

On Dec 18, 1997 the Δ responded to interrogatories regarding USX Clairton. Westinghouse claimed in responding to discovery, that it had no means to determine the ultimate destination of the ash-wood products it sold. Westinghouse stated that "it did not have the massive financial manpower resources to respond." On Jan 5, 1999 the Δ ~~is~~ stated the following in responding to discovery #1 (Request for Admissions #6 - #8):

After reasonable investigation, Westinghouse is without information that between 1950 and 1980, it sold, supplied, and/or distributed Flash Evaporation Units to United States Steel Corporation for use at the USX Clairton plant, and therefore the request is denied.

\* \* \* \* \*

After reasonable investigation, Westinghouse is without information that between 1950 and 1980, subcontractors hired by it and/or its employees performed work on Flash Evaporation Units at United States Steel Corporation, and therefore the request is denied.

\* \* \* \* \*

After reasonable investigation, Westinghouse is without information that between 1950 and 1980, subcontractors hired by it and/or its employees manipulated, installed and/or removed asbestos-containing products while servicing Flash Evaporation Units at the USX Clairton plant, and therefore the request is denied.

This denied having any documents reflecting a sale of a flash evaporator to USX Clairton. On Feb 15, 1999 the Δ admitted that it sold, supplied and/or distributed a flash evaporation unit to USX Clairton and hired subcontractors to complete work on the flash evaporator.

On 1966 the Clairton ~~project~~ Project was under construction at USX Clairton, Works. USS determined that, in order to meet the steam requirements with existing river water conditions, <sup>as</sup>

In 1966 Westinghouse Electric Corporation,  
Water Power Department, Lester, Pennsylvania,  
submitted a proposal to United States Steel Corporation  
Clairton Works for a Flash Evaporator Water Plant.

[See attached KEY LANGUAGE

US Steel ~~was~~ ~~accepted~~ accepted the proposal of  
Westinghouse for a flash evaporator so to  
provide adequate treated water to meet  
steam demands for the operation of the  
20 coke batteries and byproduct plant

*PROPOSAL*

FOREWORD

This proposal is submitted by the Westinghouse Electric Corporation, Water Province Department, in response to your Inquiry No. 135-5057-1-08 requesting bids in accordance with United States Steel Corporation, Clairton Works, Specification No. 135-5057-1, dated November 24, 1965. Specifically, the flash evaporator water plant proposed herein is in response to Item 106 of the Specification and Item 204 of the Bidding Instructions which provide for the bidding of alternate equipment.

Westinghouse is fully qualified with both technical and manufacturing capabilities to provide a plant of experience proven design which will produce high quality water from raw river water at a reasonable cost. The equipment proposed has been integrated into a complete custom engineered system, specifically designed to meet the requirements of your plant.

Recent analyses of the Monongahela River water at Clairton, Pennsylvania indicate the continued trend toward higher hardnesses and total dissolved solids over longer periods of the year. Considering this deteriorating river water quality, the limitations of the present and proposed water treating facilities, and the resulting increase in required boiler blowdown we are proposing a flash evaporator system which will produce high quality boiler makeup water, regardless of river water quality.

The Westinghouse system offers the advantage of a system insensitive to present and anticipated seasonal fluctuations of the Monongahela River's level of dissolved solids. High purity water will be produced on a basis of high availability.

The guaranteed product purity offered in this proposal will result in a substantial reduction in required boiler blowdown and consequently a reduction in makeup water requirements. The capacity of the flash evaporator has been modified accordingly to reflect this advantage over other conventional water treatment facilities.

The Westinghouse Flash Evaporator Water Plant offered herein has been designed to achieve a minimum evaluated cost of water within the parameters given. The process design utilizes the

WEEI000355

most economical sources of heat available at the site. Trouble free, continuous operation is assured by the installation of adequate instrumentation and controls, installed "stand-by" pumps, and a highly efficient chemical treatment system for the water feed to the system from the "primary cooling water" and from the boiler blowdown flash tanks.

The "List of Equipment" section includes major items of equipment to be furnished and installed by Westinghouse and is intended to show that all of the major components have been considered. The limits of responsibility and plant terminal points are defined in the "Scope" section. A General Arrangement drawing is included to show the area required for the installation of the complete Flash Evaporator Water Plant.

The Westinghouse Flash Evaporator Water Plant system described in this proposal is quoted on a complete turnkey basis, within the limits as defined herein with Westinghouse assuming complete responsibility for all phases of design and engineering, fabrication and construction, erection and startup and operating personnel training. Our objective is to reduce the number of areas of overlapping responsibility to an absolute minimum by assuming as much of the responsibility for water production as is practical. We believe there are many advantages to the customer in purchasing the complete facility by a single contract.

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Boiler Feedwater Westinghouse will furnish all materials and services to install necessary piping to return the distillate produced and condensate to the deaerating heater. Connection will be made at the deaerating heater located at elevation 810' in boiler house No. 1. This proposal is based on all evaporator distillate and condensate being returned to the system in one adequately sized pipe line.

B. SITE PREPARATION

Westinghouse will provide site grading and soil preparation to prepare the designated site for the commencement of construction, assuming a soil bearing capacity of 1500 pounds per square foot.

C. FOUNDATIONS AND CIVIL STRUCTURES

Westinghouse will be responsible for complete design and placement of all foundations required to support the flash evaporator and all accessory equipment.

D. COOLING TOWER WATER REQUIREMENT

Westinghouse will be responsible for the design and installation of one (1) complete and separate cooling tower water system, including all necessary concrete work, pumps and piping. Facilities will be designed to provide adequate cooling water for the Flash Evaporator under all operating conditions. This system will be a separate and independent system located within the Flash Evaporator Plot Plan.

E. STRUCTURAL STEEL

Structural steel for the complete flash evaporator water plant and its support facilities, including pipe and conduit supports, stairways, platforms, ladders and hand-rails, will be furnished and installed by Westinghouse.

F. INSULATION AND PAINT

Insulation of equipment and piping as required for the protection of operating personnel and for the prevention of heat losses will be provided by Westinghouse. All insulation materials and application procedures will be in accordance with U. S. Steel, Clairton Works applicable specifications.

Painting in accordance with applicable specifications will be provided for all equipment and support facilities.

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G. ELECTRICAL SYSTEM

Westinghouse will be responsible for the installation of all electrical equipment, water plant conduit and wiring; and plant lighting. Westinghouse will also provide an electrical substation to be located within the present protected electrical enclosure adjacent to the existing cooling tower pump house.

H. PLANT CONTROL ROOM

One building will be included to provide for the plant control room with instrument panel, motor control room.

I. TRAINING PROGRAM

A Training Program will be provided wherein the Owner's operators will be given thorough training in plant operating and instruction in the use of analytical procedures, prior to plant start-up.

Instruction Books containing written procedure for plant and equipment operation and maintenance will be submitted in advance to permit operators to familiarize themselves with procedure in a general way.

A series of lectures will be given by the start-up engineer covering the characteristics of all items of equipment, start-up, routine operation, and shutdown procedures. These lectures will be supplemented by equipment inspection, question and answer sessions, and dummy operation practices.

During plant start-up operators will be observed and corrections will be made in any erroneous operating techniques which may be noted.

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QUALIFICATIONS AND RELATED EXPERIENCE OF THE WESTINGHOUSE  
ELECTRIC CORPORATION

The Westinghouse Electric Corporation has been in the business of manufacturing heat transfer products for over 50 years. Heat Transfer products have had a division status since 1956 and on January 1, 1965, the Water Province Department of the Heat Transfer Division was formed. The charter of this department briefly encompasses any product related to the change of the composition water.

There are many ways to classify heat transfer products, among them is "end use". By this definition, Westinghouse has been continuously identified with heat transfer apparatus associated with power generation in central generating stations, industrial applications, naval and marine applications and special applications in hydro-electric stations. In this power generation field, availability is one of the prime considerations in the selection of all of the system apparatus. This reasoning has resulted in a definition of "Power Plant Quality" as being apparatus of superior quality designed for maximum availability, durability, reliability and maintainability.

The steam power cycle rarely converts more than 40% of the heat energy generated by fossil or nuclear heat source to electrical energy. As the balance of this energy is rejected to the heat sink

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conclusively that plants can be operated scale free at these temperatures. As a result, most of our recent plants are designed for operation at 250°F brine outlet temperature. These include Monsanto Chemical, Government of Virgin Islands, Harvey Aluminum and the two new units furnished for the U.S. Navy at Guantanamo. We have no reservations or qualifications to our warranties at these elevated temperatures.

Westinghouse, in addition, has accumulated years of valuable experience and knowledge in the application of distillation equipment to industry. Recent work in this area includes the Monsanto Chemical Company's plant at Chocolate Bayou, Texas, and the Harvey Aluminum Plant in St. Croix, Virgin Islands. Both of these industrial installations are of a size comparable to other large water desalting plants now in existence. In addition, Westinghouse has recently entered into a contract with the Virgin Islands Territorial Government for a combined electrical power and water desalting plant for the Island of St. Thomas.

The total number of installed and on order flash type evaporator units built by Westinghouse with 50,000 gallons per day capacity or greater, stands at 48. These plants have a combined capacity of over 13 million gallons per day. In total, have 57 desalting units in operation supplying approximately million gallons of pure water.

after W.K. Canton (approx #49)  
the Water Prov. Dept. shutdown

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Customarily water plants have been purchased on a turn-key basis to insure the purchaser of an overall guarantee of the complete performance with a single responsibility for same. As a responsible contractor in this area, we encourage this approach toward building a responsible and competent industry in this field.

Westinghouse supplied the following desalting plants on a turn-key basis:

| <u>Customer</u>                                  | <u>Location</u>          | <u>Capacity</u> |
|--------------------------------------------------|--------------------------|-----------------|
| U.S. Dept. of Interior<br>Office of Saline Water | Pt. Loma<br>California   | 1.4 MGPD        |
| U.S. Navy                                        | Guantanamo<br>Cuba       | 2.25 MGPD       |
| Virgin Is. Government                            | St. Thomas<br>Virgin Is. | 1.0 MGPD        |

Summarizing, the water plant business is not new to Westinghouse nor are we strangers in the construction field. In recognition of the national and international importance of water desalting and other water problems, Westinghouse has created the Water Province Department to pursue all of the desalting and water processing efforts undertaken by the Corporation. This department has available to it the entire resources of the Westinghouse Electric Corporation. This includes the planning of related activities at the Research and Development Center in Pittsburgh Pa., as well as the normal engineering, manufacturing, and mar-

WEE10003

ing activities at the operating divisions. A field engineering and service force stands available for emergency situations wherever and whenever such should occur.

We feel that our qualifications are second to none with regard to the design, manufacture, construction, and on schedule start-up of water desalting plants. We will bid such plants on a firm price basis, with warranted capacity, warranted fuel rate, warranted power consumption, warranted chemical consumption, warranted purity, and completion date.

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## WESTINGHOUSE FLASH-TYPE EVAPORATORS

| Purchaser and Location                                                                                                  | Number of Units | Total Capacity Gallons per Day | In Service Date |
|-------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------|-----------------|
| Government of Kuwait, Kuwait, Arabia                                                                                    | 4               | 2,520,000                      | 1957            |
| Philadelphia Electric Co., Richmond Station, Philadelphia, Pa.                                                          | 1               | 144,000                        | 1960            |
| Office of Saline Water, U. S. Dept. of Interior, Point Loma, California<br>(Moved to Guantanamo Naval Base—April, 1964) | 1               | 1,400,000                      | 1961            |
| American Independent Oil Co., Kuwait, Arabia                                                                            | 1               | 50,000                         | 1962            |
| Hawaiian Electric Company, Kahe #1, Honolulu, Hawaii                                                                    | 1               | 52,600                         | 1962            |
| San Diego Gas and Electric Co., South Bay #2, San Diego, California                                                     | 1               | 57,600                         | 1962            |
| Oasis Oil Company, Es Sider, Libya                                                                                      | 2               | 100,000                        | 1962            |
| *Philadelphia Electric Co., Chester Station                                                                             | 1               | 100,800                        | 1962            |
| Kentucky Power Co., Big Sandy #1, Louisville, Kentucky                                                                  | 1               | 116,500                        | 1962            |
| Pacific Gas and Electric Co., Morro Bay #3, Morro Bay, California                                                       | 1               | 123,000                        | 1962            |
| Virginia Electric and Power Co., Possum Point #4, Dumfries, Virginia                                                    | 1               | 187,000                        | 1962            |
| Arabian Oil Company, Neutral Zone, Arabia                                                                               | 1               | 500,000                        | 1962            |
| Monsanto Co., Chocolate Bayou Plant, Texas                                                                              | 1               | 762,000                        | 1962            |
| Government of Indonesia, Surabaya #1, Surabaya, Indonesia                                                               | 1               | 28,800                         | 1963            |
| *Government of Indonesia, Surabaya #2, Surabaya, Indonesia                                                              | 1               | 28,800                         | 1963            |
| Comision Federal de Electricidad, Tijuana #1                                                                            | 1               | 63,300                         | 1963            |
| *Comision Federal de Electricidad, Tijuana #2                                                                           | 1               | 63,300                         | 1963            |
| *Comision Federal de Electricidad, Tijuana #3                                                                           | 1               | 63,300                         | 1963            |
| New England Power Company, Brayton Point #1, Somerset, Massachusetts                                                    | 1               | 111,000                        | 1963            |
| *Pacific Gas and Electric Co., Morro Bay #4, Morro Bay, California                                                      | 1               | 123,000                        | 1963            |
| Texas Electric Service, Handley #3, Handley, Texas                                                                      | 1               | 144,000                        | 1963            |
| Tennessee Valley Authority, Paradise #1, Paradise, Kentucky                                                             | 1               | 209,000                        | 1963            |
| *Tennessee Valley Authority, Paradise #2, Paradise, Kentucky                                                            | 1               | 209,000                        | 1963            |
| *Hawaiian Electric Company, Kahe #2, Honolulu, Hawaii                                                                   | 1               | 52,600                         | 1964            |
| City of Owensboro, Kentucky, Elmer Smith Generating Station #2                                                          | 1               | 57,600                         | 1964            |
| *San Diego Gas and Electric Co., South Bay #3, San Diego, California                                                    | 1               | 57,600                         | 1964            |
| *Pacific Gas and Electric Co., Contra Costa #6, Contra Costa Co., California                                            | 1               | 104,500                        | 1964            |
| *Pacific Gas and Electric Co., Contra Costa #7, Contra Costa Co., California                                            | 1               | 104,500                        | 1964            |
| *New England Power Company, Brayton Point #2, Somerset, Massachusetts                                                   | 1               | 111,000                        | 1964            |
| Canary Islands—Lanzarote                                                                                                | 1               | 650,000                        | 1964            |
| Guantanamo Naval Base, Unit #1                                                                                          | 1               | 750,000                        | 1964            |
| *Guantanamo Naval Base, Unit #2                                                                                         | 1               | 750,000                        | 1964            |
| Harvey Aluminum Co., St. Croix, U.S. Virgin Islands                                                                     | 1               | 1,500,000                      | 1965            |
| Kansas Power and Light, Hutchinson #4, Hutchinson, Kansas                                                               | 1               | 57,600                         | 1965            |
| *Virginia Electric and Power Co., Mount Storm #1, Mount Storm, Grant Co., West Virginia                                 | 1               | 328,320                        | 1965            |
| *Tennessee Valley Authority, Bull Run #1, Edgemoor, Tennessee                                                           | 1               | 169,600                        | 1965            |
| *Pacific Gas and Electric Co., Moss Landing #6, Moss Landing, California                                                | 1               | 188,000                        | 1965            |
| Virgin Islands Government, St. Thomas                                                                                   | 1               | 1,000,000                      | 1965            |
| The Government of East Pakistan Water and Power Development Authority                                                   | 2               | 80,000                         | 1966            |
| *Virginia Electric and Power Co., Mount Storm #2, Mount Storm, Grant Co., West Virginia                                 | 1               | 328,320                        | 1966            |
| Southern California Edison Co., San Onofre (Nuclear), Camp Pendleton, California                                        | 2               | 172,500                        | 1966            |
| *Pacific Gas and Electric Co., Moss Landing #7, Moss Landing, Monterey Co., California                                  | 1               | 188,000                        | 1966            |

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\* Repeat order  
Total number of units (as of September 1, 1964), 48  
Total capacity, gallons per day—13,807,140

PROPOSAL DESCRIPTIVE LEAFLET  
SHEET 1 9-65 1 SHEET

# *NEWSPAPER CLIPPING* **New Water Treatment Plant Set at Area Mill**

**Planned Clairton Works Facility Similar To Process-Used in Desalinization Of Sea Water for Drinking**

A water-treating plant similar to the type used to convert ocean water into drinking water will be built at Clairton Works. It will produce more than one million gallons of pure water daily for the U. S. Steel plant's coke and coal chemical processing units.

R. H. Campbell, plant general superintendent, announced the addition to the growing U. S. Steel operation today and described how it will work.

Unlike desalinization plants which treat ocean salt water, the Clairton facility will purify water from the Monongahela River. It will be built by Westinghouse Electric Corp.

Flash Evaporator Mr. Campbell said the water plant will employ a flash evaporator system to provide ultrapure feedwater essential to the production of high pressure steam in Clairton Works' newly installed boilers.

A Westinghouse representative, Roy E. Gaunt, manager of the corporation's water province department, said it has been demonstrated that a "desalting" plant could provide the required amounts of water more economically than the use of sedimentation tanks and chemical treatment.

"Although much of the world's installed capacity of desalting plants is providing

water for human consumption, we are finding more and more situations where the technique is economical in industry," Mr. Gaunt said.

The so-called Keystone Project now under construction at Clairton Works is increasing the plant's over-all water needs, Mr. Campbell said.

Present Limitation The plant now treats the Monongahela water it uses. But the present system primarily takes out only some of the solids that will settle or take care of hardness, according to Mr. Campbell.

He said the setup now does not do anything with dissolved solids.

Problems magnify as population rises along the river, more detergents flow into and sewage treatment facilities spring up, Mr. Campbell said.

Westinghouse's contract with U. S. Steel was referred to as a "turnkey" contract which gives the electric corporation responsibility.

(Continued on Page 14, Col. 4)

# **Water Treatment Plant Described**

**Clairton Works Due New Facility**

(Continued from Page One)  
 ability for design, engineering, construction, startup and personnel training.

Work Progresses Meanwhile, work progresses on the Keystone Project proper.

Mr. Campbell said the expansion of chemical operations can be considered 90 per cent complete from an equipment-delivered standpoint. Much remains to be installed, he said.

He predicted the new anhydrous ammonia and other facilities will be finished and ready to operate before the end of the first half of 1957.

Right now, Clairton Works is using new ammonia storage areas provided as part of the Keystone program.

PERGUSON-Report H.L.  
**PLAINTIFF'S EXHIBIT**  
**M**

EXHIBIT 4 120  
 WEEI000334

*This clipping appeared in Pittsburgh Post-Gazette  
 Dated Above Dec. 12, 1956*

# United States Steel Corporation

525 William Penn Place

Pittsburgh 30, Pa.

JOHN FUGSLEY  
EXECUTIVE VICE PRESIDENT  
ACCOUNTING



June 24, 1966

Mr. R. C. Tyson, Chairman  
Finance Committee  
United States Steel Corporation  
71 Broadway  
New York, New York

Dear Mr. Tyson:

Financial Change Statement Covering Appropriation No. 1-0582 - Heavy Products Operations, Additional Water Treating Facilities - Clairton Works - \$1,300,000

This project is not included in the 1966 Facility Budget or in the Corporation Long Range Plan.

The existing water treating plant at normal levels, before Keystone, furnishes boiler feed water for the No. 2 Boiler House and the Benzene Boiler House. The latter house will become standby as the Keystone Waste Heat Boilers together with the No. 2 Boiler House become normal steam sources.

The present water treating facilities remove the hardness from the water but in doing so, they also add dissolved solids to the water. In addition, during the past few years, the raw river water consumed has contained an ever increasing amount of dissolved solids, which have almost doubled since 1963, necessitating increased boiler house blowdowns and a resultant loss in steam production.

In order to meet the steam requirements with existing river water conditions and provide feed water for Keystone boilers, it is necessary that additional water treating facilities be provided.

~~It is therefore proposed~~ to install a flash evaporator of a type developed by Westinghouse. The advantage of the flash evaporator is that it is designed to utilize the high pressure boiler blowdown water and primary gas cooling water make-up (both are currently wasted) and convert them into boiler feed water. Unlike the present water treating facilities, it will produce boiler feed water relatively free of dissolved solids.

Annual financial effects after Keystone are expected to be \$238,560 increased cost before income taxes as detailed below:

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EXHIBIT 7 i 6

# United States Steel Corporation

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Mr. R. C. Tyson

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1-0582

| Affected Cost Areas               | Annual Financial Effects<br>(Before Income Taxes) |                     |                 |
|-----------------------------------|---------------------------------------------------|---------------------|-----------------|
|                                   | Current                                           | After Installation  | Change          |
|                                   | Normal                                            | of Flash Evaporator |                 |
| Steam Generation                  | \$2,440,434                                       | \$2,496,196         | \$ (55,762) (1) |
| Water Treatment Costs             |                                                   |                     |                 |
| Present Facilities                | 189,012                                           | 187,710             | 1,302           |
| Flash Evaporator                  | -                                                 | 119,100             | (119,100)       |
| Own Produced Electricity          | 488,722                                           | 488,722             | -               |
| Depreciation - Added Facilities   | -                                                 | 52,000              | (52,000)        |
| Property Taxes - Added Facilities | -                                                 | 13,000              | (13,000)        |
| Total                             | \$3,118,168                                       | \$3,356,728         | \$(238,560)     |

( ) Indicates increased costs.

(1) Additional steam required to operate the flash evaporator.

## Memorandum Financial Effects

Current river conditions result in an increased number of blowdowns, decreased steam production and an increase in purchased electrical power. The flash evaporator is expected to alleviate this condition and provide the following benefits:

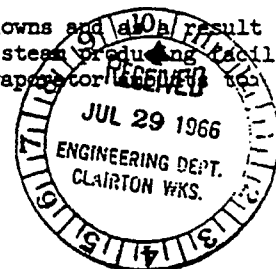
| Affected Areas<br>of Cost Changes | Annual Dollars (After Keystone) |                     |            |
|-----------------------------------|---------------------------------|---------------------|------------|
|                                   | Current Water                   | After Installation  | Change     |
|                                   | Treating Facilities             | of Flash Evaporator |            |
| Steam Generation                  | \$2,937,821                     | \$2,496,196 (1)     | \$ 441,625 |
| Water Treatment                   |                                 |                     |            |
| Present Facilities                | \$ 274,925                      | 187,710             | 87,215     |
| Flash Evaporator                  | -                               | 119,100             | (119,100)  |
| Electricity                       |                                 |                     |            |
| Own Produced                      | 408,987                         | 488,722             | (79,735)   |
| Purchased                         | 219,192                         | -                   | 219,192    |
| Depreciation - Added Facilities   | -                               | 52,000              | (52,000)   |
| Property Taxes - Added Facilities | -                               | 13,000              | (13,000)   |
| Total                             | \$3,840,925                     | \$3,356,728         | \$ 484,197 |
| Benefits After Income Taxes       |                                 |                     | \$ 244,229 |

( ) Indicates increased costs.

- (1) The flash evaporator will permit a reduction in blowdowns and a result will permit increased steam production on lower cost steam producing facilities. The additional steam required to operate the flash evaporator is \$55,762.

244,229  
52,000  
296,229

\$1,300,000  
44,400



WEE1000007

EXHIBIT 7 7



Mr. R. C. Tyson

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1-0582

Pertinent Points

1. Engineering Department has advised that other Mon-Valley plants using the same river water have sufficient water treating facilities, but if additional steam generation is installed, they will require additional water treating facilities.
2. It should be noted that the installation of these water treating facilities will provide adequate treated water to meet steam demands for operation of 20 batteries, Steel Works and Keystone project. However, if the dissolved solids level in the river water continues to increase as it has in the past two years, the equivalent steam capacity will be further reduced and it will be necessary to provide additional flash evaporator capacity in the future to meet peak steam requirements.
3. During 1963, the dissolved solids in river water average 300 parts per million and have increased to an average of 575 parts per million during 1965 with a monthly peak of 850 parts per million in August.
4. We are advised that the use of the main boiler house water treatment facilities is not contemplated as an alternate source after installation of the flash evaporator since a major expenditure would be required to pipe this water to No. 2 Boiler House and Keystone Boilers and alter this obsolete water treating facility so that the water would be suitable for use in these high pressure boilers. This alternate source is not considered practical.

Very truly yours,

*John Rugsley*

Executive Vice President  
Accounting

cc: A. V. Wiebel  
E. H. Gott  
A. J. Kimball  
J. R. Ferguson  
B. A. Keay

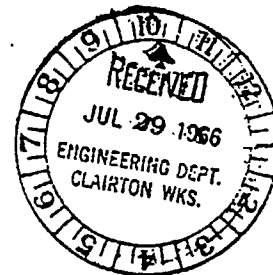


EXHIBIT 7

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WEEI000008

176-1

UNITED STATES STEEL CORPORATION

APPROPRIATION REQUEST SUBMITTED FOR CONSIDERATION OF

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                         |  |                             |                                   |                     |  |                            |  |
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| <b>TITLE - ADDITIONAL WATER TREATING FACILITIES - COKE &amp; COAL CHEMICAL WORKS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |                         |  |                             |                                   |                     |  |                            |  |
| APPROPRIATION NUMBER - <b>1-0582</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | TYPE - <b>II-A</b>      |  | GROSS                       |                                   | CAPITAL             |  | TOTAL                      |  |
| OPERATION OR DIVISION - <b>HEAVY PRODUCTS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                         |  | LESS                        |                                   | \$ 1,300,000        |  | \$ 1,300,000               |  |
| LOCATION - <b>CLAIRTON WORKS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                         |  | NEW MONEY                   |                                   | \$ 1,300,000        |  | \$ 1,300,000               |  |
| SUBJECT REFERENCE - <b>NOT INCLUDED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                         |  |                             |                                   |                     |  |                            |  |
| BENEFITS AFTER FIT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | VERIFIABLE \$ --        |  | YEARS TO RECOVER            |                                   | DATE OF:            |  | INITIAL OPERATIONS --      |  |
| TOTAL \$ --                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                         |  | --                          |                                   |                     |  | SATISFACTORY OPERATIONS -- |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                         |  |                             |                                   |                     |  | APPROPRIATION CLOSING --   |  |
| INCREASED COST BEFORE FIT - \$ 65,000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                         |  |                             |                                   |                     |  | 15 Months                  |  |
| INCREASED SALES/YEAR --                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                         |  | SALES PENETRATION PERIOD -- |                                   |                     |  | 24 Months                  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                         |  |                             |                                   |                     |  | 18 Months                  |  |
| <p><b>PRESENT CONDITIONS:</b> Treated boiler feedwater for the new No. 2 Boiler House and Benzene Boiler House is provided by a common water treating plant. It is also planned to supply feedwater to the waste heat boilers being installed on the Keystone Project from this water treating plant. During the low-river period in 1965, it became apparent that the dissolved solids in the river water had increased to the extent that present water treating facilities cannot provide sufficient quantities of feedwater for the No. 2 Boiler House and Keystone boilers at Normal, under these conditions. In 1965, the dissolved solids in the Monongahela River water were nearly double that of any previous year. Because of the added boiler blowdown caused by the increased dissolved solids in the water, the equivalent steam capacity of the water treating plant (sedimentation tanks) has dropped from 1,260,000#/hr. in 1963 to 900,000#/hr. in 1965. This drop in equivalent steam capacity of the water treating plant together with the increase in steam demand (due to high operating level) make it necessary to provide additional water treating facilities. It is imperative that these facilities be installed before the seasonal poor water conditions expected in the summer of 1967. Provision of water treating facilities with an equivalent steam capacity of 500,000#/hr. (1.44 million gallons/day) will meet steam requirements of approximately 1,400,000#/hr. after Keystone.</p> <p><b>PROPOSAL:</b> It is proposed to provide a flash evaporator water plant with a nominal capacity of 500,000#/hr. of high-purity boiler feedwater. This plant will be installed north of the No. 2 Boiler House. It is also proposed to provide the necessary facilities to utilize the full capacity of existing sedimentation tanks. The proposed evaporator unit represents a practical maximum size consistent with current technology and operating experience of the industry. If the dissolved solids in the river water continues to increase as it has done in the past two years, the equivalent steam capacity will be further reduced and it will be necessary to provide additional flash evaporator capacity to meet peak steam requirements in the future.</p> <p><b>BENEFITS ANTICIPATED:</b> Provision of these additional water treating facilities will provide treated water capacity to meet the steam requirements to support peak operation of the Coke Works (20 Batteries) plus the Steel Works and the Keystone Project (under construction) assuming raw water conditions remain comparable to that experienced in 1965. It is estimated that there will be benefits of \$244,229 annually after taxes, based on current standard operating plan adjusted to reflect actual boiler blowdown rate as detailed on Memorandum C and at peak operating level, annual benefits are estimated at \$433,252, after taxes as detailed on Memorandum D.</p> |  |                         |  |                             |                                   |                     |  |                            |  |
| _____<br>PRESIDENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                         |  |                             | _____<br>EXECUTIVE VICE PRESIDENT |                     |  |                            |  |
| ATTACHMENTS -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                         |  |                             |                                   |                     |  |                            |  |
| RECOMMENDED BY -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |                         |  |                             | AUTHORIZED BY -                   |                     |  |                            |  |
| APPROPRIATION COMMITTEE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | OPERATIONS POLICY COMM. |  | OPERATIONS POLICY COMM.     |                                   | EXECUTIVE COMMITTEE |  | BOARD OF DIRECTORS         |  |
| DATE -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  | DATE -                  |  | DATE -                      |                                   | DATE -              |  | DATE -                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                         |  |                             |                                   |                     |  |                            |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                         |  |                             |                                   |                     |  |                            |  |

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EXHIBIT 7 29

## UNITED STATES STEEL CORPORATION

Clairton Works

MEMORANDUM A

(Budget Information)

ACCOMPANYING APPROPRIATION REQUEST FOR "ADDITIONAL WATER  
TREATING FACILITIES - COKE AND COAL CHEMICAL WORKS - \$1,300,000"

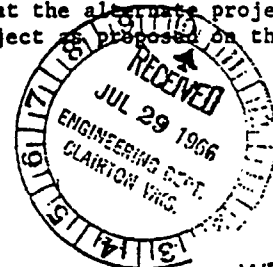
The Project Summary dated November 29, 1965, for this project indicated a total estimated cost of \$1,100,000 (all capital). It was planned to provide additional water treating facilities consisting of one 1,000,000 lb./hr. sedimentation tank, eight filters, five softeners, etc. This proposal would necessitate an extension to the water treating building. An appropriation estimate, based on quotations for equipment, was recently prepared for this project by United Engineers and Constructors, Inc. Their estimate revealed that \$1,250,000 would be required to provide the facilities required. This indicates that the Project Summary estimate was \$150,000 underestimated, however, it was prepared without the benefit of quotations.

In the meantime, Westinghouse Electric Corporation (Water Province Department) submitted a quotation for alternate equipment, proposing to furnish a flash evaporator water plant on a turnkey basis, including all required accessory equipment. The appropriation estimate for this plant including contingency is \$1,130,000. This water plant will be capable of producing a nominal 500,000 lb./hr. of high quality boiler feedwater from high-pressure boiler blowdown which is now wasted and primary gas cooling water makeup (now wasted). In view of the advantages of a flash evaporator unit over the existing means for treating raw river water, it is recommended that the more modern facility be installed. The boiler blowdown using flash evaporator makeup will be less than 1% whereas the blowdown required with the present feedwater is dependent on the dissolved solids in the raw river water and has been as high as 60%. In addition to the technical advantages, the annual operating cost of a flash evaporator is estimated to be \$27,000 less than an additional sedimentation tank. Therefore, provision of additional sedimentation tank capacity is not recommended. However, in addition to the evaporator plant, it will be necessary for Clairton to provide power supply to the plant, make connections to steam and water lines, provide controls for flash tanks, etc. at an estimated cost of \$65,000.

In addition to the foregoing, it is also recommended that the existing water treating plant be improved by the provision of two softeners (250,000 lb./hr. each) one filter, (125,000 lb./hr.) pump, piping, instruments, controls, etc. at an estimated cost of \$105,000. These facilities are necessary to round out the capacity of the existing softeners (1,250,000 lb./hr.) and filters (1,625,000 lb./hr.) which are inadequate to meet the capacity of the two sedimentation tanks (1,800,000 lb./hr.).

Therefore, in view of the above, it is recommended that the alternate project, estimated to cost \$1,300,000, be approved rather than the project as proposed on the Project Summary which is now estimated to cost \$1,250,000.

Engineering Department  
April 29, 1966



WEEI00001C

EXHIBIT 7 10

## UNITED STATES STEEL CORPORATION

Clairton Works

MEMORANDUM "B"

ACCOMPANYING APPROPRIATION REQUEST FOR "ADDITIONAL WATER  
TREATING FACILITIES - COKE AND COAL CHEMICAL WORKS - \$1,300,000"

Treated water for the new No. 2 Boiler House and the Benzene Boiler House is provided by a common water treating plant. It is also planned to supply the waste heat boilers being installed on the Keystone Project from this water treating plant. These water treating facilities are inadequate with existing poor river water conditions, to provide treated water to meet the summer steam requirements for normal operation of the Coke Works, the Steel Works, and the Keystone Project (under construction). Therefore, provision of additional water treating facilities is necessary to meet these steam requirements.

The No. 2 Boiler House has two 900 psig boilers (one 500,000#/hr. and one 300,000#/hr.) and the Benzene Boiler House has fourteen 160-250 psig boilers (eight 30,000#/hr., three 40,000#/hr., one 50,000#/hr. and two 100,000#/hr.). The water treating plant is provided with two sedimentation tanks, (1,800,000#/hr. capacity) fourteen filters (1,625,000#/hr. capacity), six softeners (1,250,000#/hr. capacity), and miscellaneous related facilities. When the Keystone waste heat boilers (seven-600 psig, and two-150 psig units-approximately 50,000#/hr. each) are installed, it is planned to supply them with treated water from the present water treating plant. The steam requirements at the 20 battery peak will then be approximately 1,400,000#/hr. (See Exhibit I).

Water is taken from the Monongahela River and processed through the hot process sedimentation tanks, filters, and softeners prior to use in the boilers. During the last few years, the quality of the river water has rapidly degenerated. This poor water condition was greatly magnified in 1965 when the dissolved solids was almost double that of any previous year (see Exhibits II and II-A). This deterioration of the river water quality has greatly increased the amount of blowdown required in the Boiler Houses, and the equivalent steam capacity of the water treating plant has dropped from 1,260,000#/hr. in 1963 to 900,000#/hr. in 1965. The attached Exhibit III shows the effect of blowdown rate on the equivalent steam capacity of the water treating plant.

The present water treating plant removes the hardness from the incoming Monongahela River water, but in doing this, it adds about 100 ppm to the total dissolved solids in the boiler feedwater. Because of the lack of ability of the water treating plant to control the total dissolved solids of the boiler feedwater, the boilers must blowdown greater quantities of feedwater when the total dissolved solids of the river increase, to control the dissolved solids in the boiler concentrate. High-pressure boilers are very sensitive to total dissolved solids in the boiler concentrate, because with the high tube temperatures, even a small amount of solids carry-over will adhere to the superheater tube walls causing localized excess tube metal temperature which will cause tube failures. Because of this tendency, the American Boiler Manufacturer's Association stipulates that the total dissolved solids in the boiler concentrate shall not exceed 1500 ppm for a 900 psig boiler.

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EXHIBIT 7 II