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PROJECT 9536

File 300 Water - 18

Route List

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By Authority of

RF Dunnington 4/15/92
W. Dunnington 5/21/92
by P.M. Eck 8-5-92

Date 7-13-44

Subject Deauration of Process Water in the F Area

To L. A. Darling

From W. Dunnington

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6.21 Post. Dec. - Decaration of Process Water
 the 7 Area, L.A. Darling - W. Cunningham
 dated 5-21-42 Copy #1

#1 L. A. Darling
 #2 J. O. Eison
 #3 E. L. Swenson
 #4 E. L. Smith
 #5 S. A. Dugbee
 #6 C. E. Kipper
 #7 Chronological
 #8 700 File
 #9 300 File
 #10 Ticker

JUL 13, 1944

Decaration of Process Water
 in the 7 Area

L. A. DARLING
 CHIEF ENGINEER - PLANT

REMARKS: 1. The original reasons for installing the decarators were as follows:

I. Recommendations:

It is recommended that facilities for decaration of water be omitted in 7. Area. The decision should be given to the Construction Division not later than July 15.

II. History:

The original reasons for installing the decarators were as follows:

1. The elimination of oxygen in the water to the pile decreases the peroxide formation in the unit. At that time it was felt that peroxide might increase aluminum corrosion.

2. Decaration results in water which is less corrosive to steel when the pH is low. Originally it appeared probable that water having a pH of 6.5 or less would be used.

3. There appeared to be no positive objections to the presence of oxygen in water. The various intangible items seemed to present less of a problem in the absence of oxygen. While installation of the decarators was questionable from the start, the investment appeared to be a good insurance policy, as no objection could be raised to decaration.

III. CML Results:

The results of the experimental work at CML have never indicated any advantage from oxygen removal. As a matter of fact, the recent work has actually shown that the presence of oxygen may be essential.

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IV. Proposed Program

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The following steps are proposed:

1. Advise the Construction Department to stop all work in connection with the installation of the desaerators and the building which houses process water storage tanks. This must be done promptly as the buildings are now under construction.
2. Request the Design Division to prepare new designs for metering the water flow through the two by pass lines in the deserator building and for feeding chemicals into these lines. This will result in two points of chemical addition instead of ten. In addition, the partition roofs and neoprene cloth seals would be eliminated from the process water storage tanks. These tanks would be provided with simple flat tops and breather pipes. The building, housing the tanks, would be eliminated. This would require the air compressors and other apparatus in the tank building to be relocated. Protection against freezing of water in tanks and lines would have to be provided.

V. Disadvantages:

1. Steel pipe corrosion might be increased. However, as it is now proposed to have the water at a pH of about 7.5, this factor should be unimportant.
2. The real disadvantage is that if the present methods of chemical treatment cannot be used and some reason should develop for deseration, the extra cost in the loss of this would probably be more than double the savings which had been made.

VI. Advantages of Proposed Work:

Construction: The proposed work will release enough man power to permit completion of the F Area as much as three weeks ahead of schedule on present basis. The labor savings involved might be expected to run from \$250,000 to \$500,000.

Operating: The proposed changes would result in considerable simplification of the equipment to be operated. For example: Present plant includes forty chemical feed pumps. The proposed arrangement would reduce this number to eight or less. Simplification of the equipment could be expected to improve the reliability of operation. Elimination of the desaerators would result in appreciable savings of operating labor and maintenance labor.

W.D.
W.D. DUNNINGTON

WD:js

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END

**DATE
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9/17/92