

62-144
PETROTOMICS COMPANY

TIDEWATER OIL COMPANY • MANAGING PARTNER

P O BOX 184 • CASPER WYOMING

September 14, 1962

Mr. R. Lowenstein, Director
Division of Licensing and Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.



Dear Mr. Lowenstein:

Attached is the report covering the results of our radiation
safety surveys which are due for this quarter.

Very truly yours,
PETROTOMICS COMPANY

By _____
Burt M. Moulden
Radiologist

BMM:mec

cc: Mr. N. A. Grant
Mr. G. K. Coates

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PDR FOIA
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September 14, 1962

AIRBORNE RADIOACTIVITY SURVEYS

Dust sampling was done on July 12 and August 12. Average results, carried through the August survey and compared to MPC levels, are shown on the attached sheets. The August sample from the Final Product packaging area was abnormally low and was disregarded.

EXTERNAL RADIOACTIVITY SURVEYS

Film badges have been worn by selected mill personnel since June 4. This includes all men working in Final Product areas and one from each of the other operating areas. Cumulative results received through the periods ending August 12 showed maximum exposure for any operator to be 253 mrem. Since July 2, the maximum was 124 mrem. These results included both the beta and gamma readings.

These film badge surveys are used as the basis for employee exposure records which are currently being prepared.

Another beta-gamma survey of all areas of the mill was made on August 12. A copy of the results is attached. The generally lower readings in the crushing plant and ore storage are due to lower grades of ore entering the mill now, compared to early spring.

WATER SAMPLING RESULTS

August assays have not been received at this time. June and July sample levels are about the same as those in previous months. Another survey was added beginning with the June sampling; this was the small creek below the tailings dam. Collection of duplicate drinking water samples was discontinued in July.



46-6651

AREA DUST SURVEY RESULTS

AREA	BUILDING	NUMBER SURVEYS	HIGH uc/mlx10 ⁻¹¹	LOW uc/mlx10 ⁻¹¹	AVG	MPC uc/mlx10 ⁻¹¹	XMPC
Grizzly	Primary	3	.34	Nil	.18	2.5	.07
Feeder Floor		4	.40	.04	.21	2.5	.08
Crusher Floor		3	.68	.10	.43	2.5	.17
Pit		3	1.19	.58	.87	2.5	.35
Screen Floor	Secondary	4	.25	.01	.12	2.5	.05
Impactor Floor		4	.13	.07	.11	2.5	.04
Ground Floor		4	.38	.07	.20	2.5	.08
Tripper Floor	Fine Ore	3	.08	.05	.07	2.5	.03
Sample Prep		3	.03	.02	.02	2.4	<.01
Feeder Floor		4	.27	Nil	.08	2.4	.03
Grind	Mill	5	.83	.04	.22	5.7	.04
Leach		5	.30	.05	.13	5.7	.02
Precipitation	(Mezzanine)	5	1.25	.03	.61	5.7	.11
Precipitation	(Main Floor)	5	1.02	.03	.37	5.7	.07
Packaging Room		4	13.54	.09	8.00	5.7	1.40
Drying Room		5	25.46	.19	6.84	5.7	1.20
CCD Walk		4	.01	Nil	.01	5.7	<.01
CCD Tunnel		3	Nil	Nil	Nil	5.7	.00
Tails Pump House		3	.05	Nil	.03	5.7	<.01
SX Lab		4	.09	Nil	.03	5.7	<.01
SX Deck		4	.02	Nil	.01	5.7	<.01
Shift Office		5	2.01	.06	.49	5.7	.09
Change Room		5	3.85	.01	.29	5.7	.05
Supt. Office		5	8.03	.02	1.68	5.7	.29
Met. Office		5	.85	.01	.21	5.7	.04
Met. Lab		5	3.98	.05	.86	5.7	.15
Cafeteria		4	.06	Nil	.04	-	.01



PETROTOMICS COMPANY

JOB EXPOSURE EVALUATION

Survey Period 2nd Qtr. July-Aug. '62

BUILDING Mill Building PROCESS AREA Final Product Packaging

OPERATOR Packaging 1 men/shift 1 shift/day 1 men/day

Operation or Operating Area	Time Per Oper.	Oper. Per Shift	Time Per Shift (T)	Sample No.	Concentration 3.44x10⁻¹¹ uc/ml x 10 ⁻¹¹			TxC
					High	Low	Avg. (C)	
Packaging Room			360		13.54	.09	8.00	2880.00
Drying Room			160		25.46	.19	6.84	410.40
Precip Area			150		1.25	.03	.61	91.50
Reagent Mix*			120		1.02	Nil	.37	44.40
Shift Office			20		2.01	.06	.49	9.80
Change Room			10		3.85	.01	.29	2.90

$\Sigma(T)$ 720

$\Sigma(TxC)$ 3439.00

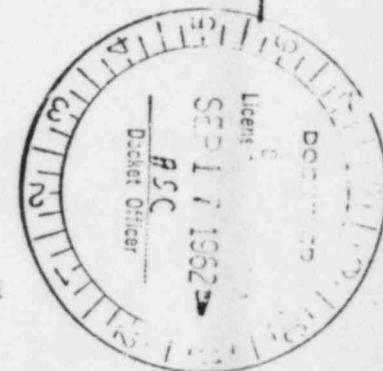
$$\frac{\Sigma(TxC)}{\Sigma(T)} = \frac{3439.00}{720} = 4.78 \text{ uc/ml x } 10^{-11}$$

$\frac{4.78}{5.7} = .84$

MPC

*No samples collected in Reagent Mixing area;
assume average concentration to be same as
other open areas of mill floor nearby

MPC = 5.7×10^{-11} uc/ml
(4s hr/wk)



40-6659

PETROTOMICS COMPANY

JOB EXPOSURE EVALUATION

Survey Period 2nd Qtr-July-Aug.'62

BUILDING Mill Building PROCESS AREA Precipitation

OPERATOR Precip 1 men/shift 2 shift/day 2 men/day

Operation or Operating Area	Time Per Oper.	Oper. Per Shift	Time Per Shift (T)	Sample No.	Concentration uc/ml uc/ml x 10 ⁻¹¹			TxC
					High	Low	Avg. (C)	
Precip-Mezzanine			360		1.25	.03	.61	219.60
Precip-Main Floor			150		1.02	Nil	.37	55.50
Dryer Room			150		25.46	.19	6.84	1026.00
SX Lab			30		.09	Nil	.03	.90
Shift Office			20		2.01	.06	.49	9.80
Change Room			10		3.85	.01	.29	2.90

$\Sigma(T)$ 720

$\Sigma(TxC)$ 1314.70

$$\frac{\Sigma(TxC)}{\Sigma(T)} = 1.83 \frac{\text{uc/ml} \times 10^{-11}}{\cancel{\text{uc/ml}}} =$$

.32

MPC

MPC = 5.7×10^{-11} uc/ml
(42 hr/wk)

40-6654

BETA-GAMMA SURVEY RESULTS

August 14, 1962

By Burt M. Moulden

L&E File Copy

Location	Readings	High mr/hr	Low mr/hr	Average mr/hr	4/23 Survey Average
Background	11	.06	.02	.035	.07
Primary Crusher					
Grizzly	6	.40	.25	.35	.65
Feeder Floor	6	.07	.03	.05	.07
Crusher Floor	6	.11	.04	.08	.07
Secondary Crusher					
Screen Floor	6	.30	.09	.17	.12
Impactor Floor	6	.45	.11	.25	.21
Ground Floor	6	.15	.07	.10	.21
Fine Ore Building					
Tripper Floor	6	.16	.07	.11	.23
Feeder Floor	6	.11	.07	.09	.08
Mill Building					
Crinding	6	.15	.03	.08	.11
Leaching	6	.11	.06	.085	.14
Precipitation	6	.13	.06	.08	.10
Packaging Room	6	.16	.05	.10	.21
Drying Room	6	.26	.10	.15	.11
Shift Office	6	.08	.02	.05	
Change Room	6	.08	.03	.05	
Supt. Office	3	.06	.03	.05	.09
Met. Office	3	.04	.03	.04	.09
Met. Lab.	6	.05	.01	.03	.09
CCD					
Above Tanks	6	.14	.05	.075	
Tunnel	6	.17	.12	.14	
SX					
SX Lab	3	.06	.04	.05	.09
Deck	6	.06	.03	.05	.08
Cafeteria	6	.05	.03	.04	



POTABLE WATER RESULTS

		Ra 226 uc/ml	Th 230 uc/ml	U ₃ O ₈ uc/ml
June:	(1)	$(4.1 \pm .6) \times 10^{-9}$	$< 5 \times 10^{-9}$	5.3×10^{-7}
	(2)	$< .1 \times 10^{-9}$	$< .05 \times 10^{-8}$	5.0×10^{-7}
July:	(1)	$(3.5 \pm .6) \times 10^{-9}$	$< 5 \times 10^{-9}$	1.2×10^{-6}

NATURAL WATER SOURCES BELOW TAILINGS DAM

June:	RTH#1:	$(1.3 \pm 0.3) \times 10^{-9}$	$< 5 \times 10^{-9}$	$< 1 \times 10^{-8}$
	RTH#2:	$(0 \pm 3) \times 10^{-10}$	$< 5 \times 10^{-9}$	$< 1 \times 10^{-8}$
	RTH#3:	$(9 \pm) \times 10^{-10}$	$< 5 \times 10^{-9}$	$< 1 \times 10^{-8}$
	Creek below Dam:	$(7 \pm 1) \times 10^{-9}$	$< 5 \times 10^{-9}$	9.6×10^{-7}
July:	RTH#1:	$(1.3 \pm .3) \times 10^{-9}$	5×10^{-9}	$< 1 \times 10^{-8}$
	RTH#2:	$(1.2 \pm .5) \times 10^{-9}$	5×10^{-9}	$< 1 \times 10^{-8}$
	RTH#3:	$(1.3 \pm .3) \times 10^{-9}$	5×10^{-9}	$< 1 \times 10^{-8}$
	Creek below Dam:	$(1.5 \pm 1.3) \times 10^{-9}$	5×10^{-9}	2.7×10^{-8}

(1) Tracerlab, Inc., Waltham, Massachusetts

(2) Radiation Detection Company, Palo Alto, California

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