



**Request For Capital  
Expenditures/Retirements**

DIVISION OR COMPANY

Organic Chemicals Division

LOCATION

J.O. CONTROL POINT

Chicago Plant

097

JOB TITLE

Clean out number one boiler.

REPORTING CLASSIFICATION

Expense

DATE APPROVED

10/30/81

JOB ORDER NO.

OC-5566

**SUMMARY OF AMOUNTS**

| DESCRIPTION                        | LOCAL CURRENCY | U.S. DOLLARS |
|------------------------------------|----------------|--------------|
| ESTIMATED PROJECT COST             |                | \$4200       |
| DISMANTLEMENT EXPENSE              |                |              |
| TRANSFER EQUIPMENT                 |                |              |
| GROSS AMOUNT FOR APPROVAL          |                | \$4200       |
| LESS TRANSFER EQUIPMENT            |                |              |
| LESS SALVAGE OR TRADE-IN ALLOWANCE |                |              |
| NET CASH REQUIRED (GOF-3027)       |                | \$4200       |

**RETIREMENT DATA**

**ECONOMICS**

**REVISION DETAIL (GROSS AMOUNTS)**

as called for in General Procedure Memo #3  
Attachment C. (Attach calculations)

|                        | AMOUNT |                             | REV.# | DATE | AMOUNT | CUM. AUTHORIZATION |
|------------------------|--------|-----------------------------|-------|------|--------|--------------------|
| COST                   |        | ECONOMICS PERIOD            | 1     |      |        |                    |
| DISMANTLEMENT          |        | NET SALES                   | 2     |      |        |                    |
| LESS SALVAGE           |        | NAT (PROFIT/SAVINGS)        | 3     |      |        |                    |
|                        |        | TOTAL INVESTMENT            | 4     |      |        |                    |
|                        |        | % ROI (ON TOTAL INVEST.)    | 5     |      |        |                    |
|                        |        | INTERNAL RATE OF RETURN     | 6     |      |        |                    |
| TOTAL - CHARGE RESERVE |        | PAYOUT OF NEW FIXED CAPITAL | 7     |      |        |                    |

DESCRIPTION AND REASONS REQUIRED

Funds of-----\$4200  
are requested to clean out the Chicago Plant's number one boiler of scale.

| SUMMARY OF ESTIMATED COST - Details on GOF-3027 | ESTIMATE NO. | STARTING DATE | COMPLETION DATE       |
|-------------------------------------------------|--------------|---------------|-----------------------|
|                                                 |              |               | one month after start |

| ITEM NO.          | DESCRIPTION         | MATERIAL | LABOR | ENGINEERING | TOTAL |
|-------------------|---------------------|----------|-------|-------------|-------|
| 1                 | Clean out #1 boiler | 3029     | 1151  | 20          | 4200  |
| NET CASH REQUIRED |                     | 3029     | 1151  | 20          | 4200  |

| ACCOUNTING TREATMENT                                                                               |                                 | APPROVALS                             |          |
|----------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------|----------|
| ITEM NO.                                                                                           | DEPR. RATE                      | NAME                                  | DATE     |
| 1                                                                                                  | Dr. \$4,200 Expense as Incurred | PROJECT SPONSOR<br><i>[Signature]</i> | 10/23/81 |
|                                                                                                    |                                 | <i>[Signature]</i>                    | 10/23/81 |
|                                                                                                    |                                 | <i>[Signature]</i>                    | 10/30/81 |
| ACCOUNTING TREATMENT / ECONOMICS APPROVED BY DIV. CONTROLLER (CHECK BOX(ES))                       |                                 |                                       |          |
| <i>[Signature]</i> <input checked="" type="checkbox"/> <input type="checkbox"/> <i>[Signature]</i> |                                 | DATE 11/9/81                          |          |
| POST AUDIT PERIOD                                                                                  |                                 | DIVISION PRESIDENT/DIRECTOR           |          |
|                                                                                                    |                                 |                                       |          |



## Description and Reasons Required

### Proposed Work and Cost

Funds of-----\$4200  
are requested to clean out the Chicago Plant's number one boiler of  
scale.

### Present Situation

The Chicago Plant has two 150 H.P. high pressure steam boilers. Only one boiler is operated at a time, depending on the plant's process and heating requirements. The plant operates three shifts per day, seven days a week.

When the number one boiler was opened up for cleaning and the annual inspection by both the City of Chicago and insurance company, it was found that the water side of the boiler had a 1/8" thick scale deposit on it. Manual clean-out cannot remove this scale. If the boiler is to pass inspection this scale must be removed.

Inspection by the insurance company at the beginning of this year indicated a scale build-up. It was decided to modify the chemical treatment to the boiler, but it is evident from the build-up of scale that this is not doing the job.

### Justification

Scale deposit on the heating surfaces of the boiler act as an insulator, retarding the flow of heat to the water, and causing the metal to become overheated, thus weakening it. Additional fuel must be used to overcome this insulating effect of scale as much as 20% when the scale coating reaches 1/8 inch thick, the thickness of the scale on the number one boiler.

COMMERCIAL FACTORS

This order supports a plant budget for lead stabilizers as follows:

| (K\$/lbs.)                                     | <u>Sales</u> |           | <u>Marginal Income</u> |          | <u>POS</u> |          |
|------------------------------------------------|--------------|-----------|------------------------|----------|------------|----------|
|                                                | <u>Lbs.</u>  | <u>\$</u> | <u>\$</u>              | <u>%</u> | <u>\$</u>  | <u>%</u> |
| Actual all stabilizers 1980                    | 7,296        | 5,618     | 2,451                  | 43.6     | 1,782      | 31.7     |
| Budget all stabilizers 1981                    | 6,400        | 5,207     | 2,337                  | 44.9     | 1,512      | 29.0     |
| Actual all stabilizers -<br>first eight months | 4,936        | 3,674     | 1,397                  | 38.0     | 1,378      | 36.4     |



#### Details of Proposal

The number one boiler will be chemically cleaned by a specialist under the supervision of Herman Bogot & Company and plant personnel. The chemicals which contain inhibitors to reduce any attacks upon the boiler metal will be brought in by a tank truck and circulated by a pump on the truck through the boilers wet side. The solution will be analyzed during the operation to check the cleaning process and keep the chemical in contact with the boiler for the minimum length of time. The used chemical will be taken by the cleaner to an approved reclamation plant. The boiler will be filled with a neutralizing solution and flushed with water. It will require one day, about 14 hours to chemically clean the boiler. The preparing and closing up the boiler will be done while Bogot is here for regular weekly servicing.

#### Production Factors

This proposal will not alter product quality or production rates.

#### Contingent Future Commitments

This proposal will not require additional funds to complete.

#### Alternatives Considered

Mechanical cleaning has been tried, but with very limited results. Due to the construction of the boiler, it is impossible to reach the majority of the scaled surfaces.

If left untreated, additional fuel will be required to heat the water as well as heat damage to the metal of the boiler because of the higher operating temperatures.

Replace all tubes - rejected as too costly and unnecessary.



### Risks

The operating risk involved is a possible leaking boiler tube seam or pipe. Herman Bogot & Company will be present to correct if this occurs.

### Concise Summary

Chemically clean the boiler to increase efficiency and prevent damage.