

APR -28' 94 (THU) 12:20 MOLY. & P MT. PASS

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1539 P.001
Date dictated
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UNOCAL®

MOLYCORP

Guy Vandoren.

April 28, 1994

for J. Buckland

R. Trivedi

TO: Russ TRIVEDI

To: Mr. Randy Buckland
SKW

Do not return
DRAFT

Re: Phone Call from Stan Trout Requesting Analyses

Following are the Thorium Oxide analytical results on the shipments of S300 that you received last month.

Lot Number	% ThO ₂
S300-3-0618-1	.28*
S300-3-1112-1	.22
S300-3-1114-1	.23
S300-3-1114-2	.24
S300-3-1123-1	.23
S300-4-0225-1	.26

These values are within the normal range for lots of S300 with the oldest lot being the one that is at the maximum level.

J. P. Zapolaski

J. P. Zapolaski
Quality Assurance Manager

cc. Stan Trout

P.S. ALSO ATTACHED IS A REPORT CONCERNING
RADIACTIVITY WITH OUR LOWER GRADE CORRUIN
PRODUCT 3 PAGES FAXED

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APR-28 94 (THU) 12:21 MOL P.MT. PASS

TEL: 619 5 2253

P. 002

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To:	Randy Burkhardt	From:	MolyCorp
cc:		cc:	
Date:		Phone:	
Fax:		Fax:	

Memorandum
MOL
MOLYCORP

2073

November 26, 1985

TO: Marshall Kibbe
FROM: Joe Zapolski
RE: Cercoa - Radiations Code 5320 and Code 4100

Radiation measurements; both gamma scintillometer and total alpha, gamma and beta dosimeter readings, were done on 6 samples of Code 4100-5-0319.1 sent by Cercoa. A radiation survey was also done on a recent truck load shipment (S/A 7921) shipped on 11/8/85. This load contained 3 drums of Code 4100-5-0319.1 and 14 - 1½ ton pallets of Code 5320-5-0814.1.

Results on the Code 4100 samples showed that gamma scintillometer readings ranged from 175 to 190 counts per sec. (CPS) and had dosage readings of 0.02 to 0.04 millirems per hour (mr/hr). The truck shipment showed the inside of the loaded trailer to have 1900-2100 CPS and dosage readings of about 0.4 mr/hr. The outside of the loaded trailer showed 500 to 900 CPS and 0.1 to 0.2 mr/hr.

Cercoa's concern about radiation was triggered when a recent shipment of Code 4100 and Code 5300 set off a radiation alarm at a Florida weight station. Since there is some misunderstanding as to radiation readings the following glossary of terms might be helpful.

Alpha Particles: Comparatively large radioactive particles. Due to their size and weight, these particles cause a high level of ionization along their path and cause greater damage to living tissue than beta or gamma. They are more easily shielded, (even by paper or a person's outer layer of dead skin), but are extremely dangerous when inhaled or ingested.

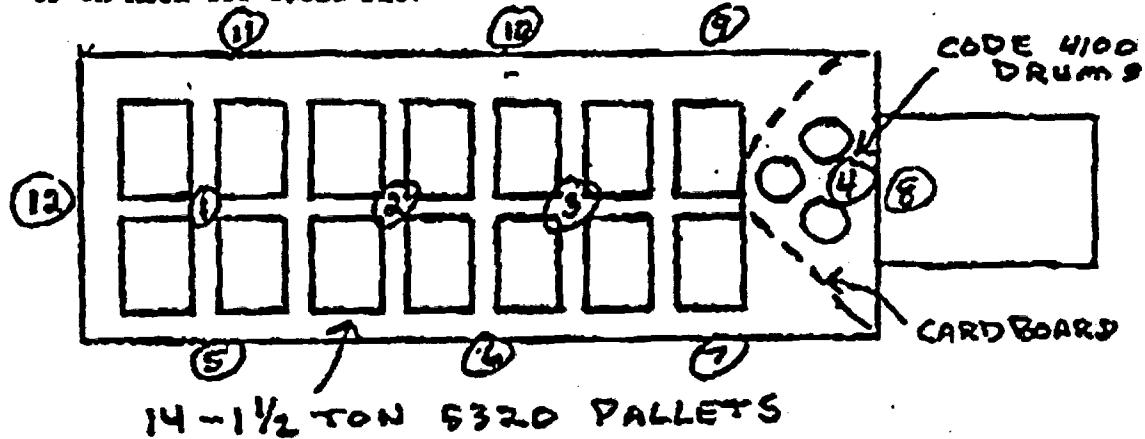
Beta Particles: Radioactive particles emitted from atom that are smaller than alpha particles and with an energy level greater than 70 KeV, can penetrate the skin.

Gamma Rays: High energy photons that are smaller, lighter, and more penetrating than alpha and beta rays and can pass through steel and concrete up to a few feet.

REM: The Radiation dose Equivalent in Man measures the dose received in terms of its estimated biological effect on man. The standard for exposure is an annual dose of 500mr for the general public and 5000mr for workers in the nuclear industry based on whole body exposure. A person exposed to 0.25 mr/hr continuously for 40 hours a week and 50 weeks per year would accumulate the 500 mr/year standard.

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The drawing below shows the loading of Codes 5320 and 4100 shipment. The numbers show where radiation readings were taken and data is shown in the table below. The gamma scintillation readings were done with a Mount Sopris Instrument Model SC-132. The dosimeter used was Technical Associates Model CP-6M Mark III Cutie Pie.



<u>Sample Area</u>	<u>CPS</u>	<u>mr/hr</u>	<u>Sample Area</u>	<u>CPS</u>	<u>mr/hr</u>
1.	2050	0.4	7.	850	0.01 to 0.02
2.	1900	0.4	8.	500	" "
3.	2100	0.4	9.	900	" "
4.	1100	0.18	10.	850	" "
5.	800	0.01 to 0.02	11.	800	" "
6.	900	" "	12.	500	" "

The results of the 6 Code 4100 samples are as follows. The samples were made into a pile 1 1/2 inches deep and about 3 1/2 inches wide. Measurements were done in the conference room. Background readings were 100 to 120 CPS and \approx 0.01 mr/hr.

<u>Sample No.</u>	<u>CPS</u>	<u>mr/hr</u>
1.	180-185	0.02 to 0.04
2.	180-185	" "
3.	180-185	" "
4.	175-180	" "
5.	180-190	" "
6.	175-180	" "

Readings include background.

Water 6/0/94

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<i>To: Randy Buckland</i>	
cc:	cc:
Dept:	Phone #
Fax #	Fax #