

UNITED STATES GOVERNMENT

Memorandum

Handwritten:
Please Circulate to 6-12
DME - Summary file

TO : R. G. Page, Chief, Enforcement Branch
Division of State and Licensee Relations

DATE: APR 30 1964

FROM : Jack R. Roeder, Inspection Specialist for Staff Operations
Division of Compliance

SUBJECT: VITRO CORPORATION OF AMERICA, CANONSBURG, PENNSYLVANIA -
LICENSE NO. SUC-315 - HEALTH PHYSICS SURVEY

CO:TWB

Attached for your information are copies of the subject survey report and Region I's transmittal memorandum dated April 23, 1964.

Attachments:

1. Cpy memo to Roeder, CO:HQ, fm Cleveland, CO:I
dtd 4/23/64
2. Cpy Health Physics Survey
dtd 4/13/64

cc: R. S. Cleveland, CO:I, w/o att



Jack R. Reader, Inspection Specialist, Staff
Operations, Division of Compliance, HQ

APR 23 1964

Richard S. Cleveland, Radiation Specialist (Review)
Region I, Division of Compliance

HEALTH PHYSICS SURVEY, VITRO CORPORATION OF AMERICA, CANONSBURG,
PENNSYLVANIA, LICENSE NO. SUC-315

CO:1:EPR

This office conducted comprehensive surveys at the Vitro Corporation, Canonsburg, Pennsylvania Facility on 4/13/64. This survey was conducted to establish the accuracy of the survey results submitted to SLR on 3/19/64 by Allied Crossroads Nuclear Corporation. This corporation had contracted to decontaminate the grounds and buildings to the levels specified in SLR's letter of 5/2/63 to Vitro Corporation.

The contractor has divided the facility into two areas, Parcel "A" and Parcel "B". These areas are shown on the Allied Crossroads Survey Report of 3/19/64. Parcel "B" contains the original stockpile of uranium tailings, the contaminated earth removed from areas inside Parcel "A" and contaminated material and debris removed from Parcel "A". The two areas have been separated by a thin wire strung through the facility upon which "Caution - Radiation Area" signs with standard symbols have been hung. Exhibit "A" of the Allied Crossroads Survey Report shows this barrier. The inspector noted that in some areas the wall of a building actually form the barrier. The overall appearance of the facility is one of general disrepair and neglect.

The survey conducted by this office attempted to establish the various levels of fixed and removable surface contamination, contact and ambient beta-gamma dose rate levels inside buildings, and ambient beta-gamma dose rate levels outside of the buildings and at certain points of interest in and around the facility. This office points out that the survey represents only the levels obtained at the time of the survey, and that erosion from the vast amounts of unprotected source material in the immediate vicinity can cause these levels to increase.

Additionally, this office points out that significantly higher levels exist in the subsoil of the facility than may be measured on the surface.

~~5203-100-520~~

Reportedly, levels up to one (1) roentgen per hour were found after earth cover was removed from under the site of Building 4 (Old Radium Building).

In general, the survey conducted by this office indicated higher average values than those reported in the Allied Crossroad Nuclear Corporation's Survey. The survey conducted by this office was made at random in that areas of high and/or low contamination levels were not hunted out. A standard survey pattern was established that was followed as nearly as possible for all areas. It is pointed out that entirely different values could be obtained on another survey, and that whether these values would be higher or lower cannot be predicted.

The results of the survey conducted by this office are enclosed except for swipe survey results which will be forwarded as soon as possible.

Enclosure:
Survey Results

VITRO CORPORATION OF AMERICA
CARLESTOWN, PENNSYLVANIA

HEALTH PHYSICS SURVEY
APRIL 13, 1964

FIELD ALPHA
EPH/100 CM

MTAAGANDA (METER)
AT CHA CH

Building 1

	<u>No. of</u> <u>Readings</u>	<u>Low</u>	<u>High</u>	<u>Avg.</u>	<u>No. of</u> <u>Readings</u>	<u>Low</u>	<u>High</u>	<u>Avg.</u>	<u>Moist Level</u> <u>Ambient</u>
Floor	20	< 100	800	250	20	0.05	0.1	0.08	0.05
Walls	10	< 100	< 100	< 100	10	0.05	0.05	0.05	

Building 2

Floor	20	< 100	1000	800	20	0.05	0.1	0.08	0.05
Walls	10	< 100	< 100	< 100	10	0.05	0.05	0.05	

Building 3

Floor	20	< 100	1200	1000	20	0.05	0.1	0.08	0.05
Walls	10	< 100	300	100	10	0.05	0.1	0.06	

Building 6

Floor	6	< 100	< 100	< 100	4	0.05	0.08	0.05	0.05
Walls	4	< 100	< 100	< 100	4	0.05	0.05	0.05	

Building 7

Floor	20	200	31,000	3100	20	0.05	0.5	0.15	0.1 - 0.2
Walls	14	< 100	12,000	1250	16	0.05	0.5	0.26	

Building 9

Floor	17	200	3000	1000	18	0.05	0.30	0.22	.05 - 0.1
walls	12	< 100	600	200	14	0.05	0.10	0.07	

Building 10

(1) Floor	16	200	3000	1430	10	.05	0.1	0.08	0.05
walls	11	< 100	1500	650	12	.05	0.1	.08	
(2) Floor	12	< 100	7000	1200	8	.05	0.08	.05	0.05
walls	10	< 100	15,000	1800	6	.05	0.05	0.05	

Building 11

Floor	14	200	700	420	15	0.05	0.5	0.22	.05 - 0.1
walls	12	< 100	200	100	12	0.05	0.5	0.12	

Building 12

Floor	4	1200	2000	1450					0.50
walls	8	8	-	-	-	-	-	-	-

DATA - GAMA
AT 100 CM

DATA - GAMA (MR/MR)
AT ONE CM

Building 11

	No. of Readings	Low	High	Avg.	No. of Readings	Low	High	Avg.	Max. Low Min. Low
(1) Floor	13	500	1500	900	12	0.05	0.3	0.20	.05 - 0.1
Walls	12	< 100	800	440	12	0.05	0.2	0.11	
(2) Floor	10	500	1500	890	9	0.1	0.3	0.22	0.08
Walls	12	< 100	1000	358	12	0.1	0.3	0.15	

Building 12

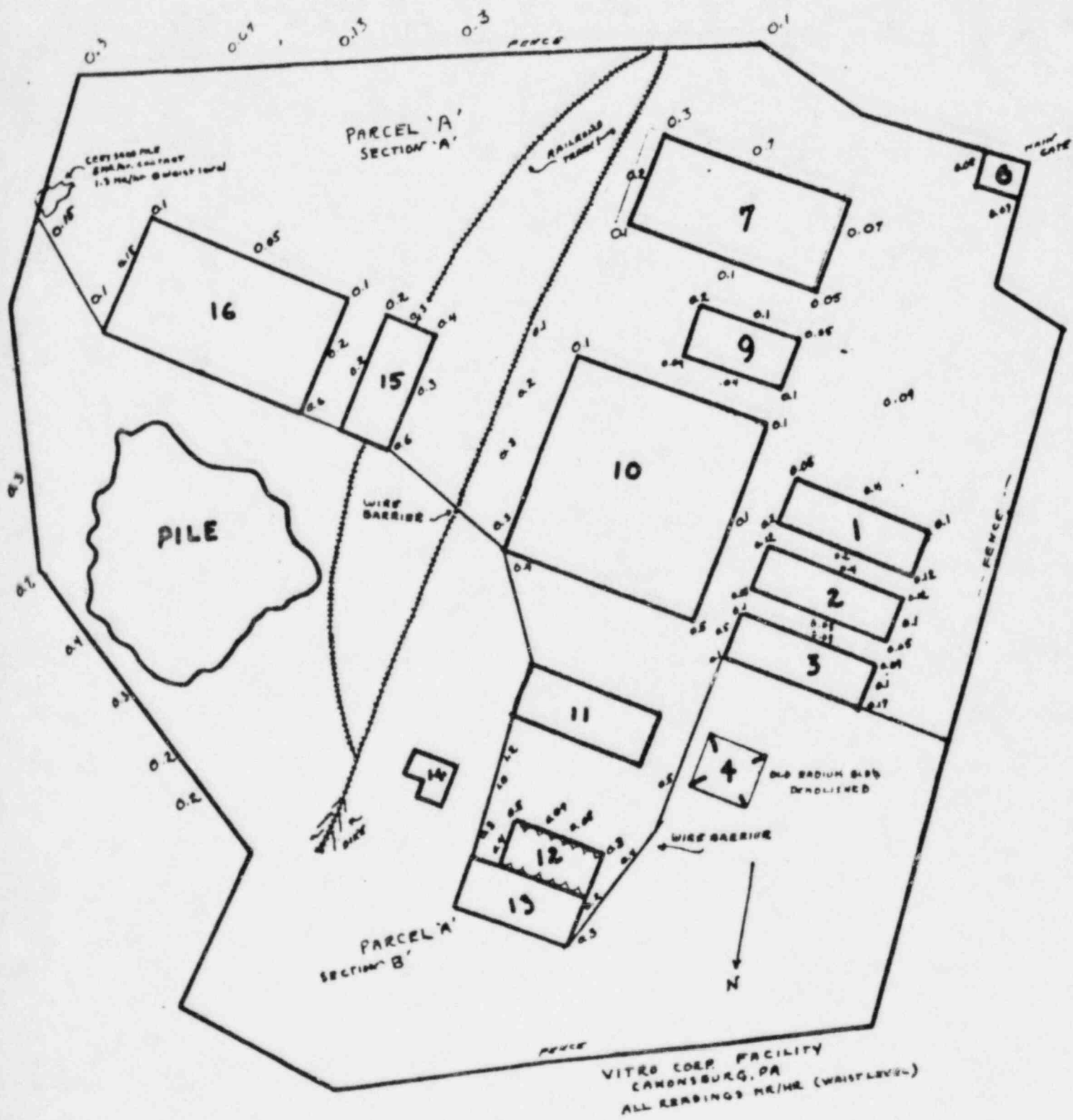
Floor	12	200	10,000	4000	6	0.1	0.5	0.18	0.1
Walls	16	< 100	4000	900	9	0.1	0.5	0.26	

Building 14

Floor	22	600	20,000	4790	13	^{.05} 0.05	0.1	0.09 0.09	^{.05} 0.05 - 0.08
Walls	24	200	17,000	1500	28	0.05	0.5	0.18 0.18	

Building 11 - Partly Demolished

avg all holes
(except #14)
.13 mm/hr B-8



ALLIED SURVEY TABULATION (INCLUDING BACKGROUND)

9/30/65

Lagoon

- number of survey points -	475
- radiation level average at 2 1/2 feet above surface -	.062 mr/hr
- survey points exceeding 0.5 mr/hr at 2 1/2 feet above surface -	0

Plant Area

- number of survey points -	701
- radiation level average -	0.17 mr/hr
- survey points exceeding 0.5 mr/hr (2 1/2 feet) -	17
- average radiation level in areas where 0.5 mr/hr was exceeded (2 1/2 feet) -	0.72 mr/hr

Plant Area Buildings

- maximum removable alpha - 800 dpm/100cm²
- average removable alpha - 50-60 dpm/100cm²
- maximum fixed alpha -
 - 90,000 dpm/60cm², Building 14
 - 150,000 dpm/60cm², Building 16
 - 21,000 dpm/60cm², in all other buildings
- average fixed alpha -
 - 69,000 dpm/60cm² in Building 14
 - 22,500 dpm/60cm² in Building 16
 - 3,360 dpm/60cm² in all other buildings

Background (waist level)

- across George Street -
 - max. 18 μ r/hr
 - avg. 0.5 μ r/hr
- fence at lagoon -
 - max. 0.6 μ r/hr
 - avg. 0.5 μ r/hr
- little league field -
 - max. 1.5 μ r/hr
 - avg. 0.5-0.6 μ r/hr

AEC SURVEY TABULATION (INCLUDING BACKGROUND)

Lagoon

- number of survey points -	139
- maximum radiation level at 2 1/2 feet above surface -	0.3 mr/hr
- average radiation level at 2 1/2 feet above surface -	0.07 mr/hr

Plant Area Beta-Gamma Excluding Buildings

- number of survey points -	717
- maximum radiation level at 1 cm above surface -	7 mrad/hr
- average radiation level at 1 cm above surface -	0.34 mr/hr
- number of survey points exceeding 1 mr/hr -	37

Plant Area Alpha Excluding Buildings

- number of survey points -	244
- maximum dpa at 1 cm above surface -	48,000 dpa/60cm ²
- average dpa at 1 cm above surface -	3,400 dpa/cm ²

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RADIOACTIVITY CONTAMINATION LIMITS FOR
ABANDONMENT OF FACILITIES AND EQUIPMENT

1. The maximum amount of fixed alpha radioactivity in disintegrations per minute per 100 square centimeters on buildings or equipment should not exceed 25,000.
2. The average amount of fixed alpha radioactivity in disintegrations per minute per 100 square centimeters on buildings or equipment should not exceed 5,000.
3. The maximum amount of removable (capable of being removed by wiping the surface with a filter paper or soft absorbent paper) alpha radioactivity in disintegrations per minute per 100 square centimeters on buildings or equipment should not exceed 1,000.
4. (a) The maximum level at one centimeter from the most highly contaminated surface of a building or piece of equipment measured with an open-window beta-gamma survey meter through a tissue equivalent absorber of not more than seven milligrams per square centimeter should not exceed one millirad per hour.

(b) The average radiation level at one centimeter from the contaminated surface of the building or equipment measured in the same manner should not exceed 0.2 millirad per hour.
5. The contamination limits for abandonment of facilities involving U-233 or plutonium should not exceed 1/10 of the limits in items 1, 2 and 3 above.

Henderson supplied this matter for
resolved when this article was first
regulate for decoration -

Discussed

Explored this case no
diff. from always problem
with W. D. Ingram
I would say

Mama, on 1/8/64

said he would get

Copy from CO to

He said if we
down here

don't hear from him
we could be an energy wing