

Acme Coke
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Chicago IL 60617



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Deposits in COG main

Dated: 1975

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INTEROFFICE
CORRESPONDENCE

Date: November 18, 1975

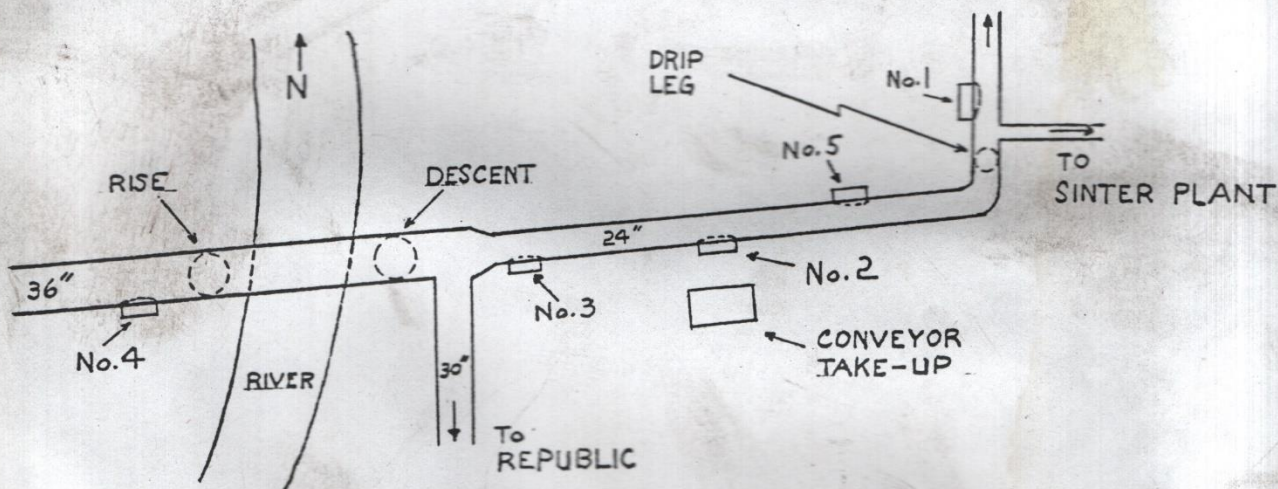
Copies to:

To: Mr. N. H. Keyser
From: V. Beaucaire
Subject: Deposits in Coke Oven Gas Main (Chicago)
Reference: D7-018-014

R. A. Nagan
J. T. Seaman
D. Suhr
W. H. Weinberg
R. P. Winters

c. Lin 6/24/93

The attached photographs show the conditions found in three of the five new 18-inch inspection holes that were cut into the coke oven gas main at the Chicago Plant on November 5. A schematic diagram of the locations of these holes is given below. The holes are numbered in the order in which they were cut.



Hole No. 1

Location: About 15 feet downstream of the sinter plant drip leg and gas off-take.

The 24-inch line at this location was restricted to 12 inches (25 percent open) with a hard deposit. Approximately 10 inches of the 12-inch buildup was on the bottom of the main.

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Hole No. 2

Location: Opposite the take-up tower for No. 4 (coke) conveyor.

The 24-inch line at this location was restricted to about 11 inches (21 percent open) with a hard deposit. Most of the buildup was on the bottom.

Hole No. 3

Location: Immediately downstream of the point where the 36-inch main tapers to 24 inches.

The 24-inch line at this location was restricted to about 15 inches (39 percent open) with a hard deposit. Most of the buildup was on the bottom.

Hole No. 4

Location: The 36-inch main west of the river immediately upstream of the vertical rise to cross the river.

Don Suhr and Jim Bitner reported 8 inches of hard deposit on the bottom of the main and 4 inches of soft material on the top (44 percent open).

Hole No. 5

Location: About 75 feet upstream of the sinter plant drip leg and off-take.

Don Suhr reported a relatively small amount of buildup in this area.

Nature of the Deposit

A number of samples of the deposit were obtained in late September when the section of the main near the sinter plant was water blasted on stream. More samples were obtained in November. Most of these materials were either flushed or hand-pulled from the section of the main shown in the diagram. Two samples were obtained from the line near the boiler house which had been plugged for about a year prior to the recent cleaning.

The composition of the deposit varies somewhat throughout the main as evidenced by different colors. Five of the samples were extracted with carbon tetrachloride to determine the proportions of organic and inorganic materials present.

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<u>Sample</u>	<u>Color</u>	<u>% Organic</u>	<u>% Inorganic</u>
Grit removed from disassembled valve near boiler house (September 26)	dark green	50.2	49.8
Sludge water blasted from main between bridge and high line (September 30)	red-brown	98.3	1.7
Lump pulled from Hole No. 1 (November 5)	brown-black	90.7	9.3
Lump pulled from Hole No. 4 (November 5)	medium brown	99.1	0.9
Sludge water blasted from Hole No. 3 (November 5-6)	green-black	63.4	36.6

The organic portions of several samples were confirmed to be essentially naphthalene using infrared techniques and naphthalene from the Coke Plant as a reference. The problem is basically though not exclusively due to naphthalene deposition in the main. Naphthalene is by far the major material found in the line, and it also serves as the binder for the inorganic materials present. The inorganic fractions of several samples are still being analyzed.

The relatively low percentage of naphthalene in the grit removed from the disassembled valve near the boiler house is probably due at least in part to the loss of naphthalene through sublimation. This grit had been exposed to the air for some time before the sample was obtained.

Status

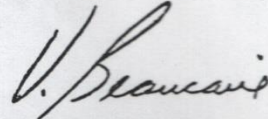
The analyses of the inorganic fractions now under study will be reported as soon as they are available. Aside from this the problem is being approached from two angles:

1. Betz, Nalco, and Tretolite have been approached for agents that can be injected into the main to clear a 500-foot section in the Furnace Plant that has not been cleaned to date. All three firms claim they have materials for this project. Betz reports their treatment is currently being used in 22 plants across the nation including several local plants (Inland, Youngstown, Republic-Chicago, and U. S. Steel-Gary). Bill Weinberg and I will contact at least one of these plants to get the opinion from the other side.

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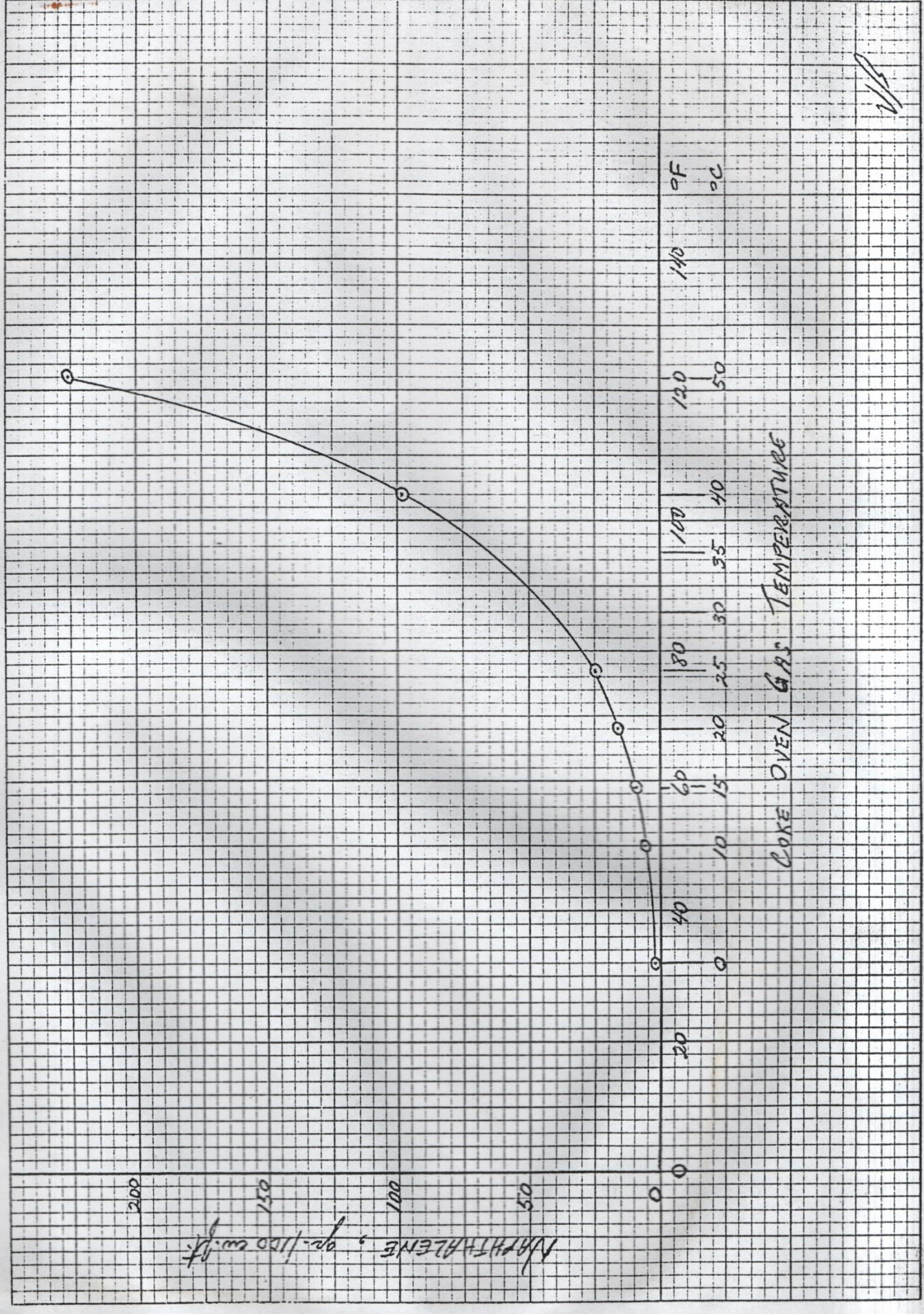
2. I will arrange for a meeting with Roger Nagan to begin a review of the gas cleaning situation in the Coke Plant. Laboratory records show that the gas leaving the Coke Plant for the past two years has contained much more naphthalene than in the past.



V. Beaucaire

VB/mw

Attachment



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