General Services Administration - Region 2
230 South Dearborn Street
Chicago, IL 60604
GSA/FPRS/OSM/Zone 2 - 3200 Sheffield Avenue, Hammond, IN 46327

PRINCIPAL STAFF			
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D/RA		DE	
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RC			
PAO			
SGA		L	
ENF		File	

May 9, 1984

U. S. Nuclear Regulatory Commission - Region 3
Attn: Mr. Thor Oberg
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Disposal of Monazite Sand in Tank Storage Tanks 32221 and 32225 - U. S. Naval Administrative Command, Great Lakes, IL

Dear Mr. Oberg:

In our conversation of May 4, 1984, we discussed the disposition of the monazite sand stored in Tanks 32221 and 32225 at U. S. Naval Administrative Command, Great Lakes, Illinois; however, there are three other tanks you should know about.

The three enclosures give the details of the above tanks and also includes information on other tanks that contained monazite sand within our Zone and under our jurisdiction. The three tanks are Tank 905 located at the Savanna Army Depot in Savanna, Illinois and Tanks 1303 and 1305 located at the Ravenna Army Plant in Ravenna, Ohio. Monazite sand which was stored in these tanks was disposed of through our sales office in Washington, D. C. (see enclosure).

After final shipment of the material, a contract was awarded to Health Physics Associates, Ltd. of Highland Park, Illinois to clean, survey and issue Certificates of Compliance per NRC guidelines. Enclosed are copies of their reports.

If there are any questions regarding the above, I can be contacted on FTS 370-5274.

Sincerely,

Harry Szczepanski
Chief, Quality Assurance Branch
Radiological Officer - Zone 2

Enclosures

Daniel - what your action ha

Carl P who does the close out this issue?

Materials

MAY 10 1984

Designated "Official Record Copy"

Date

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FORMER TANK STORAGE OF

RARE EARTH - MONAZITE SAND

IN THE GSA/FPRS PROGRAM

LOCATION	TANK I.D.	ORIGIN	NO. OF DRUMS SHIPPED	DATE SHIPPED	NET LBS.	SHIPPED TO
Great Lakes, IL	3222 I	Brazil	881	10/3-11/74	1,209,208	Spin Corp. Inc c/o Yugoslavia
Great Lakes, IL	3222 J	India	1648	8/26-30/74 9/16-20/74	1,768,380	Phillip Bro/ W.R. Grace & Co. Chattanoga, Tenn
Ravenna Army, Ravenna, OH	1303	Brazil	1469	10/10/74	1,899,532	Samin Corp. Inc c/o Yugoslavia
Ravenna Army, Ravenna, OH	1305	India	740	11/19/74	984,630	Phillip Bro/ W.R. Grace & Co. Chattanoga, Tenn
Savanna Army, Savanna, IL	905 (formerly ZD-SM-3)	Brazil	196	8/5-9,12,13/74	219,113	Phillip Bro/ W.R. Grace & Co. Chattanoga, Tenn

HEALTH PHYSICS ASSOCIATES LTD. CONSULTANTS IN RADIATION SAFET

2356 SKOKIE VALLEY ROAD / HIGHLAND PARK, ILL. / PHONE: AREA (312) 433-333

REPORT OF
RADIATION DECONTAMINATION PROGRAM

Report prepared for:

General Services Administration
Federal Supply Service
,230 S. Dearborn Street 33rd Floor
Chicago, Illinois 60604
Attention: Mr. John Trunda

Decontamination perf at:

1. Great Lakes Naval Depot
   Great Lakes, Illinois
   Storage Tanks #3222J and 3222I

2. Ravenna Army Depot
   Ravenna, Ohio
   Storage Tanks #1303 and 1305

Items Decontaminated:

Empty storage tanks #3222J, 3222I, 1303 and 1305, formerly used to store monazite sand (less than 10% ThO_2)

Dates of Decontamination:

May 12, 13, 14, 15, 16, 1975 - Tanks 3222J and 3222I
May 19, 20, 21, 22, 23, 1975 - Tanks 1303 and 1305

Survey Equipment Used:

Alpha surveys were made with an Eberline PAC-4G calibrated with Pu-239 standards
Beta and gamma surveys were made with a Ludlum Model 3GM calibrated against Ra-226 and Co-60

REPORT OF
RADIATION DECONTAMINATION PROGRAM

Personnel:

Donald Sreniawski of Health Physics Associates Ltd.
Harry Szczepanski of General Services Administration

Decontamination procedure (Great Lakes and Ravenna):

A) Pre-decontamination survey was conducted (see Table I

B) All gaskets were cut away at wall and floor seams

C) Center pole was dismantled to expose trapped sand

D) Interior wall and floor surfaces and interior hardware (ladders, posts, ports) were sandblasted

E) Floor and walls were swept and vacuumed to remove the monazite sand and sandblast sand

F) All waste sands were sealed in steel drums for later disposal

G) Persons who entered the tanks wore protective clothing gloves, and supplied air or half-face respirators as well as personal radiation monitors (film badges or self-reading dosimeters)

H) Air samples were taken inside the tank:during the gasket removal work (1), the sandblasting (2), and during the sand pickup (3) (see Table II)

I) Surveys were made of the cleaned tanks, sand blast equipment, tools and personnel [see Table III)

J) Wipe samples of 100 sq. cm. surface areas were taken for analysis to establish removable surface contamination (see Tables V - XII)

REPORT OF
RADIATION DECONTAMINATION PROGRAM

Conclusion:

All decontaminated facilities surveyed at termination of the program, except for item noted below, indicated levels of less than "diminimous levels" * (see attached), as stipulated by the Nuclear Regulatory Commission for release to restrictive public use. Restrictive may be defined as for other than storage and/or preparation of food, drugs, cosnetics or similar products.

Ground area east of tank #1303 at Ravenna (see Figure I) indicated levels of Thorium-232 concentrations in excess of those recommended for public thoroughfares. These areas will have to have the top soil layer removed and resurveyed.

Respectfully submitted,

Don Sreniawski

Don Sreniawski
Health Physicist

Approved,

William B. Rivkin
Vice President
Health Physics Associates Ltd.

DIMINIMOUS LEVELS

1. The maximum amount of fixed alpha radioactivity in disintigrations per minute per 100 square centimeters on buildings or equipment does not exceed 25,000.

2. The average amount of fixed alpha radioactivity in disintegrations per minute per 100 square centiaeters on buildings or equipment does 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 equipinent does not exceed 1,000.

4. (a) The maximum level at one centineter from the most highly contaminated surface of a building or piece of equipment measured with anopen-window beta-gamma survey meter through a tissue equivalent absorber of not more than seven milligrams per square centimeter does 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 does not exceed 0.2 millirad per hour.

5. It must be assumed that equipment which may be contaminated and cannot be adequately surveyed such as pumps, piping, etc., does not meet the above limits.

TABLE I

PRE-DECONTAMINATION SURVEY

AREA SURVEYED	MAXIMUM LEVELS DETECTED		
	Alpha (dpm/cm^2)	Beta (dpm/cm^2)	Gamma (mR/hr)
A. Great Lakes			
Walls	3,000	4,000	1.5
Floors	5,000	8,000	3.0
B. Ravenna			
Walls	4,500	6,300	2.0
Floors	6,800	8,450	2.5

TABLE II

AIR SAMPLES

Operation in Progress	Sample Collected	
	Volume cc	Concentration uCi/cc
GREAT LAKES		
1) Gasket removal	3.39×10^{7}	7.2×10^{-12}
2) Sand blasting	5.66×10^{6}	8.3×10^{-10}
RAVENNA		
3) Sand pickup	1.13×10^{7}	4.7×10^{-11}

TABLE III

POST DECONTAMINATION

PERSONNEL AND EQUIPMENT SURVEY

	Alpha cpm/100 cm^2	Beta cpm/100 cm^2
A. Great Lakes		
Harry Szczepanski	<100	<100
Donald Sreniawski	<100	<100
Michael Leavitt	<100	<100
Sand blast equipment	<100	<100
Tools	<100	<100
B. Ravenna		
Harry Szczepanski	<100	<100
Donald Sreniawski	<100	<100
Gerald Rouse	<100	<100
Sand blast equipment	<100	<100
Tools	<100	<100

TABLE IV

PERSONNEL EXPOSURE

	Dosimeter Reading	Film Badge Reading
Harry Szczepanski [redacted]	10 mR	20
Don Sreniawski [redacted]	10 mR	20
Michael J. Leavitt [redacted]	<5 mR	10
Gerald L. Rouse [redacted]	<5 mR	

PERSONAL INFORMATION WAS REMOVED
BY NRC. NO COPY OF THIS INFORMATION
WAS RETAINED BY THE NRC.

TABLE V

POST DECONTAMINATION SURVEY OF TANK #3222J

(Total activity)

AREA SURVEYED	Alpha (dpm/cm^2)	Beta (cpm)	Gamma (mR/hR)
Walls, generally	8	<0.2K	<0.05
Walls, hot spots	12	0.2K	0.08
Wall seams, generally	8	0.3K	0.06
Wall seams, hot spots	12	0.5K	0.1
Floor, generally	8	<0.2K	<0.05
Floor, hot spots	8	0.2K	<0.05
Floor seams, generally	8	0.3K	<0.05
Floor seams, hot spots	8	0.5K	0.1
Ladder	8	<0.2K to 0.3K	<0.05
Inspection ports	8	<0.2K to 1.2K	<0.05
Outside tank at door	8	1K	0.2

		Top	Side
Waste drums,"hot" drum (1)	10K	0.4	1.3
Waste drums, all others (8) (30 gal. each)	1 to 2K	0.3	0.4

TABLE VI

POST DECONTAMINATION SURVEY OF TANK #3222J

(Removable activity)

AREA SURVEYED	Alpha levels in dpm/100 cm^2
Wall - north	72
Wall - east	137
Wall - south	83
Wall - west	47
Ladder	28
Floor - center	294
Floor - north	115
Floor - east	118
Floor - south	38
Floor - west	47

TABLE VII

POST DECONTAMINATION SURVEY OF TANK #3222I

(Total activity)

AREA SURVEYED	Alpha (cpm/cm^2)	Beta (cpm)	Gamma (mR/hr)
Walls, generally	2	<0.2K	-
Walls, hot spots	3	3K (total area <2ft^2)	0.2
Wall seams, generally	2	<0.3K	-
Wall seams, hot spots	<1	-	-
Floor, generally	<1	<0.2K	0.05
Floor, hot spots	<1	-	-
Floor seams, generally	<1	<0.3K	0.06
Floor seams, hot spots	<1	3K (total area <1ft^2)	0.2
Ladder	2	Spots to 0.5K	<0.1
Center post	3	2K (at base)	0.4
Inspection ports	2	3K	0.3
Outside tank at door	2	1K	0.1

	Beta Top	Beta Sides	Gamma Top	Gamma Sides
Waste drums (5) (30-gal each)	2K	4K	0.5	0.8

TABLE VIII

POST DECONTAMINATION SURVEY OF TANK #3222I

(Removable Activity)

AREA SURVEYED	Alpha levels in dpm/100 cm^2
Wall - north	45
Wall - east	70
Wall - south	38
Wall - west	46
Center pole	164
Floor - center	88
Floor - north	36
Floor - east	46
Floor - south	38
Floor - west	62

TABLE IX

POST DECONTAMINATION SURVEY OF TANK #1303

(Total activity)

AREAS SURVEYED	Alpha ($cpm/50cm^2$)	Beta (cpm)	Gamma (mR/hr)
Walls, generally	2	<0.5K	0.1
Walls, hot spots	2	1K	0.2
Wall seams, generally	2	<1K	0.1
Wall seams, hot spots	2	1.5K	0.3
Floor, generally	2	<0.5K	<0.1
Floor, hot spots	2	<1K	<0.1
Floor seams, generally	2	<1K	0.1
Floor seams, hot spots	2	1K	0.1
Ladder	6	<0.5K	<0.1
Waste drums (15) (9 gal. each)	-	2 to 3K	0.8

TABLE X

POST DECONTAMINATION SURVEY OF TANK #1305

(Total activity)

AREA SURVEYED	Alpha (cpm/cm^2)	Beta (cpm)	Gamma (mR/hr)
Walls, generally	2	<0.5K	<0.1
Walls, hot spots	2	<0.5K	0.15
Wall seams, generally	2	<0.5K	<0.1
Wall seams, hot spots	2	<0.5K	0.15
Floor, generally	2	<0.5K	<0.1
Floor, hot spots	2	<0.5K	0.1
Floor seams, generally	2	<0.5K	<0.1
Floor seams, hot spots	2	<0.5K	0.1
Ladder	2	<0.5K	<0.1
Center post	3	-	<0.2
Center post from #1303	-	-	0.8 at base
Waste drums (26) (9 gal. each)	-	3K	0.8

TABLE XI

POST DECONTAMINATION SURVEY OF TANK #1303

(Removable activity)

AREA SURVEYED	Alpha levels in dpm/100cm^2
Wall - north	42
Wall - east	130
Wall - south	58
Wall - west	36
Center pole	186
Ladder	74
Floor - center	84
Floor - north	68
Floor - east	44
Floor - south	78
Floor - west	92

TABLE XII

POST DECONTAMINATION SURVEY OF TANK #1305

(Removable activity)

AREA SURVEYED	Alpha levels in dpm/100cm^2
Wall - north	86
Wall - east	64
Wall - south	42
Wall - west	76
Center post	146
Floor - center	38
Floor - north	92
Floor - east	68
Floor - south	46
Floor - west	38

TABLE XIII

SOIL SAMPLE ANALYSIS

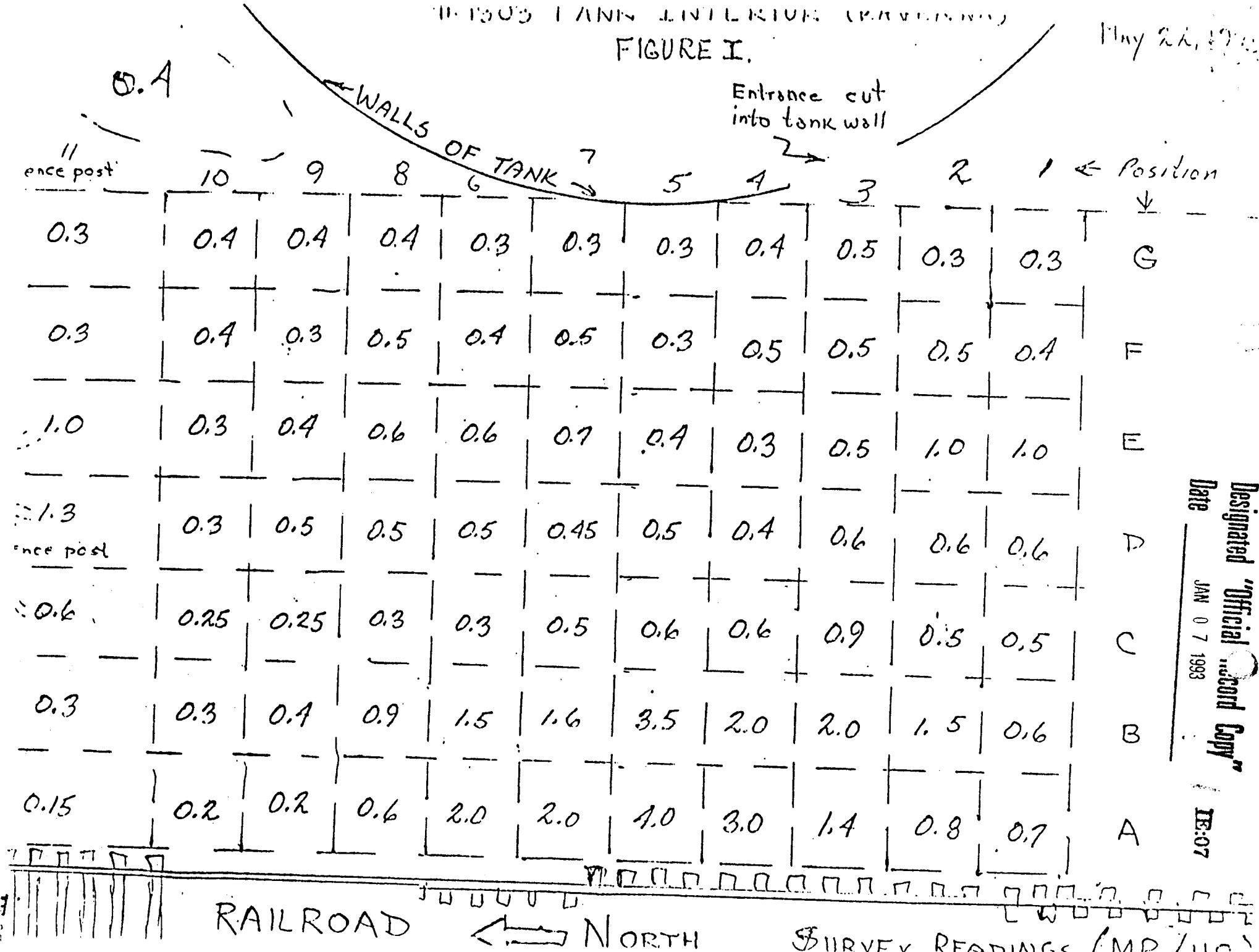
POST DECONTAMINATION

Location of Sample	Level of Contamination pCi/gm
1. South of tank 3222J at Great Lakes	0.03±0.01
2. North of tank 3222I at Great Lakes	0.21±0.04
3. West of tank #1303 at Ravenna	2.15±0.12
4. West of tank #1305 at Ravenna	1.83±0.07

TANK INTERIOR (RAVENNA)

FIGURE I.

May 22, 19



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