DAMcCaughey:lg/mh:VLTharpe	:GHBidinger	:LCRouse	
DATE:	10/31/88	:10/31/88	:11/ /88	:10/31/88

OFFICIAL RECORD COPY

MATERIALS LICENSE

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, 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. Combustion Engineering, Inc.

3. License number
SNM-33
Amendment No. 102. P. O. Box 107
Hematite, Missouri 630474. Expiration date
December 31, 19885. Docket or
Reference No.
70-366. Byproduct, source, and/or
special nuclear material7. Chemical and/or physical
form8. Maximum amount that licensee
may possess at any one time
under this licenseA. Uranium enriched to
maximum 5.0 weight
percent in the U-235
isotopeA. Any, excluding metal
powderA. 8,000 kilograms
contained U-235 -B. Uranium, any U-235
enrichment

B. Any

B. 350 grams

C. Source material
(Uranium and Thorium)C. Any, excluding metal
powder

C. 50,000 kilograms

D. Cobalt-60

D. Sealed sources

D. 40 millicuries,
total

9. Authorized Use: For use in accordance with the statements, representations, and conditions contained in Part I of the licensee's renewal application dated February 26, 1982, and supplements dated July 21, 1982; February 21, 1983; May 31, 1984; April 29, June 6, and October 11, 1988; and letters dated February 29, 1984, January 20, 1986, and March 30, 1987.

10. Authorized Place of Use: The licensee's existing facilities in Hematite, Missouri, as described in the referenced license renewal application.

11. Quarterly inspections by the Supervisor, NLS&A, or his representative shall be preplanned and shall be documented. Such documentation shall be maintained for 2 years.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License number

SNM-33, Amendment No. 10

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12. A written report shall be made by the NLS&A Supervisor to the Plant Manager every 6 months reviewing employee radiation exposure (internal and external) and effluent release data to determine:
 - a. if there are any upward trends developing in personnel exposure for identifiable categories of workers, types of operations, or in effluent releases;
 - b. if exposures and releases can be lowered in accordance with the ALARA commitment; and
 - c. if equipment for effluent and exposure control is being properly used, maintained, and inspected.
13. The licensee shall leak test sealed sources in accordance with the enclosed "License Condition For Leak Testing Sealed Byproduct Material Sources."
14. Release of equipment and material from the plant site or to clean areas onsite shall be in accordance with the enclosed "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated August 1987.
15. Pursuant to 10 CFR 20.302, the licensee is authorized to treat waste and scrap materials containing uranium enriched in U-235 and/or source material by incineration.
16. Within 60 days of the date of this license renewal, the licensee shall submit to the NRC a description of a proposed monitoring program to determine the quantity and environmental effects of radioactivity on spent limestone rock used as onsite fill material and to determine the environmental effects of outdoor storage of the alpha-contaminated material.
17. The licensee shall survey spent limestone rock discharge from each HF scrubber for beta contamination. Rock with beta contamination which exceeds five times the background of fresh rock shall not be used for landfill.
18. Within 60 days of the date of this license renewal, the licensee shall submit to NMSS a plan, including schedule, for the disposal of alpha-contaminated spent limestone rock.
19. The licensee shall decontaminate the two evaporation ponds such that the average residual contamination in each pond does not exceed the appropriate limit of either 250 picocuries of insoluble uranium or 100 picocuries of soluble uranium per dry gram of soil. The Tc-99 concentrations in a composite sample for each pond shall be determined.

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20. a. If the radioactivity in plant gaseous effluents exceeds 105 mCi per calendar quarter, the licensee shall, within 30 days, prepare and submit to the Commission a report which identifies the cause for exceeding the limit and the corrective actions to be taken by the licensee to reduce the release rates. If the parameters important to a dose assessment change, a report shall be submitted within 30 days which describes the changes in parameters and includes an estimate of the resultant change in dose commitment.
- b. In the event that the calculated dose to any member of the public in any consecutive 12-month period is about to exceed the limits specified in 40 CFR 190.10, the licensee shall take immediate steps to reduce emissions so as to comply with 40 CFR 190.10. As provided in 40 CFR 190.11, the licensee may petition the Nuclear Regulatory Commission for a variance from the requirements of 40 CFR 190.10. If a petition for a variance is anticipated the licensee shall submit the request at least 90 days prior to exceeding the limits specified in 40 CFR 190.10.
21. The licensee shall maintain and execute the response measures of his Radiological Contingency Plan submitted to the Commission by letter dated December 28, 1987. The licensee shall also maintain implementing procedures for his Radiological Contingency Plan as necessary to implement the Plan. The licensee shall make no change in his Radiological Contingency Plan that would decrease the response effectiveness of the Plan without prior Commission approval as evidenced by a license amendment. The licensee may make changes to his Radiological Contingency Plan without prior Commission approval if the changes do not decrease the response effectiveness of the Plan. The licensee shall furnish the Chief, Fuel Cycle Safety Branch, Division of Industrial and Medical Nuclear Safety, NMSS, U. S. Nuclear Regulatory Commission, Washington, DC 20555, a report containing a description of each change within 6 months after the change is made.
22. At the end of the plant life, the licensee shall decontaminate the facilities and site in accordance with the general decommissioning plan submitted in the enclosure to the letter dated January 12, 1979, so that these facilities and grounds can be released to unrestricted use. The financial commitment to assure that funds will be available for decommissioning in the letter dated March 8, 1979, is hereby incorporated as a condition of the license.
23. The licensee shall continue the soil sampling program for the spent limestone fill areas, as described in the letter dated February 29, 1984, until discontinuance is authorized by the Commission.
1. The report or petition should be submitted to the Director, Office of Nuclear Material Safety and Safeguards, with a copy to the Regional Administrator, Region III.

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24. The monitoring program for the spent limestone shall include:

- a. Continuous air sampling at the center of, and approximately 1 meter above, the uncovered spent limestone piles for a minimum 2-year period. The weekly samples may be composited and analyzed for uranium activity on a quarterly basis. The lower limit of detection shall be 10^{-10} mCi/ml, or
- b. Measurement of the uranium activity on the surface of the spent limestone. Prior to conducting such a program, the licensee shall submit the sampling and analytical program to the NRC for approval.

25. Processing of UF_6 in 10-ton cylinders is not authorized.

26. The 10-ton UF_6 cylinders shall be equipped with valve protectors.

27. The concrete pad for storage of UF_6 cylinders and the surrounding area shall be sloped or graded so that any spilled combustible fluids would not be confined to the storage area.

28. No combustibles shall be stored on the concrete pad.

29. A CO_2 fire extinguisher shall be readily available near the storage pad.

30. In addition to the controls in Section I of the enclosure to the letter dated March 30, 1987, UF_6 cylinders which are in transport and containing UF_6 heels shall be either sealed, in sealed overpacks, or in sealed vehicles.

31. Notwithstanding the statement in Section 4.2.3 of the application, the k-effective of a unit or an array of units shall not exceed 0.95 unless specifically authorized by the license.

32. Nuclear criticality safety evaluations performed by the licensee in accordance with Section 2.7, Part I of the application, shall be based on assumptions of optimum moderation and reflection of individual safe units and of arrays.

33. Nuclear criticality safety evaluations involving k-effective calculations performed by a Nuclear Criticality Specialist shall be independently reviewed and approved by an individual having, as a minimum, the qualifications of a Nuclear Criticality Specialist.

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34. For uranium enriched to more than 4.1 w/o U-235, the licensee shall limit the agglomeration/granulation process, each agglomerated powder storage location, and the pellet pressing operating to safe mass units as specified in Table 4.2.4, Part I of the application.
35. Deleted.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By:

Date: OCT 31 1988

By: Leland C. Rouse
Division of Industrial and Medical
Nuclear Safety, NMSS
Washington, DC 20555

DAW
10/31/88
VIT
10/31/88

EL (10/31/88)

OCT 31 1988

DOCKET NO: 70-36

LICENSEE: Combustion Engineering, Inc. (CE)
Hematite, Missouri

SUBJECT: SAFETY EVALUATION REPORT, (1) AMENDMENT APPLICATION DATED OCTOBER 12, 1988, RE RELEASE OF BUILDINGS 250 AND 251 FOR UNRESTRICTED USE AND (2) LETTER DATED SEPTEMBER 30, 1988, RE CONSTRUCTION OF ADDITIONAL MANUFACTURING SPACE

Background

By letter dated September 30, 1988, CE informed the NRC of progress that had been made in the revitalization effort at CE's nuclear manufacturing facility at Hematite, Missouri. To move forward with this effort, CE stated that it would be necessary to dismantle Building 251 and a portion of Building 250 to permit the construction of additional manufacturing space. By letter dated October 12, 1988, CE requested that Buildings 250 and 251 be released for unrestricted use. This safety evaluation report will include both the release of Buildings 250 and 251 and the construction of the additional manufacturing space.

Discussion

A. Buildings 250 and 251

In the October 12, 1988, submittal, CE presented radiation survey data (enclosure 1) showing that contamination levels on Buildings 250 and 251 are below limits specified in "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," August 1987 (enclosure 2). On October 26, 1988, Region III submitted a memorandum (enclosure 3) providing confirmation that contamination levels on the two buildings are below licensing limits.

However, there appears to be contaminated soil in locations that will be covered by the new manufacturing space. Therefore, prior to constructing any flooring, soil survey results must be submitted for NRC review and confirmation. Once the NRC has confirmed the soil survey results, the floor may be constructed.

B. New Manufacturing Space

The new manufacturing space will be a large extension that joins together two existing facilities, the pellet plant (Building 255) and the recycle area (Building 240). Construction will be in accordance with state and local building and safety codes.

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Prior to the introduction of special nuclear material into the facility, an amendment to License No. SNM-33 and a supporting safety demonstration will be required.

Construction of the addition will have an insignificant impact on the environment. Land use has already been dedicated to industrial use.

Conclusion/Recommendation

Based on the results of the licensee's survey and Region III confirmation, residual contamination is less than limits in the license. Therefore, it is recommended that Buildings 250 and 251 be removed from the license as authorized places of use and that Condition 35, which required that Buildings 250 and 251 remain as authorized places of use, be deleted.

In addition, the staff has no objection to the construction of the new manufacturing space and concludes that the construction will have no significant impact to the environment.

Original Signed By:

David A. McCaughey
Uranium Fuel Section
Fuel Cycle Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

Approved by:

George H. Bidinger, Section Leader

Enclosures:

1. CE Survey Report dtd 10/12/88
2. "Guidelines for Decontamination of Facilities and Equipment ..."
3. Region III Memorandum dtd 10/26/88

OFC: IMUF:	IMUF:	IMUF:	IMUF:
NAME: DAMcCaughey:mh:	VLTharpe:	MLHorn:	GHBidinger:
DATE: 10/31/88	10/31/88	10/31/88	11/1/88

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OCT 31 1988

DOCKET NO: 70-36

LICENSEE: Combustion Engineering, Inc. (CE)
Hematite, Missouri

SUBJECT: CATEGORICAL EXCLUSION FOR AMENDMENT REQUEST DATED OCTOBER 12, 1988

By letter dated October 12, 1988, CE requested that Buildings 250 and 251 be released for unrestricted use. These buildings meet the criteria set forth in "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material." Since the buildings meet the criteria, there is no reason for the buildings to remain under license. Release of the buildings will not adversely effect the public health and safety or the environment. CE plans to dismantle these buildings and to construct a new building. Construction of the new building will not impact any additional resources. Accordingly, pursuant to 10 CFR 51.22 (c)(11), neither an Environmental Impact Statement nor an Environmental Assessment is warranted for the proposed action.

FOR THE U. S. NUCLEAR REGULATORY COMMISSION

Original Signed By:

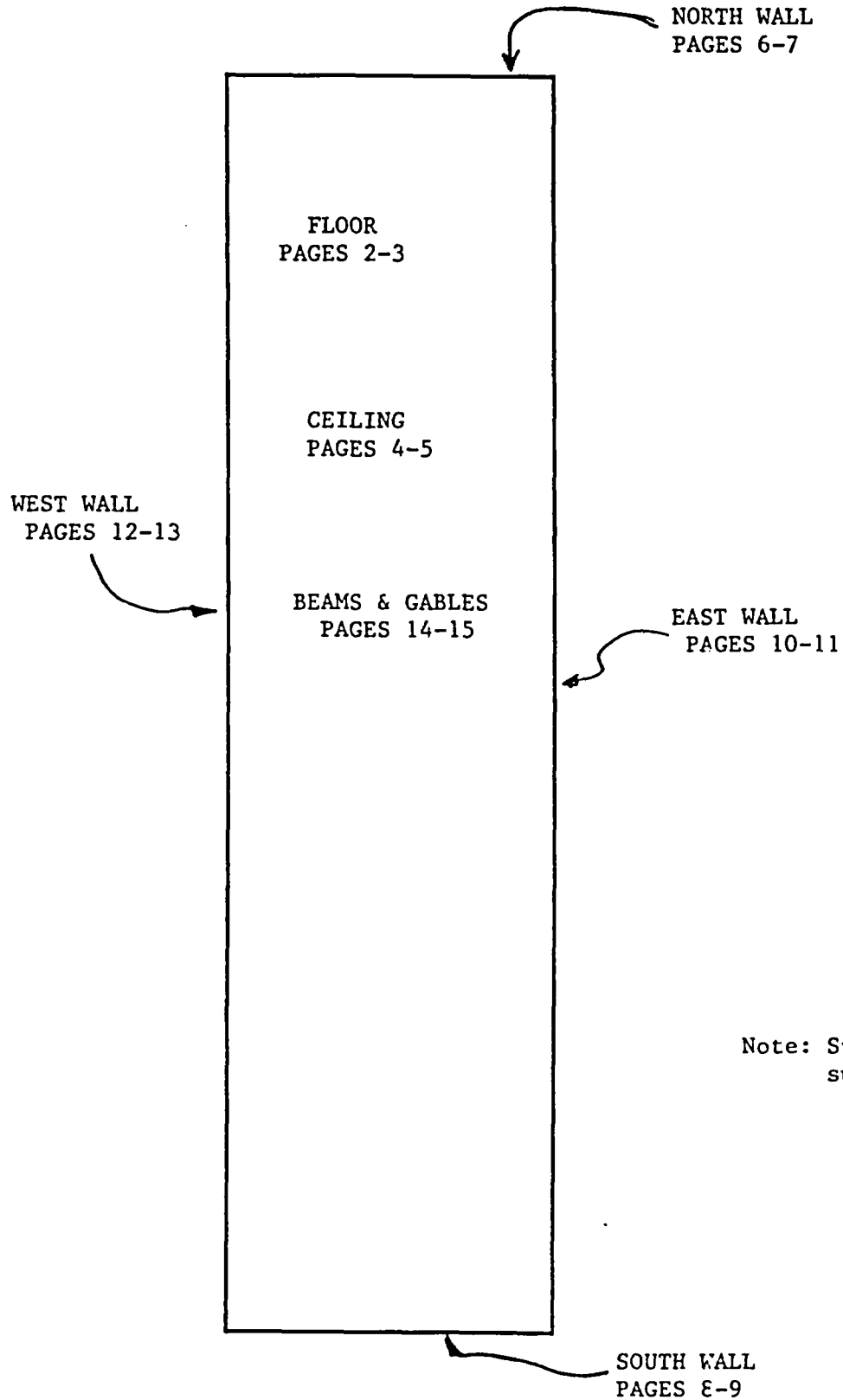
Leland C. Rouse, Chief
Fuel Cycle Safety Branch
Division of Industrial and
Medical Nuclear Safety, NMSS

OFC :	IMUF	:IMUF	:IMUF	:IMUF	:IMSB
NAME:	MHorn:lg/mh:VLTharpe	:DAMcCaughey	:GHBidinger	:LCRouse	
DATE:	10/25/88	:10/24/88	:10/31/88	:10/21/88	:10/31/88

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ENCLOSURE TO LD-88-114
BUILDING 250 AND 251
RADIOLOGICAL SURVEY RESULTS
HEMATITE NUCLEAR MANUFACTURING FACILITY
HEMATITE, MISSOURI

BUILDING 251
RADIOLOGICAL SURVEY KEY



Note: Survey based on 3' X 3'
surface area(floors &
walls)

FIXED CONTAMINATION SURVEY WAREHOUSE FLOOR -- NUMBERS IN CPM

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
A	105	150	250	100	200	250	750	1500	1500	1500	1000	1250	1000	1250	1250	1500	1200	450	750	1500	1000	1000	1500	1500	1500	1200	1200	1500	1000	500	500	500	A
	105	150	200	100	200	200	200	1250	1250	1500	350	1250	1500	150	200	1000	1500	350	300	100	1000	750	500	1500	1500	1250	200	200	350	500	450		
B	200	200	300	200	250	250	500	250	400	450	750	1000	1000	1000	1000	350	450	500	300	350	750	1500	1500	1250	1250	1000	750	1000	500	750	500	500	B
	200	250	200	150	250	250	200	250	250	500	1000	750	750	1000	1000	1500	450	450	500	750	750	1250	1250	750	1000	500	400	750	500	500	1500	1000	
C	150	250	250	250	300	250	250	350	400	450	500	750	1000	1500	500	1000	450	450	750	1250	750	1250	1250	1000	1000	400	400	500	500	300	500	400	C
	150	300	300	150	300	300	1000	400	350	400	450	750	750	500	1000	500	500	1000	500	1250	1250	1500	1250	1000	500	750	500	400	500	500	450	1000	
D	200	200	300	200	300	250	750	750	400	450	500	1000	1250	1000	1000	500	500	400	750	1500	1500	1500	1250	1000	1000	350	500	1500	500	450	350	750	D
	250	200	300	200	300	250	750	450	500	500	400	750	1250	500	450	450	500	500	400	1250	1500	1000	1250	1000	1000	500	500	1000	750	1000	450	1000	
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	350	250	250	50	250	200	200	450	450	450	400	200	1000	450	450	400	450	300	300	500	1000	1250	1500	1500	1000	400	350	1500	750	250	450	750	
F	200	200	250	100	200	200	250	400	500	1500	750	1000	1000	400	400	450	250	200	1000	1500	1250	1500	1500	1500	1250	1000	350	450	500	350	350	350	F
	200	200	250	50	250	250	200	1250	500	450	1000	1000	750	400	500	500	250	500	500	500	750	1500	1500	1500	1250	1000	400	350	750	450	400	500	
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	150	200	150	150	150	150	150	500	1000	1000	1250	1000	450	750	450	450	450	500	500	1000	1250	750	1250	250	1500	1000	400	1500	500	750	400	500	
H	200	200	250	200	150	200	100	400	500	400	500	750	400	500	500	400	750	500	1250	1500	1000	500	1000	1250	1250	1000	500	500	500	400	300	400	H
	200	300	250	200	150	150	250	1000	1500	450	750	1000	500	450	1000	400	1000	1500	1000	1000	500	500	1250	1250	750	750	1000	450	450	750	250	350	
I	200	250	250	150	200	150	200	450	1500	450	450	1000	1000	750	500	1500	1500	1500	1250	1000	500	1000	1000	750	1000	1000	500	1000	500	350	300	250	I
	200	250	250	150	200	150	200	250	1000	450	400	1000	750	1250	1000	1500	1500	1000	450	500	500	750	750	1250	750	1500	500	750	450	450	300	450	
J	250	250	250	250	200	200	250	1000	1000	1500	1000	1000	1000	1000	1000	1500	2000	1250	1250	1500	1250	1250	500	500	1250	1250	400	450	400	500	400	350	J
	100	200	250	200	250	250	250	150	1250	1000	400	1000	1000	250	1000	500	400	350	400	1250	500	450	500	400	1500	1000	250	1500	1000	1000	450	250	

SHEAR CONTAMINATION SURVEY WAREHOUSE FLOOR -- NUMBERS IN GPH PER CO2

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
A	20	16	59	43	28	16	122	20	8	8	4	12	3	12	22	24	12	16	20	20	33	23	8	12	28	4	4	47	28	138	5	12	A
B	32	8	20	20	16	20	139	20	20	26	79	59	12	14	29	24	28	39	23	22	16	12	28	43	16	24	4	32	20	47	24	32	B
C	48	24	35	37	32	35	59	28	55	24	51	12	16	28	29	12	12	33	12	20	35	12	16	24	16	24	43	20	67	12	28	39	C
D	97	55	24	12	8	39	32	63	39	39	24	47	24	35	47	51	67	47	91	16	24	14	32	16	4	32	43	43	82	35	12	24	D
E	16	8	16	8	23	3	8	4	24	24	16	3	10	8	12	4	4	0	4	2	8	23	4	20	20	8	12	12	20	16	0	12	E
F	12	28	16	20	12	43	32	39	8	24	12	12	12	19	12	51	23	16	67	114	35	23	28	63	8	51	20	51	16	4	35	28	F
G	12	28	4	16	4	4	20	8	32	12	8	8	4	10	16	16	32	12	134	150	33	35	39	12	35	43	12	20	8	8	4	4	G
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I	28	47	20	12	20	16	16	24	24	39	55	63	23	32	67	43	114	141	146	197	28	51	28	114	142	32	35	24	55	24	20	16	I
J	28	28	28	4	32	8	24	55	16	35	35	39	35	91	32	29	28	71	39	24	47	28	67	51	161	47	16	8	47	43	20	47	J

FIXED CONTAMINATION SURVEY WAREHOUSE CEILING -- NUMBERS IN CPM

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
A	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	A
B	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	B
C	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	C
D	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	D
E	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	100	50	50	50	50	50	50	50	50	50	E
F	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	100	50	50	50	50	50	50	50	50	50	F
G	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	100	50	50	50	50	50	50	50	50	50	G
H	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	H
I	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	I
J	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	J

CREAK CONTAMINATION SURVEY WAREHOUSE CEILING -- NUMBERS IN CPA PER CWT

	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
A	4	0	7	4	0	7	4	0	7	7	4	11	7	0	4	0	0	4	0	4	0	0	4	7	0	7	11	0	0	7	0	4	A
B	0	7	4	7	0	4	4	7	4	0	7	0	7	7	4	0	0	0	11	0	7	0	0	4	7	11	0	0	7	7	4	B	
C	0	7	0	0	4	0	4	11	0	7	0	4	11	4	0	0	4	0	7	7	0	11	11	0	4	0	15	7	4	11	11	11	C
D	4	0	7	0	0	0	0	4	0	7	4	4	4	7	0	4	0	11	15	0	15	4	11	18	11	4	4	11	4	0	4	0	D
E	7	0	15	4	4	0	0	0	0	15	7	0	7	11	4	0	0	11	7	0	7	123	15	0	0	7	7	0	0	0	0	7	E
F	11	0	15	7	0	0	4	0	7	11	7	4	11	4	4	11	4	0	4	0	4	11	109	4	11	40	7	4	99	4	0	18	F
G	7	7	11	4	11	11	11	4	0	0	0	4	0	7	4	20	4	4	15	4	4	7	32	11	29	7	0	26	0	7	7	4	G
H	7	7	4	4	11	7	0	4	0	4	4	4	11	0	18	4	4	0	11	0	15	7	22	7	0	22	7	15	0	4	4	H	
I	15	0	4	7	0	4	15	7	11	11	0	4	0	0	4	4	4	7	4	4	0	0	0	7	0	0	0	4	4	0	26	0	I
J	11	11	4	0	0	0	7	4	7	7	4	0	7	15	4	18	4	0	7	4	4	4	0	0	7	0	15	7	7	7	4	0	J

OUTSIDE

K	J	I	H	G	F	E	D	C	B	A	
											12'
											5'
4	11	11	7	15	0	15	11	7	11	4	6'
22	7	15	4	11	7	33	15	40	18	7	3'

INSIDE

A	B	C	D	E	F	G	H	I	J	
12	20	12	12	0	8	12	4	8	0	12'
4	0	8	4	0	12	8	3	0	4	5'
16	12	28	4	4	4	20	16	12	4	6'
12	20	16	24	12	4	12	0	24	4	3'

FIXED CONTAMINATION SURVEY: WAREHOUSE SOUTH WALL -- NUMBERS IN CPM

OUTSIDE

[illegible]

INSIDE

J	I	H	G	F	E	D	C	B	A
50	50	50	50	50	50	50	50	50	50
50	50	50	50	50	50	50	100	50	50
50	50	50	50	50	50	50	50	100	100
100	100	50	50	50	100	50	50	100	100

OUTSIDE

A	B	C	D	E	F	G	H	I	J	K
										12'
										9'
										6'
7	7	7	7	7	4	22	4	4	4	5
										3'
7	0	15	7	18	18	11	12	15	15	11

INSIDE

J	I	H	G	F	E	D	C	B	A
									12'
4	0	4	4	4	0	4	8	0	0
									9'
12	4	4	8	8	4	20	12	0	8
									6'
3	0	15	16	20	0	0	6	12	4
									3'
3	12	3	3	8	8	4	4	16	12

OUTSIDE

33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
																																	12'
																																	6'
50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	100	100	50	50	50	50	50	50	50	50	50	50	50	50	50

INSIDE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32			
50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	12'	
100	100	50	50	100	50	100	50	50	100	50	50	50	50	100	100	100	100	50	100	50	50	50	50	50	50	50	50	50	50	50	50	50	50	6'
100	100	100	100	100	150	100	100	100	100	100	200	100	100	100	200	150	150	250	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	6'
100	100	150	100	100	150	100	150	150	150	100	300	150	100	200	200	150	100	150	100	100	100	150	150	100	100	100	100	100	100	100	150	100	100	5'

OUTSIDE

33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
																																	12'
																																	9'
																																	6'
16	15	11	4	15	7	11	22	120	18	15	15	15	6	4	15	44	40	25	7	29	29	15	7	18	19	7	11	7	11	11	15	15	
15	7	0	29	11	4	11	7	15	11	15	4	4	11	7	11	11	7	15	33	7	29	15	15	4	4	11	7	26	4	11	0	4	
																																	3'

INSIDE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
4	8	24	8	0	4	8	4	0	20	4	4	4	0	8	0	4	0	16	8	0	0	0	8	16	4	12	4	8	0	0	8	12'
4	8	20	8	8	4	4	0	8	0	4	0	12	8	16	12	4	12	4	12	0	8	12	0	4	16	4	12	12	8	4	4	9'
4	4	12	4	8	12	12	4	4	8	4	8	12	12	12	4	8	8	12	20	12	12	16	12	4	8	8	20	8	12	4	12	6'
32	16	28	8	20	12	20	16	4	4	8	8	8	4	32	32	32	12	52	4	0	8	20	16	12	4	12	12	4	16	20	12	3'

OUTSIDE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	12'
50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50

INSIDE

32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	12'
50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
100	100	100	100	100	100	100	100	100	100	100	100	100	150	1250	100	100	150	100	150	100	150	100	100	100	100	100	100	150	150	150	150	150
100	100	100	100	100	150	100	150	100	100	100	100	100	150	1250	100	100	100	100	150	100	100	150	100	100	100	150	150	150	150	150	150	150

OUTSIDE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
15	22	13	15	11	4	4	7	22	29	26	7	22	4	6	15	11	7	7	11	0	13	4	7	4	13	11	7	7	7	7	0	7
4	6	15	6	11	0	7	15	0	25	4	4	4	0	7	4	4	6	7	7	0	4	4	7	11	11	4	15	7	4	13	11	7

INSIDE

32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
0	3	8	4	8	0	12	4	0	0	12	5	12	5	6	0	12	3	4	15	4	4	12	16	4	12	12	0	4	3	0	12
8	4	20	0	8	0	8	8	20	12	8	4	4	0	4	6	16	8	6	8	24	4	4	0	12	0	0	12	4	12	4	4
4	6	4	4	8	8	4	16	0	4	4	12	0	4	4	4	12	0	0	4	4	3	0	0	8	0	0	4	4	3	8	4
8	12	0	8	4	12	8	8	12	4	4	0	16	8	12	3	12	4	2	3	20	8	4	4	4	0	12	20	0	4	0	16

SMELT CONTAMINATION SURVEY BEAMS AND CABLE. * REPEATED 10 ROWS PER 100 CM2

LOCATION	BEAM NO.	DPM PER 100 CM2	DPM PER 100 CM2	DPM PER 100 CM2	DPM PER 100 CM2	DPM PER 100 CM2	DPM PER 100 CM2	DPM PER 100 CM2	DPM PER 100 CM2	DPM PER 100 CM2	DPM PER 100 CM2
EAST & WEST	1	73	22	9	1	4	22				
EAST & WEST	2	29	30	47	10	7	11				
EAST & WEST	3	30	7	40	100	20	33				
EAST & WEST	4	29	132	13	10	11	13				
EAST & WEST	5	7	20	7	10	47	50				
EAST & WEST	6	18	18	13	40	32	41				
NORTH & SOUTH	1	57	51	10	10	29	7	11	18	4	7
NORTH & SOUTH	2	51	19	10	10	10	22	22	15	22	13
NORTH & SOUTH	3	4	11	10	10	7	7	15	15	7	20
NORTH & SOUTH	4	13	13	10	10	10	11	26	4	10	13
NORTH & SOUTH	5	13	47	10	10	13	20	201	77	11	33
NORTH & SOUTH	6	11	0	17	110	33	7	7	18	26	33
NORTH BEAM		30	18	54	10						
SOUTH BEAM		40	29	13	49						
EAST BEAM		95	30	32	100	102	44	66	55	40	29
WEST BEAM		44	13	47	40	17	33	29	22	30	15
NORTH CABLE		15	15	7	5	15	7	15			
SOUTH CABLE		7	4	1	0	7	0	4	22		

* AREA RECLEANED AND RESHARED. RESULTS BELOW.

DPM PER 100 CM2

94 BEAM 3, ROWS 9, 10, 11

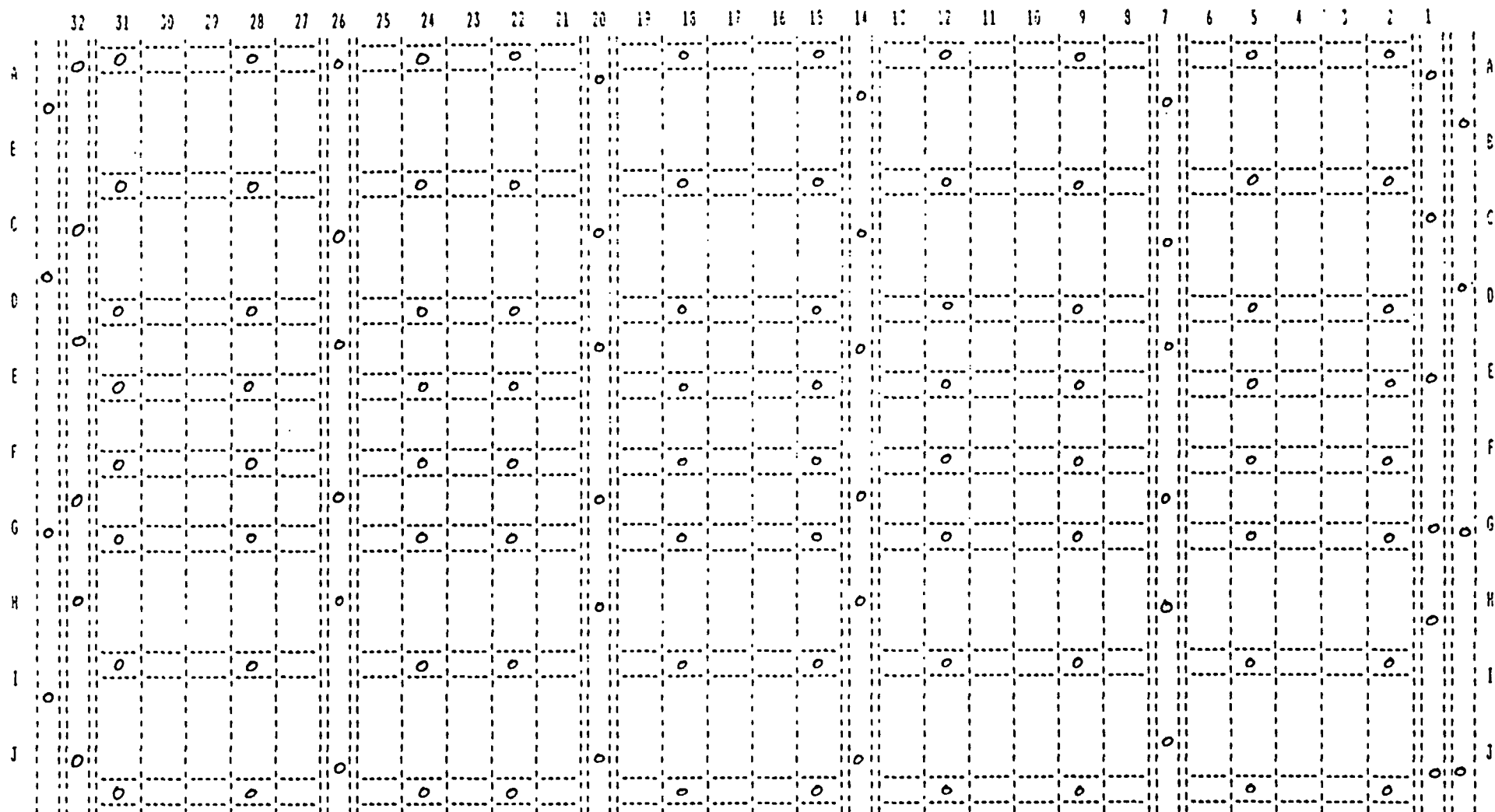
23 BEAM 3, ROWS 9, 10, 11

36 BEAM 3, ROWS 9, 10, 11

20 BEAM 4, ROWS 9, 10, 11

10 BEAM 4, ROWS 9, 10, 11

30 BEAM 4, ROWS 9, 10, 11



BUILDING 250
RADIOLOGICAL SURVEY RESULTS KEY

PUMP ROOM PAGES 17-18
UF ₆ VAULT PAGES 19-22
INSULATION ROOM PAGES 23-24
CHEMICAL STORAGE ROOM PAGES 25-28
BOILER ROOM **

Note: Survey based on 3' X 3'
surface area(floors & walls)

**The Boiler room area was not surveyed. This portion of Building 250 will remain as part of the revitalized facility. The Boiler room is a clean area.

4	3	2	1	
50	50	50	50	12'
50	50	50	50	9'
50	50	50	50	6'
50	50	100	50	3'

	12'	9'	6'	3'					3'	6'	9'	12'
A	50	50	50	50	250 200	200 150	100 300	100 200	50	50	50	50
B	50	50	50	50	200 200	250 250	250 150	200 200	50	50	50	50
C	50	50	50	50	350 300	100 100	200	50	50	50	50	50
D	50	50	100	50	350 200	100 100	200	50	50	50	50	50
E	50	50	50	50	250 200	150 150	100	100	50	50	50	50
F	50	50	50	50	200 200	200 200	100	100	50	50	50	50

50	50	50	50	
50	50	50	50	3'
50	50	50	50	6'
50	50	50		9'
				12'

CEILING

50	50	50	50
50	50	50	50
50	50	50	50
50	50	50	50
50	50	50	50

				4	3	2	1					
				12'	9'	6'	3'					
				13	26	18	11					
				11	7	26	4					
				7	11	7	15					
				0	11	4	4					
12'	9'	6'	3'					3'	6'	9'	12'	
A	4	4	0	15	44	11	15	11	7	11	26	15
B	7	4	7	4	22	4	18	18	7	7	18	36
C	11	7	4	7	15	29	11	18	0	11	26	7
D	7	0	18	11	15	36	29	77	7	18	38	7
E	0	11	7	7	26	33	22	15	4	7	44	4
F	7	0	11	4	7	40	11	26	4	22	22	7
				11	4	11	7					
				7	18	18	15					
				22	4	4	15					
				31	11	36	11					

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				CEILING			
				4	3	2	1
				0	6	4	4
				4	3	4	11
				0	0	0	26
				4	4	7	4
				4	4	0	4
				22	15	44	4

				15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
				50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50				
				0	0	50	50	100	50	100	50	50	50	50	50	0	50	50					
				0	0	100	100	100	100	100	100	100	50	50	50	0	50	50					
				0	0	100	100	50	100	150	100	50	50	50	50	0	50	50					
12'	9'	6'	3'																	12'	9'	6'	3'
A	50	50	100	250	1500	1500	750	500	750	1000	750	750	750	750	500	750	1000	1000	750	50	50	50	50
					1500	1500	1250	1000	500	1000	1000	1000	750	750	1000	750	1000	1000	1000	750			
B	50	50	100	150	1000	1500	1500	1000	750	1000	1000	1000	750	750	1000	1000	1000	1000	750	750	50	50	50
					1000	1500	1250	1000	1000	1000	1000	1000	1000	1000	1000	750	1000	1000	1000	750			
C	50	50	50	50	750	1000	1500	1000	750	1500	1500	1000	750	750	500	750	750	750	1000	0	0	50	50
					750	1000	1250	1000	1000	1500	1500	1000	500	500	750	1000	1000	1000	1000				
D	50	50	50	50	1000	1750	1000	750	1000	1250	1500	1000	750	750	750	750	750	1000	750	0	0	50	50
					1000	100	750	750	750	1000	1500	1000	1000	1000	500	1000	1000	1000	1000	500			
E	50	50	50	100	1000	500	750	750	500	1000	1000	1250	1500	750	1000	750	750	500	1000	50	50	50	50
					500	750	750	500	500	750	750	1500	1500	750	750	500	1000	750	750				
F	50	50	50	100	1000	750	750	500	500	500	500	750	1500	1000	750	1000	750	500	500	50	50	50	50
					750	500	750	500	400	500	750	750	1000	1250	1000	1000	750	500	500				
				100	50	100	100	100	50	100	50	0	0	0	0	50	50	50	50				
				50	50	50	50	50	50	50	50	0	0	0	0	50	50	50	50				
				50	50	50	50	50	50	50	50	0	0	0	0	50	50	50	50				
				50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50				

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FIXED CONTAMINATION SURVEY UPL VAULT CEILING -- ALL NUMBERS IN CPM

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
A	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
B	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
C	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
D	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
E	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
F	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50

SHEEP CONTAMINATION SURVEY UFG VALLEY -- ALL NUMBERS IN DPM PER 100 CM2

				15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
				15	11	7	4	7	0	15	11	11	15	11	15	4	4	4	12'				
				0	4	11	22	7	4	22	7	11	4	15	22	7	15	4	6'				
				0	4	11	7	11	11	18	7	0	4	15	11	0	7	11	3'				
				0	4	11	15	11	0	7	4	7	0	7	15	4	4	11	3'				
12'	9'	6'	3'																3'	6'	9'	12'	
A	11	0	15	7	18	15	7	4	7	11	15	15	29	13	22	4	15	15	7	4	7	0	4
B	7	0	22	11	7	26	15	18	18	18	11	11	22	18	15	19	24	18	24	4	4	0	0
C	26	4	4	11	15	11	11	7	7	4	7	15	18	7	22	15	15	4	4	4	4	7	7
D	15	11	4	15	26	26	15	18	33	29	62	13	33	22	34	47	36	34	7	7	4	4	0
E	0	0	18	15	29	26	29	29	15	18	4	33	22	15	24	47	22	18	0	4	4	15	0
F	11	7	18	4	15	7	26	18	4	55	7	11	24	44	24	44	11	4	15	7	4	4	4
				4	11	15	4	7	11	4	11	4	11	0	4	4	4	4					
				11	0	4	7	4	0	11	4	7	0	4	0	0	0	7	3'				
				4	4	7	7	0	4	0	0	4	4	4	7	0	4	11	6'				
				11	4	7	11	4	7	4	0	4	11	0	7	4	11	11	9'				
																				12'			

	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
A	4	4	7	7	11	0	15	4	11	7	4	15	0	4	3
B	11	7	4	11	4	7	4	7	0	4	7	5	4	4	3
C	11	4	0	4	4	4	11	0	0	0	11	4	0	7	0
D	7	7	11	7	4	11	4	4	11	11	4	0	7	4	7
E	0	7	0	7	7	4	11	4	7	4	4	11	4	11	4
F	15	7	7	4	0	11	4	0	0	4	0	4	4	7	0

4	3	2	1	12'
50	50	50	50	
50	50	50	50	9'
50	50	50	50	6'
50	50	50	50	3'

	12'	9'	6'	3'						3'	6'	9'	12'
A	150	50	50	50	350 300	350 300	400 350	450 500		50	50	50	50
B	100	50	50	50	350 300	350 300	500 500	250 200		50	50	50	50
C	150	50	50	50	350 350	350 350	500 350	1000 500		50	50	50	50
D	250	50	50	50	300 400	300 400	450 450	500 500		50	50	50	250
E	100	50	50	50	350 400	500 500	500 300	500 400		50	50	50	200
F	50	50	50	50	300 350	500 500	400 400	500 350		50	50	50	100

50	50	50	50	
50	50	50	50	3'
50	50	50	50	6'
50	50	50	50	9'
50	50	50	50	12'

cells

[illegible]

INSULATION FOAM SHEAF CONTAMINATION SURVEY -- ALL NUMBERS IN DPM PER 100 CM2

				4	3	2	1				

CELLING			
4	3	2	1
15	11	4	15
5	4		11
7	22	7	4
4	15	15	7
0	0	15	4
4	15	25	

—

				11	10	9	8	7	6	5	4	3	2	1						
				50	50	50	50	50	50	50	50	50	50	50	50	50				
				50	50	50	50	50	50	100	50	50	100	50	50					
				100	100	50	100	DOOR	WAY	200	100	100	150							
				100	200	50	50	DOOR	WAY	200	150	150	150							
12'	9'	6'	3'													3'	5'	4'	12'	
A	50	50	50	50	750	400	400	450	1250	2000	1500	750	350	450	500	200	100	50		
					450	500	1500	2000	1250	1750	1250	1000	750	750	450					
F	50	50	50	50	750	450	1500	2000	1250	1250	1250	1000	1000	500	300	100	100	50		
					1250	500	1500	1000	1250	1250	1500	1000	1000	500	300					
C	50	50	50	50	750	1250	1000	1500	1000	1000	1250	1000	1250	750	400	100	50	50		
					750	2000	2000	1500	2000	1000	750	1000	1000	750	750					
D	50	50	100	50	500	1250	1500	1000	1500	1000	500	1000	350	750	500	100	100	50		
					1000	450	500	1500	1250	1000	750	1000	1000	750	750					
E	50	50	50	50	100	1250	1250	250	1250	1000	1250	750	1000	500	350	100	100	50		
					150	450	200	1000	1250	1250	1500	1000	750	1000	1000					
F	50	50	50	50	200	200	200	500	1250	1500	1000	2000	350	1500	500	100	100	50		
					200	1500	2500	1500	1250	1500	1000	1000	1000	1250	1000					
				50	50	450	100	100	50	100	150	100	100	150						
				50	50	50	50	50	50	100	100	50	50	100						
				50	50	50	50	100	50	50	50	50	50	50						
				50	50	50	50	50	50	50	50	50	50	100						
																12'				

CEILING											
	11	10	9	8	7	6	5	4	3	2	1
A	50	50	50	50	50	50	50	50	50	50	50
B	50	50	50	50	50	50	50	50	50	50	50
C	50	50	50	50	50	50	50	50	50	50	50
D	50	50	50	50	50	50	50	50	50	50	50
E	50	50	50	50	50	50	50	50	50	50	50
F	50	50	50	50	50	50	50	50	50	50	50

				11	10	9	8	7	6	5	4	3	2	1					
				0	7	0	0	7	26	7	0	4	0	7	12'				
				15	22	4	11	0	7	13	11	4	11	7	3'				
				4	37	7	4	7	15	40	15	40	20	15	6'				
				15	11	11	18	4	11	19	16	11	13	22	3'				
12'	9'	6'	3'												3'	6'	9'	12'	
A	0	16	12	12	18	7	7	11	22	15	33	22	32	36	15	16	12	8	6
E	0	4	12	16	40	33	26	26	11	7	26	11	47	44	26	28	4	8	0
C	4	4	4	4	15	15	18	7	11	26	26	15	22	7	20	8	4	0	
D	8	3	0	4	22	9	16	25	19	19	13	16	7	41	13	3	16	4	16
E	4	0	0	4	0	0	16	16	47	28	22	12	4	15	16	4	0	12	20
F	4	12	12	8	0	8	4	12	16	24	4	24	12	20	12	8	20	4	16
				7	7	15	7	18	11	22	15	15	7	15					
				18	7	0	4	11	7	15	18	4	26	0	3'				
				0	7	11	0	4	4	7	26	7	7	4	6'				
				6	4	4	0	7	4	7	4	4	15	0	3'				
															12'				

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CEILING

	11	10	9	8	7	6	5	4	3	2	1
A	11	0	11	11	4	11	7	4	4	7	11
B	4	0	0	11	7	0	0	0	0	7	4
C	11	15	4	4	0	7	0	4	0	7	4
D	4	0	4	11	4	4	4	4	4	11	7
E	4	7	0	7	7	0	11	7	7	7	4
F	0	11	11	15	0	7	4	4	0	0	0

GUIDELINES FOR DECONTAMINATION OF FACILITIES AND EQUIPMENT
PRIOR TO RELEASE FOR UNRESTRICTED USE
OR TERMINATION OF LICENSES FOR BYPRODUCT, SOURCE,
OR SPECIAL NUCLEAR MATERIAL

U.S. Nuclear Regulatory Commission
Division of Industrial and
Medical Nuclear Safety
Washington, DC 20555

August 1987

The instructions in this guide, in conjunction with Table 1, specify the radionuclides and radiation exposure rate limits which should be used in decontamination and survey of surfaces or premises and equipment prior to abandonment or release for unrestricted use. The limits in Table 1 do not apply to premises, equipment, or scrap containing induced radioactivity for which the radiological considerations pertinent to their use may be different. The release of such facilities or items from regulatory control is considered on a case-by-case basis.

1. The licensee shall make a reasonable effort to eliminate residual contamination.
2. Radioactivity on equipment or surfaces shall not be covered by paint, plating, or other covering material unless contamination levels, as determined by a survey and documented, are below the limits specified in Table 1 prior to the application of the covering. A reasonable effort must be made to minimize the contamination prior to use of any covering.
3. The radioactivity on the interior surfaces of pipes, drain lines, or ductwork shall be determined by making measurements at all traps, and other appropriate access points, provided that contamination at these locations is likely to be representative of contamination on the interior of the pipes, drain lines, or ductwork. Surfaces of premises, equipment, or scrap which are likely to be contaminated but are of such size, construction, or location as to make the surface inaccessible for purposes of measurement shall be presumed to be contaminated in excess of the limits.
4. Upon request, the Commission may authorize a licensee to relinquish possession or control of premises, equipment, or scrap having surfaces contaminated with materials in excess of the limits specified. This may include, but would not be limited to, special circumstances such as razing of buildings, transfer of premises to another organization continuing work with radioactive materials, or conversion of facilities to a long-term storage or standby status. Such requests must:
 - a. Provide detailed, specific information describing the premises, equipment or scrap, radioactive contaminants, and the nature, extent, and degree of residual surface contamination.
 - b. Provide a detailed health and safety analysis which reflects that the residual amounts of materials on surface areas, together with other considerations such as prospective use of the premises, equipment, or scrap, are unlikely to result in an unreasonable risk to the health and safety of the public.

5. Prior to release of premises for unrestricted use, the licensee shall make a comprehensive radiation survey which establishes that contamination is within the limits specified in Table 1. A copy of the survey report shall be filed with the Division of Industrial and Medical Nuclear Safety, U. S. Nuclear Regulatory Commission, Washington, DC 20555, and also the Administrator of the NRC Regional Office having jurisdiction. The report should be filed at least 30 days prior to the planned date of abandonment. The survey report shall:
- a. Identify the premises.
 - b. Show that reasonable effort has been made to eliminate residual contamination.
 - c. Describe the scope of the survey and general procedures followed.
 - d. State the findings of the survey in units specified in the instruction.

Following review of the report, the NRC will consider visiting the facilities to confirm the survey. -

TABLE 1
ACCEPTABLE SURFACE CONTAMINATION LEVELS

NUCLIDES ^a	AVERAGE ^{b c f}	MAXIMUM ^{b d f}	REMOVABLE ^{b e f}
nat, U-235, U-238, and associated decay products	5,000 dpm α /100 cm ²	15,000 dpm α /100 cm ²	1,000 dpm α /100 cm ²
transuranics, Ra-226, Ra-228, -230, Th-228, Pa-231, -227, I-125, I-129	100 dpm/100 cm ²	300 dpm/100 cm ²	20 dpm/100 cm ²
-nat, Th-232, Sr-90, -223, Ra-224, U-232, I-126, I-131, I-133	1000 dpm/100 cm ²	3000 dpm/100 cm ²	200 dpm/100 cm ²
beta-gamma emitters (nuclides with decay modes other than pure alpha emission or spontaneous fission) except Sr-90 and others noted above.	5000 dpm $\beta\gamma$ /100 cm ²	15,000 dpm $\beta\gamma$ /100 cm ²	1000 dpm $\beta\gamma$ /100 cm ²

Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

The maximum contamination level applies to an area of not more than 100 cm².

The amount of removable radioactive material per 100 cm² of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

OCT 27 '88 12:32

NRC REGION 3B P01



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

OCT 26 1988

MEMORANDUM FOR: Leland C. Rouse, Chief, Fuel Cycle Safety Branch, NMSS

FROM: Bruce S. Mallett, Chief, Nuclear Materials Safety Branch,
Region III

SUBJECT: CONFIRMATORY SURVEY AT COMBUSTION ENGINEERING (HEMATITE)

The purpose of this memorandum is to discuss the results of the confirmatory survey performed by G. M. France, III, Fuel Facility Inspector, on October 6 and 7, 1988, in Buildings 250 and 251 at Combustion Engineering's fuel fabrication facility in Hematite, Missouri. Donald J. Sreniawski, Chief, Nuclear Material Safety Section 2, accompanied Mr. France during the onsite survey.

The confirmatory measurements, coupled with a review of the licensee's survey and history of facility operations, indicates that the licensee conducted cleanup efforts that were effective in reducing radioactive contamination levels to below NRC guidelines. On this basis, we concur with the licensee's data and request to release Buildings 250 and 251 for "unrestricted use."

The inspector determined that surface gamma exposure rates for direct readings in the two buildings ranged from 9-65 $\mu\text{R/hr}$. Surface gamma exposure rates for the asphalt/concrete walkway ranged from 10-70 $\mu\text{R/hr}$. General background exposure rates ranged from 6 to 10 $\mu\text{R/hr}$ for the Hematite site. Smears were counted to determine gross alpha activity. The maximum smearable level was 29 dpm/100cm². Smears from locations of elevated direct beta-gamma measurements indicated only a small amount of transferable contamination. The highest level of fixed gross alpha contamination was determined to be 1430 dpm/100cm².

Unless NRC objects, the licensee plans to demolish Buildings 250 and 251 and construct a larger facility that would place more services under one roof. To support these modifications, the licensee performed core hole drilling in the soil beneath the asphalt and concrete walkways outside the buildings. Preliminary, unconfirmed results indicate that total alpha contamination in the soil samples ranged from 1 to 142 pCi/g. The samples were selected from 9 core hole drillings consisting of 5 samples per core hole collected at one foot intervals. Samples from 6 of the core holes were submitted to NRC Region III for confirmatory measurements. The licensee's data for soil measurements in the areas selected for new footings to construct the new facility showed readings of 3 to 21 pCi/g. On this basis, the licensee requested permission to form footings and commence construction prior to the onset of cold weather. This would enable the licensee to place the area under roof while demolishing Buildings 250 and 251.


Leland C. Rouse

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OCT 26 1988

Based on this preliminary data, Region III concurs with the licensee's request to commence construction with the understanding that additional surveys and confirmatory measurements may be needed to fully characterize the radiation levels of soil located beneath the existing asphalt/concrete walkways.

If you have any questions about these comments, please call D. J. Sreniawski (FTS 388-5611) or G. M. France, III (FTS 388-5786) of my staff.



Bruce S. Mallett, Chief
Nuclear Materials Safety Branch

cc: License File
C. E. Norelius, RIII