

## Office Memorandum • UNITED STATES GOVERNMENT

TO : Roy C. Hageman, Director, Compliance Division, DATE: June 7, 1961  
Chicago Operations Office

FROM : *William B. Schuster*  
Donald I. Walker, Director, Licensee Compliance  
Division, Idaho Operations Office

SUBJECT: REPORT OF ANALYSES OF AIR AND LIQUID SAMPLES COLLECTED AT LINDSAY CHEMICAL CO.

SYMBOL: LC:AWH

Transmitted herewith is one copy of each of the analytical data sheets submitted with the samples collected recently at the Lindsay Chemical Company plant, West Chicago, Illinois.

The samples are arranged according to areas sampled, viz., one group represents the samples taken in the thorium processing area, including the sand roasting area. Another group represents the samples taken in the rare earth section. The single sheet represents two samples, one breathing zone and one general air, taken during the thorium repack operation. It is to be noted that all samples analyzed, with two exceptions, indicate concentrations of airborne thorium well within the permissible concentration of  $3.0 \times 10^{-11}$   $\mu\text{c}/\text{ml}$  of air. The exceptions noted are the two samples taken during the thorium repack operations. It appears that these samples indicate a rather significant concentration of natural thorium, as an airborne contaminant, during this operation. It is to be noted also that no employees were observed to be wearing respirators during the time that the above reported samples were taken.

Also included with the air sample results, is a sample report sheet containing data obtained from the water sample collected from Slough Creek at Highway 59 bridge. As may be seen, the concentrations of thorium reported are well below the MPC<sub>w</sub> values listed in 10 CFR 20 Appendix B.

It is hoped that this information will be of assistance to you in your present and future inspection contacts with the licensee. If this office can be of any further assistance to your group, please feel free to request such assistance.

Enclosure: *4*  
IDO-130 (7 pages)  
IDO-104 (1 page)

AIRMAIL

8507100401 850408  
PDR FOIA  
RAPKIN85-30 PDR

LICENSE FILE ROUTING	
JAF	<i>JAF</i>
RMT	<i>RMT</i>

JUN 11 1961

U. S. ATOMIC ENERGY COMMISSION  
IDAHO OPERATIONS OFFICE  
HEALTH AND SAFETY DIVISION  
SAMPLE RECORD

Serial No. 21-22

Sample from: Link'say (chemical O)

Address: West Chicago, Illinois

Collected by: AWT

Date: 4/19

Analyzed by: RWL

Date: 5-16

Sample No.	Hour	Sample Description	Sampling		Anal. No.	Quantity Used, ml.	Fluor. Read., sc. div.	Total $\mu\mu$ curies	$\mu\mu$ /ml x 10 <sup>4</sup>
			Rate L/M	Time Min.					
B 9	1	Dry Screening, RE, 2x10	32.5	15	487.5	0.200	15.1	2.	0.4
B 10	2	Dry Screening, RE, 2x10 (to be used)	32.5	15	X				
B 11	3	Post # 8	32.5	15	487.5	0.200	14.0	< 0.3	< 0.07
B 12	4	Post # 10 (In Each Cont Lab)	32.5	15	487.5		13.9		
B 13	5	Post # 10	32.5	15	487.5		13.1		
B 14	6	Post # 14 (Sample to be used)	32.5	15	X				
B 15	7	Shop Area, Post # 3	32.5	15	487.5		13.9		
B 16	8	Post # 2	32.5	15	487.5		13.1		
B 17	9	Shop Bench	32.5	15	487.5		13.1		
B 18	10	RE (O <sub>2</sub> Drive)	32.5	15	487.5		13.1		
B 19	11	W.C. Conts (In Cont Lab, Detr)	32.5	15	487.5		13.1		
B 20	12		32.5	15	487.5		13.1		
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Standard 22.2 x 10<sup>-4</sup> per 100 mg Black 13.2 x 10<sup>-4</sup> per 100 mg White 11.4 x 10<sup>-4</sup> per 100 mg

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Serial No.

21723

Sample from: Luk'say (Kamrup)

Address

Collected by:

West Chicago, Ill. Nov. 5

Am 14

Date: \_\_\_\_\_

2/19

Analyzed by:

1870

Date:

5-116

Sample No.	Hour	Sample Description	Sampling			Anal. No.	Quantity Used, ml.	Fluor. Read., sc. div.	Total $\mu\text{C}$ curies	Total $\mu\text{C}/\text{ml} \times 10^4$
			Rate L/M	Time Min.	Total Liters					
8918	2:25 PM	Sequential	2	60	~80		0.200	13.9	<0.3	<6.07
8919	3:25							13.9		
8920	4:25	Sampler						13.8		
8921	5:25							13.1		
8922	6:25	Sequence						13.9		
8923	7:25							13.0		
8924	8:25	R.E. Hydrob. Drier						13.9		
8925	9:25							13.9		
8926	10:25							13.9		
8927	11:25							13.1		
8928	12:25 PM	Qu. 1/100, #2						13.8		
8929	1:25							13.1		
								13.4		
								13.4		

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Standard \_\_\_\_\_ g. the pan \_\_\_\_\_ 55.2 mg. the. Sensitivity 0.06  $\mu$  microgram. W. the

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Date: \_\_\_\_\_

1-71 ending in 6.1

present

1000

2014, N. 2.

1961 and 1967

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Serial No.

21726

Sample from: Lin. 307 (hemical to)

Address

Collected by:

Wm. F. Chace, Illinois	LCX 277
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 $\frac{u}{20}$ 

(14)

Date:

ombak

Sample No.

Hour

Sample	Description
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82

BZ. ThermoLab Repack

Rate	L/M
------	-----

Time

[illegible]

Total Liters
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Anal.	No.
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Quantity	Used, ml.
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Fluor.  
Read.,  
sc. div.

present

Total $\mu\mu$ curies
--------------------------

 $\mu\text{C}/\text{ml} \times 10^{-2}$ 

3877

Cont. Titanium Nitrate Repack

5

30

475.

20

0000

1

2

6.4

62.

7-10-60

2.1.1.2

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Standard \_\_\_\_\_ µg Block I \_\_\_\_\_ microgram/x die

Sensitivity \_\_\_\_\_ µg Block I \_\_\_\_\_ microgram/x die

## ID COMPLIANCE

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Chief, Analysis Branch



U. S. ATOMIC ENERGY COMMISSION  
IDAHO OPERATIONS OFFICE  
HEALTH AND SAFETY BRANCH  
DO H & S SAMPLE RECORD SHEET

BaSO<sub>4</sub> ppted @ 1100

IDAHO OPERATIONS OFFICE  
HEALTH AND SAFETY BRANCH

Serial No. 2203

ROUTINE SPECIAL

DO H &amp; S SAMPLE RECORD SHEET

Sample from: Lindsey (hem. ca 10)

Collected by: A. W. A.

Date submitted:

Samples Received: 4-27-61

Analyzed by: h. h. h. h. h.

Analysis Completed:

Method: End Window\_\_\_; Prop counter\_\_\_; Spectrophotometric\_\_\_; Fluorometric\_\_\_; Polarographic\_\_\_

Sample	Date	Hour	Sample Description	Anal for	Quant used, ml	U +6 or K+ Trans	Count time, min	Total Count	Gross Count, c/m	Bkgd, c/m	Net count, c/m	K <sup>40</sup> Corr., c/m	Foreign occ
	4/20		Water sample from Slough	P <sub>2</sub>	900	1405	30	36		8.7	28		2226
			Block at bridge across State 59	P <sub>2</sub>	900	1300	30	18		7.7	11		50.2
				Th <sup>232</sup>	500				instrument bending	14.1	2.1		1.4 x 10 <sup>-9</sup>
			Block						16.2	14.1			6.4
			dry tank						14.1				
									96.2				
				Th <sup>230</sup>	100								Th <sup>230</sup> 2.3001
									2.5 ± 0.3	6 c/30 min	2.3001		2.3001

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Notified: \_\_\_\_\_ Time: \_\_\_\_\_ Resampling Yes \_\_\_\_\_  
recommended: No \_\_\_\_\_

Approved: W. W. W.  
Chief, Analysis Section

U. S. ATOMIC ENERGY COMMISSION  
IDAHO OPERATIONS OFFICE  
HEALTH AND SAFETY DIVISION  
SAMPLE RECORD

Serial No.

21721

Sample from: *Lincoln Chemical Co.*

Address

*West Chicago, Illinois*

Collected by:

*A. V. D.*

Date:

*4/30*

Analyzed by:

*Spencer*

Date:

*10/10/61*

Sample No.	Hour	Sample Description	Sampling			Anal. No.	Quantity Used, ml.	Fluor. Read., sc. div.	Total $\mu$ g curies	$\mu$ c/ml x 10 <sup>4</sup>
			Rate L/M	Time Min.	Total Liters					
B 6		<i>Sand Reast Area - North of Reast</i>	<i>35</i>	<i>20</i>	<i>1050</i>	<i>5</i>	<i>0.100</i>	<i>13.1</i>	<i>&lt;0.7</i>	<i>&lt;0.07</i>
B 75		<i>Sand Reast Area - East of Reast, South of</i>	<i>35</i>	<i>30</i>	<i>1050</i>	<i>4</i>	<i>0.100</i>	<i>13.8</i>	<i>&lt;0.7</i>	
<i>INDIVIDUAL SAMPLES</i>										
B 860		<i>TAPE SAMPLER</i>	<i>4</i>	<i>60</i>	<i>240</i>	<i>10</i>	<i>0.400</i>	<i>14.0</i>	<i>&lt;0.2</i>	
B 861		<i>SEQUENCE</i>				<i>11</i>		<i>13.3</i>		
B 862						<i>12</i>		<i>13.8</i>		
B 863						<i>13</i>		<i>13.1</i>		
B 864		<i>Taken in Sand Reast</i>				<i>14</i>		<i>13.8</i>		
B 865		<i>Area between Reasters,</i>				<i>15</i>		<i>13.8</i>		
B 866		<i>South end.</i>				<i>16</i>		<i>13.7</i>		
B 867						<i>17</i>		<i>13.8</i>		
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Chief, Analysis Branch

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U. S. ATOMIC ENERGY COMMISSION  
IDAHO OPERATIONS OFFICE  
HEALTH AND SAFETY DIVISION  
SAMPLE RECORD

Serial No. 99770

Sample from: *Lindsay Chemical Co*

Address: *West Chicago, Illinois*

Collected by: *AWH*

Date: *4/20*

Analyzed by: *AWH*

Date: *12/11/61*

Sample No.	Hour	Sample Description	Sampling		Anal. No.	Quantity Used, ml.	Fluor. Read., sc. div.	Total $\mu\text{Ci}$ curies	Total $\mu\text{Ci}$ present
			Rate L/M	Time Min.					
3870	10:30	Sequential	8	60	1	0.400	13.1	0.2	0.07
3871	11:30	Sampler	}		2	}	1.8	}	}
3872	12:30				3		1.1		
3873	1:30				4		1.1		
3874	2:30				5		1.1		
3875	3:30	Sequential	}		6	}	1.1	}	}
3876	4:30	Thorium pty area			7		1.1		
3877	5:30	Sampling + 9	}		}	}	1.1	}	}
3878	6:30						1.1		

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ID 27000