

ENGELHARD

13-Feb-95

ENGELHARD CORPORATION
CHEMICAL CATALYSTS GROUP
120 PINE STREET
P.O. BOX 4017
ELYRIA, OHIO 44036-2017
(216) 322-3741

Mr. William Snell
United States Nuclear Regulatory Commission
801 Warrenville Road
Lisle, IL 60532

Re: Engelhard Corporation
Harvard-Denison

Dear Mr. Snell:

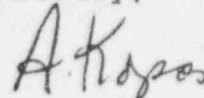
Per our telephone conversation of 31-Jan-95, the Engelhard Corporation submits the following documents that attest to the fact that the radiological contamination is NOT natural uranium but purified uranium without its long-lived daughters.

- A report by Max Scott (Uranium Primer, Feb., 1995) which outlines how the natural uranium was processed prior to arrival at the Harvard-Denison Site.
- A copy of Table 7 from the Argonne Report which indicates the Gamma Spectra of various soil samples taken at the Site.
- A proposed sampling/analytical protocol that will be used to substantiate our argument.

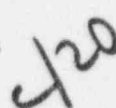
Once you have reviewed the documents and approved our sampling/analytical plan, we will initiate the work and submit the findings to you.

If you have any questions, please call me at (216) 329-2553.

Sincerely,



A. G. Kopas, Manager
Environmental Services



9703030090 970221
PDR FOIA
BABCOCK96-529 PDR

AGK/dck

Attachments

cc: w/encl W. Potter - Chevron

FEB 14 1995

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HARVARD-DENISON

SAMPLING/ANALYTICAL PROTOCOL

<u>Location</u>	<u>Description</u>	<u>Activity (DPM)</u>
A	Soil Sample	10,000
B	Door Sill	40,000
C	Top of Window Ledge	8-9,000
D	Floocr	30-50,000

Analysis

All four samples will undergo Gamma Spectroscopy; while one will be subjected to an Alpha Spectrographic Study.

All work will be performed by Max Scott.

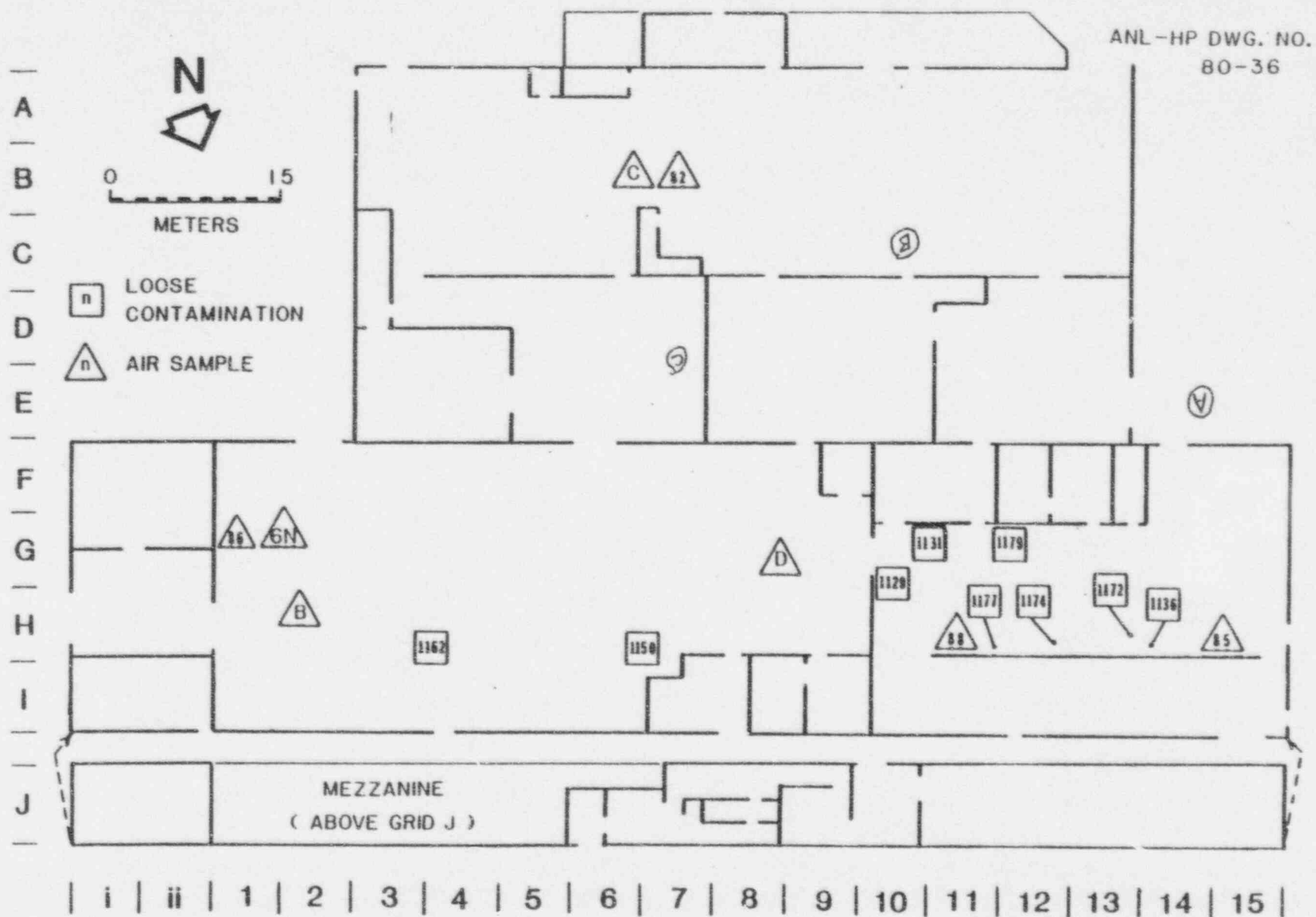


Figure 4. Plant "C" First floor. Air Sample and Contaminated Smear Locations.

ANL-HP DWG. NO. 80-39

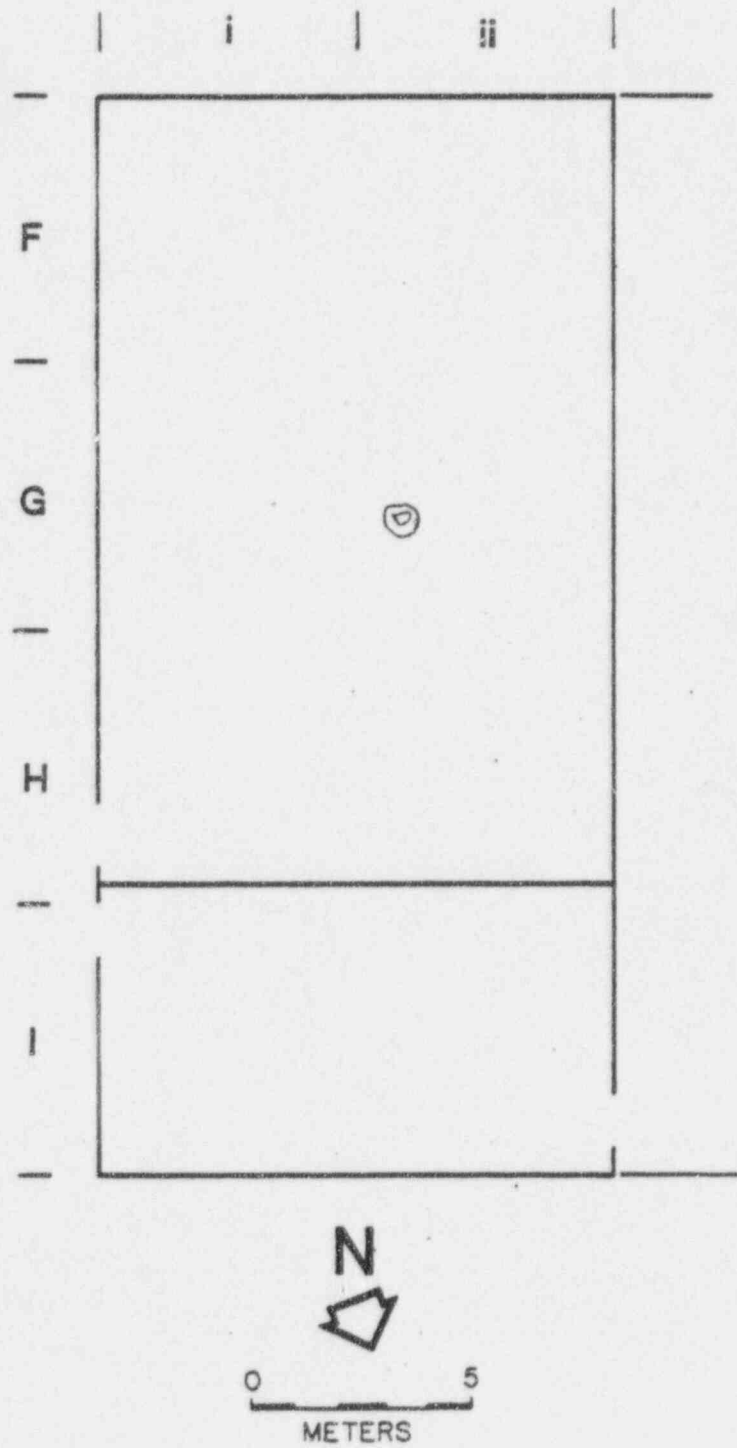


Figure 6. Plant 'C' Third Floor.

ANL-HP DWG. NO. 80-55

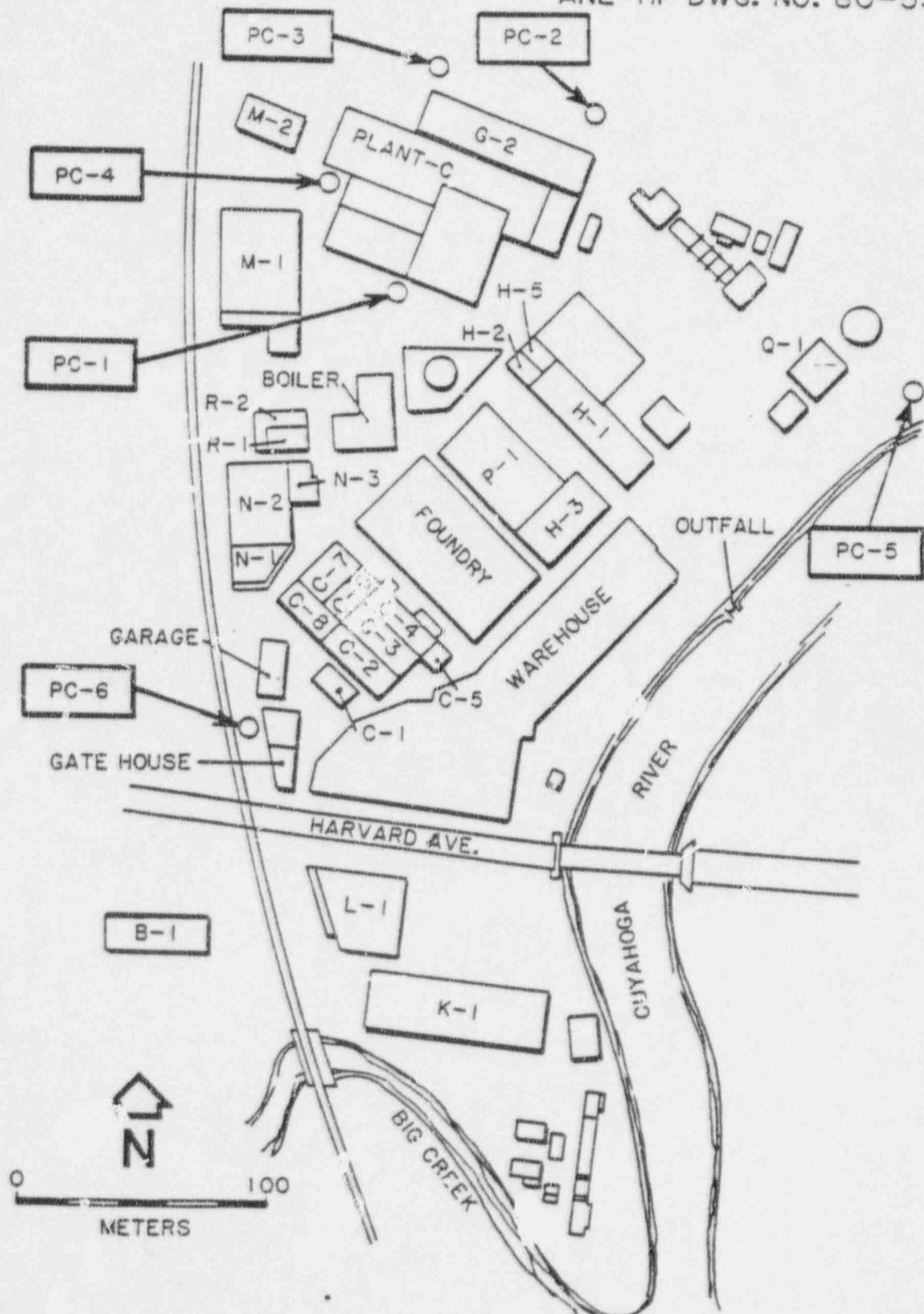


Figure 2. Harshaw Complex Buildings and Soil Sample Locations.

TABLE 7
GAMMA SPECTRAL AND URANIUM FLUOROMETRIC ANALYSES OF SOIL SAMPLES

Sample ^b Number	Gamma Spectra, pCi/g $\pm\sigma$			Uranium Fluorometric	
	¹³⁷ Cs	²³² Th Decay Chain	²²⁶ Ra Decay Chain	$\mu\text{g/g}\pm 10\%$	pCi/g ^a $\pm 10\%$
FL-1	<0.06	<0.06	0.6 \pm 0.1	2.1 \pm 0.2	1.3 \pm 0.2
BP-1A	0.78 \pm 0.06	0.78 \pm 0.09	0.9 \pm 0.1	3.3 \pm 0.3	2.3 \pm 0.2
BP-1B				3.6 \pm 0.4	2.3 \pm 0.2
BP-1C				8.9 \pm 0.9	6.2 \pm 0.6
BP-1D				5.0 \pm 0.5	3.5 \pm 0.4
BP-2A	1.32 \pm 0.08	0.9 \pm 0.1	0.7 \pm 0.1	3.5 \pm 0.4	2.4 \pm 0.3
BP-2B				3.4 \pm 0.4	2.4 \pm 0.3
BP-2C				4.6 \pm 0.5	3.2 \pm 0.3
BP-2D				3.3 \pm 0.4	2.3 \pm 0.3
MW-1A	0.63 \pm 0.05	0.9 \pm 0.2	1.20 \pm 0.06	4.5 \pm 0.5	3.1 \pm 0.3
MW-1B				9.0 \pm 0.9	6.3 \pm 0.6
MW-1C				5.1 \pm 0.5	3.6 \pm 0.4
MW-1D				7.1 \pm 0.7	5.0 \pm 0.5
MW-2A	0.50 \pm 0.04	1.1 \pm 0.2	1.24 \pm 0.06	6.8 \pm 0.7	4.8 \pm 0.5
MW-2B				6.5 \pm 0.7	4.5 \pm 0.5
MW-2C				7.4 \pm 0.7	5.2 \pm 0.5
MW-2D				5.5 \pm 0.6	3.8 \pm 0.4
PC-1A	<0.07	1.00 \pm 0.08	0.72 \pm 0.04	44 \pm 4	31 \pm 3
PC-1B				110 \pm 11	77 \pm 8
PC-1C				1700 \pm 170	1190 \pm 120
PC-1D				220 \pm 22	150 \pm 15
PC-2A	0.22 \pm 0.02	0.7 \pm 0.2	0.80 \pm 0.05	11 \pm 1	7.7 \pm 0.8
PC-2B				12 \pm 1	8.4 \pm 0.8
PC-2C				11 \pm 1	7.7 \pm 0.8
PC-2D				15 \pm 2	10.5 \pm 1.1
PC-3A	0.09 \pm 0.03	0.3 \pm 0.1	0.35 \pm 0.03	10 \pm 1	7.0 \pm 0.7
PC-3B				29 \pm 3	20 \pm 2
PC-3C				21 \pm 2	15 \pm 2
PC-3D				13 \pm 1	9 \pm 1
PC-4A	0.27 \pm 0.02	0.98 \pm 0.06	2.3 \pm 0.1	110 \pm 11	77 \pm 8
PC-4B				1300 \pm 130	910 \pm 90
PC-4C				460 \pm 46	320 \pm 32
PC-4D				2600 \pm 260	1820 \pm 180

TABLE 7
(cont'd.)

Sample Number	Gamma Spectra, pCi/g $\pm\sigma$			Uranium Fluorometric	
	¹³⁷ Cs	²³² Th Decay Chain	²²⁶ Ra Decay Chain	$\mu\text{g/g}\pm 10\%$	pCi/g $\pm 10\%$
PC-5A	0.23 \pm 0.04	0.8 \pm 0.1	0.83 \pm 0.06	17 \pm 2	12 \pm 1
PC-5B				13 \pm 1	9 \pm 1
PC-5C				15 \pm 2	10 \pm 1
PC-5D				13 \pm 1	9 \pm 1
PC-6A	4.9 \pm 0.2	0.90 \pm 0.07	1.54 \pm 0.08	12 \pm 1	8 \pm 1
PC-6B				10 \pm 1	7 \pm 1
PC-6C				4 \pm 0.4	3 \pm 0.3
PC-6D				12 \pm 1	8 \pm 1

^aConversion factor based on values in Appendix 5.

^bEach soil core was 12 in long and was divided into four segments for analysis. Starting from the surface, three, 2-in segments were cut and labeled A, B, and C, respectively; the final segment of 6-in was labeled D (see Fig. 3).