

TETRA ETHYL LEAD PLANT

February 13, 1931

DR. W. E. DEUEL:

A series of experiments was made in B Plant to determine the amount of lead exposure encountered in various places.

The procedure was the same as that used in previous determinations, the details of which can be obtained by referring to the reports which have been submitted in the past.

The data obtained are listed on the attached sheet.

The results indicate that progress is being made toward reducing lead exposure in the entire plant. The still floor of the main building shows a decided improvement. The alloy and smelter show some improvement, especially around the grinders (while filling the hoppers), and at the slagging door of the furnace. The points of greatest exposure during these investigations seemed to be on the fourth floor of the main building and in the alloy building generally. The fourth floor exposure apparently is due to diffusion from the enclosures during the period when the angle valve is open. Exposure in the alloy building is quite general, due to the presence of lead dust almost everywhere. The operations of casting and grinding seem to be the most hazardous due to lead fume from the hot alloy in the first case, and to occasional bits of alloy dust getting into the air in the second case. However, in both instances the heavy lead particles settle to the lower levels so that a man standing erect is subject to but little of the total lead that escapes. This continual diffusion from casting and grinding accounts largely for the lead dust which can and does accumulate in most places. The operation of slagging in the smelter has previously been the greatest source of exposure in this building. The use of an improved hood over the slagging door seems to have reduced this hazard to a minimum. The exposure in other parts of the plant is intermittent and is chiefly due to emergency conditions requiring the dismantling of equipment, etc. The degree of exposure can be kept to a minimum in these cases by strict adherence to the safety rules that have been formulated by the Area and the Plant.

In general, it may be stated that the lead exposure in B Plant has apparently been reduced since the last series of tests. Contributing factors to this reduction are the installation of new mechanical safeguards, improved equipment, and effective safety education of the operating and mechanical departments. Attempts to still further reduce the hazard of lead exposure are being made and other series of tests will be conducted periodically.

J. L. STECHER, SUPT.

J. W. Copeland

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Place	Time of Run	Vol. of Air	Amount of Lead
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B Bldg.

First Floor

By centrifugal Pump	8 hrs.	480 liters	>.0001 grams
" " "	24 "	1440 "	.0001
" " "	24 "	1440 "	.0005
Lewis Pump #1 (top)	24 "	1440 "	.0010
" " #1 (top)	24 "	1440 "	.0050
" " #2 (top)	24 "	1440 "	.0010
" " #1 (bottom)	24 "	1440 "	.0005
" " #1 (")	24 "	1440 "	.0008
" " #2 (")	24 "	1440 "	>.0001

Second Floor:

Filters	24 "	1440 "	.0001
"	24 "	1440 "	>.0001
"	24 "	1440 "	.0005
"	8 "	480 "	<.0500
"	24 "	1440 "	>.0001
"	24 "	1440 "	.0002
Leigh Tank #36	24 "	1440 "	>.0001
"	24 "	1440 "	.0050
"	24 "	1440 "	>.0001
"	24 "	1440 "	>.0001

Third Floor:

Top #16	8 "	480 "	.0010
#16	16 "	960 "	.0010
#16	24 "	1440 "	.0005
#16	24 "	1440 "	.0050
#15	24 "	1440 "	.0050
#15	24 "	1440 "	.0100
#15	24 "	1440 "	.0010
#15	24 "	1440 "	.0010
#14	24 "	1440 "	.0050
#14	8 "	480 "	.0005
#13	24 "	1440 "	.0005
#13	16 "	960 "	.0001
Floor by #15	24 "	1440 "	.0100
" " "	24 "	1440 "	.0050
" " "	48 "	2880 "	.0010
" " "	48 "	2880 "	.0050

Fourth Floor:

Inside enclosure 15	8 "	480 "	.0050
" " "	16 "	960 "	<.0500
" " "	24 "	1440 "	.0100
" " " 16	24 "	1440 "	<.0500
" " " "	24 "	1440 "	<.0500
" " " 13	2 "	120 "	<.0500
By door enclosure 15	24 "	1440 "	.0100
" " "	15 48 "	2880 "	.0500
" " "	13 24 "	1440 "	.0100
" " "	13 8 "	480 "	.0050
" " "	13 8 "	480 "	.0500
Floor bet. 15-13	24 "	1440 "	.0010

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Place	Time of Run	Vol. of Air	Amount of Lead
Floor bet. 15-13	24 hours	1440	.0005
" "	24	1440	.0005
" "	24	1440	.0007
" 16-14	24	1440	.0010
" "	24	1440	.0010
" 13-11	24	1440	.0010
" "	24	1440	.0010
Rear 15	24	1440	.0005
" 15	24	1440	.0010
" 13	24	1440	.0050
" 13	24	1440	.0010
<u>Fifth Floor:</u>			
Air duct by 15	24	1440	>.0001
" " 15	24	1440	>.0001
" " 13	24	1440	.0005
" " 13	24	1440	>.0001
Floor bet. 15-13	24	1440	.0001
" 15-13	24	1440	>.0001
" 13-11	24	1440	>.0001
" 13-11	24	1440	>.0001
<u>Alloy Bldg.</u>			
<u>First Floor:</u>			
Grinder 3 (crusher)	2	120	.0001
" 3	24	1440	.0005
" 3	24	1440	.0001
" 3	24	1440	.0500
" 2	24	1440	.0010
" 2	8	480	.0005
" 1	8	480	.0001
" 1	8	480	.0010
<u>Second Floor:</u>			
Pan by grinder 1	2	120	>.0001
" " 1	8	480	>.0001
" " 2	8	480	>.0001
" " 2	16	960	>.0001
Pot room #2	24	1440	.0010
" #2	24	1440	.0050
" #3	24	1440	.0005
" #4	24	1440	.0005
" #6	24	1440	.0010
" #6	24	1440	.0001
" #6	24	1440	.0005
" #6	24	1440	.0008
" #6	24	1440	.0010
Floor by cooler	24	1440	.0050
" "	24	1440	.0100
" pan	24	1440	.0010
" "	24	1440	>.0001
" bet. pot room -1&2	24	1440	.0010
" "	24	1440	.0005
" "	24	1440	.0100

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Place	Time of Run	Vol. of Air	Amount of Lead
Floor bet. pct room 1-2	24 hours	1440	< .0500
<u>Top Floor</u>			
Top pot #1	24	1440	.0001
" #2	24	1440	.0001
" #3	24	1440	.0005
" #4	24	1440	.0001
" #6	24	1440	.0010
<u>Smelter</u>			
Flagging table (front)	24	1440	.0010
" " "	24	1440	.0100
" " (back)	24	1440	> .0001
Slagging door	24	1440	< .0500 old hood
" "	24	1440	.0005 new "
Sludge pit door	24	1440	.0010
" " "	24	1440	.0001
Bucket control room	24	1440	> .0001
" " "	24	1440	> .0005
Dross pot	24	1440	< .0500
" "	24	1440	.0050

DUST SAMPLES

Place	% Lead
Top air dust (smelter)	15.0
Top furnace	49.0
Top stringer	10.0
Floor	22.0
Top grinder hood	74.0
Office floor	60.0
First floor	17.0
Second floor	78.0
Third floor	23.0
Air ducts (1st floor)	46.0
" " (2d ")	52.0
" " (3d ")	13.0

*Special conditions such as changing filter bags, pulling plug cock core, etc. Special plant safety regulations apply in these cases.

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