



February 13, 1992
ML-92-017

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

Mr. John W. Hickey, Chief
Fuel Cycle Safety Branch
Division of Industrial and Medical Nuclear Safety
Office of Nuclear Materials Safety and Safeguards
U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington D.C. 20555

Subject: Construction at Hematite

Dear Mr. Hickey:

On January 30, 1992 we met with you, members of your staff, and members of the Region I & III staff, to discuss our plans to consolidate our fuel manufacturing operations to our Hematite Facility. As requested at the meeting, the purpose of this letter is to document for you the impact of the construction phase of this project.

The new rod and bundle assembly building will contain approximately 38,000 square feet of manufacturing space and measure approximately 190 feet by 200 feet. As depicted in Enclosure I, the new Assembly Building will be constructed to the west of the existing Building 240 and outside the existing security fence. Additionally, the site parking lot will be expanded to accommodate the increased staffing levels. When the new building is completed, and prior to operations involving special nuclear material (SNM), the secured area will be expanded to encompass this building.

The new building will be constructed in a grassy area within the central site tract, and therefore, the project will not impact any forested areas. The Hematite site consists of 155 acres, 6.9 acres of which are currently developed. An additional 2.4 acres will be utilized for consolidation. During the construction phase, a slight increase in the area dust, noise, and road traffic will occur during the daylight hours. The community of Hematite (estimated population 200) is approximately one mile away and should not be affected by the project.

The proposed construction area for the new Assembly Building was recently surveyed and soil samples extracted. No indication of abnormal levels of radioactivity were found.

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The results of this survey are provided for your reference in Enclosure II. Additionally, no knowledge or records exist indicating the area was ever utilized in the processing, storage, or disposal of SNM.

During the construction phase of the Assembly Building work will be performed outside the existing secured area. Contractors working outside the secured area will receive site orientation training in order to understand the actions necessary in the event an emergency involving a plant evacuation occurs.

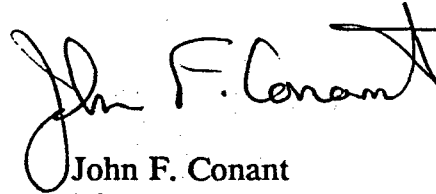
As part of the consolidation project, several minor activities will be carried out in the secured area such as construction of additional office space, a new men's locker room, a new HEPA filter room, and the connector to the new building. Contractors working in controlled areas will receive radiological and site orientation training.

Prior to introducing SNM into the new Assembly Building we intend to submit an application for amendment to our License, SNM-33, and provide you with supplemental environmental information.

If I can be of any further assistance in this matter, please feel free to call me or Mr. Thomas L. Cameron of my staff at (203) 285-5109.

Very truly yours,

COMBUSTION ENGINEERING, INC.



John F. Conant
Manager
Nuclear Materials Licensing

JFC:kl

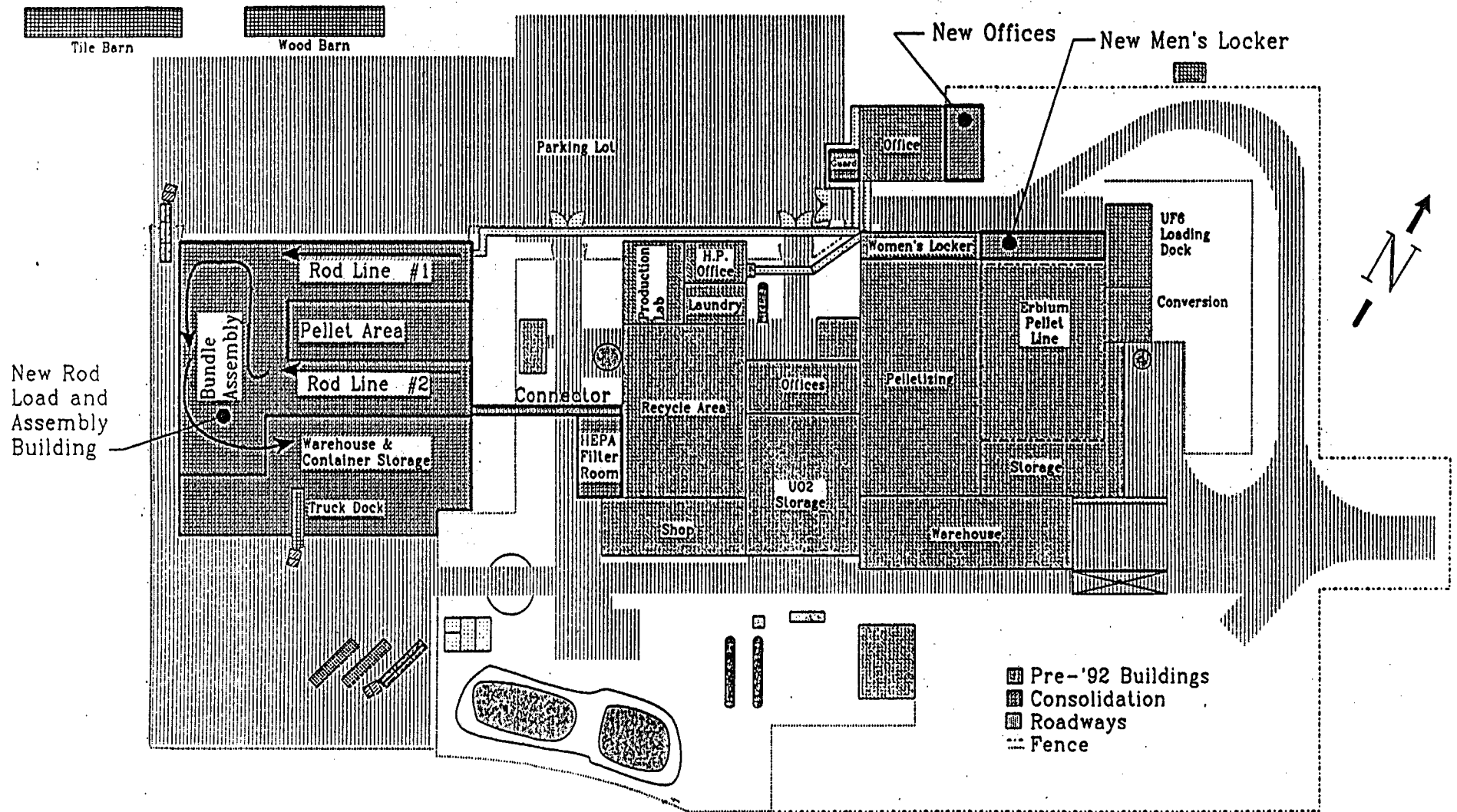
Enclosures: As Stated

cc: G. France (Region III)
M. Tokar (NRC)
S. Soong (NRC)

**Enclosure I to
ML-92-017**

PROPOSED CHANGES TO HEMATITE SITE LAYOUT

FEBRUARY 1992



PROPOSED CHANGES TO HEMATITE SITE LAYOUT

**Enclosure II to
ML-92-017**

HEALTH PHYSICS SAMPLING OF CONSOLIDATION CONSTRUCTION SITE

FEBRUARY 1992

HEALTH PHYSICS SAMPLING OF CONSOLIDATION CONSTRUCTION SITE

INTRODUCTION

It is necessary to confirm that the west field outside the fence is not contaminated before beginning construction on the new consolidation building. To this end, the following sampling plan was designed and implemented by Health Physics.

SAMPLE GRID

The EPA suggests a sample grid size of ten (10) meters. To be conservative, a grid of three (3) meters was selected. This was rounded to nine feet. The grid was laid out as indicated in Figure 1. Because of the construction of a gravel road through the edge of the site, the grid was offset forty-five (45) feet to the west. This is consistent with the goal of the survey which is to confirm in general that the construction site is not contaminated. The grid squares were numbered from the southeast corner to the northwest corner, as indicated in Figure 1.

NUMBER OF SAMPLES AND LOCATIONS

In order to obtain a 95% confidence of a population of 484 squares, twenty (20) samples are required. The sample size required to achieve this confidence level was determined using MIL-STD-105D, "Sample Procedure and Tables for Inspection by Attributes." Squares to be sampled were selected using a random number table.

SAMPLING COLLECTION PREPARATION AND COUNTING

Samples were taken from the selected squares by removing the grass and collecting a core four inches in diameter and six inches deep. The sample was blended by stirring, and a half gram sample was removed and counted for sixty (60) minutes in the new Canberra counter. The remainder of the sample was archived for future reference.

RESULTS

The results for the twenty (20) samples is shown in Table 1.

Maximum was 11.6 Pci/gm

Average \bar{X} = 6.2 Pci/gm

Standard Deviation s = 2.8 Pci/gm

A 95%/95% confidence on twenty (20) samples in a one-sided tolerance limit for normal distribution is $K = 2.396$

$K = (\text{limit} - \bar{X})/s = (30 - 6.2)/2.8 = 8.5$ or better than 99%/99% confidence level that no sample will exceed 30 Pci/gm

CONCLUSION

The accompanying data analysis shows that the construction site where the new rod assembly building will be constructed is not contaminated above the 30 Pci/gm limit. The data collected shows that the 95%/95% upper limit to activity is 13 Pci/gm for this area.

TABLE 1

SOIL SAMPLES FROM THE FIELD WEST OF BUILDING 240

SAMPLE ID	ALPHA BKGD	ALPHA EFFICIENCY	ALPHA GROSS COUNTS	ALPHA NET CPM	ALPHA CONC Bq/ton
483	0.07	0.247	23	0.30	4.90
396	0.17	0.231	29	0.30	5.22
202	0.15	0.236	28	0.30	5.11
108	0.05	0.239	25	0.40	6.73
74	0.08	0.232	31	0.40	6.93
13	0.13	0.243	12	0.10	1.66
18	0.15	0.245	28	0.30	4.93
479	0.22	0.225	26	0.20	3.58
467	0.07	0.247	40	0.60	9.80
243	0.17	0.231	21	0.20	3.48
475	0.05	0.239	32	0.50	8.42
315	0.08	0.233	37	0.50	8.66
442	0.13	0.243	52	0.70	11.59
9	0.22	0.225	21	0.10	1.79
235	0.07	0.247	34	0.50	8.17
472	0.17	0.231	32	0.40	6.96
72	0.08	0.233	21	0.30	5.19
328	0.13	0.243	21	0.20	3.31
92	0.15	0.245	32	0.40	6.57
127	0.22	0.225	47	0.60	10.74

TABLE 2

CONSTRUCTION SITE SAMPLE ANALYSIS

SAMPLE NUMBER	GRID LOCATION	MEASURED PPM
1	483	4.90
2	396	5.22
3	202	5.11
4	108	6.73
5	74	6.93
6	13	1.66
7	18	4.90
8	479	3.58
9	467	9.80
10	243	3.48
11	475	8.42
12	315	8.66
13	442	11.59
14	9	1.79
15	235	8.17
16	472	6.96
17	72	5.19
18	328	3.31
19	32	6.57
20	127	10.74
	Max	11.59
	Average X	6.19
	S	2.79
	K Factor	8.53

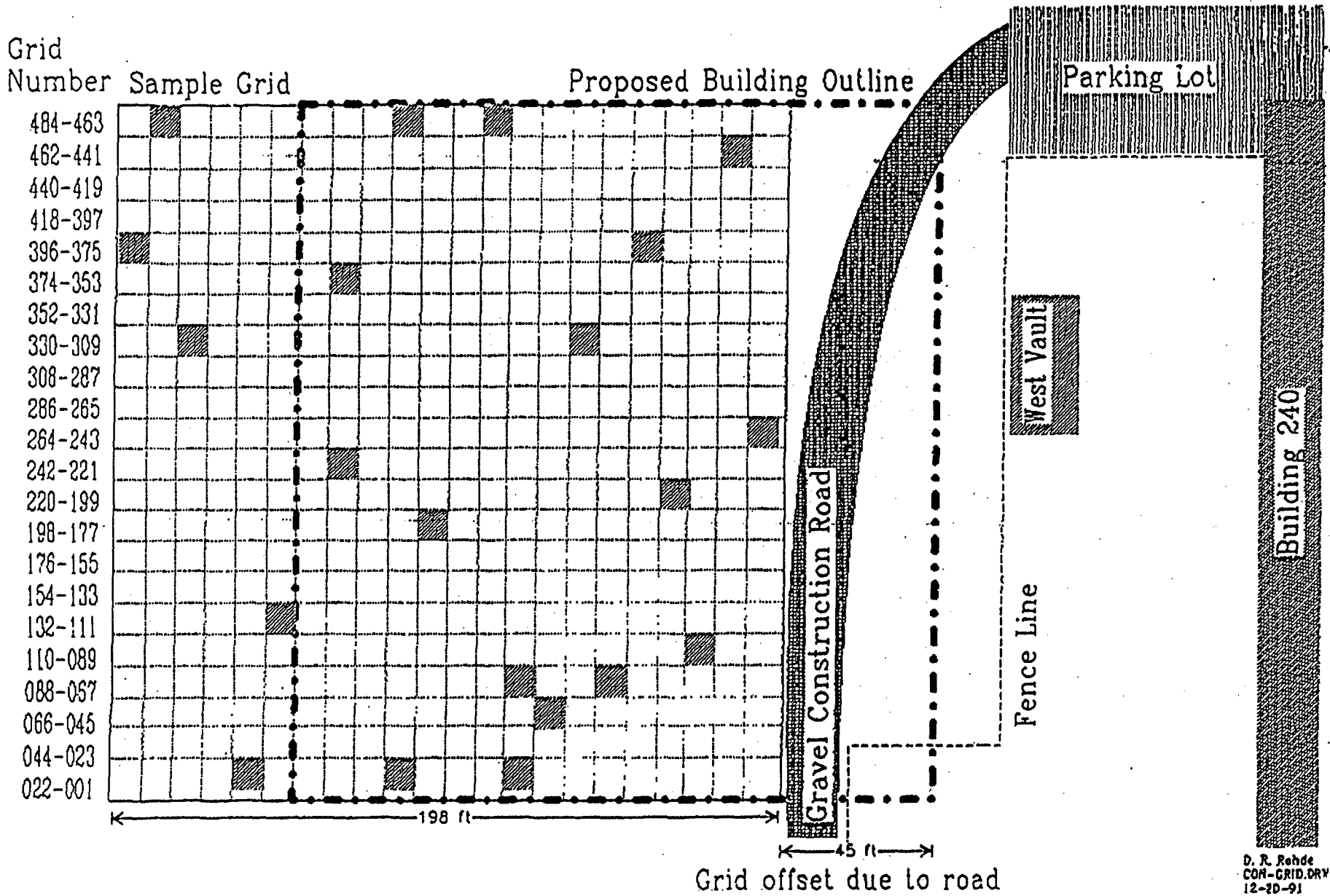


Figure 1. Sample Grid for Consolidation Building Site Sampling