

INTER-OFFICE MEMORANDUM

TO  
AT

R. J. Wolf  
Oakland

DATE

February 29, 1972

FROM

F. X. Kast

COPIES TO

See Distribution

AT

*F. X. Kast*  
Middletown *lh*

JOB NO.

6471

SUBJECT

Monthly Progress Report - January 1972  
Middletown Project 600



The enclosed monthly progress report covers the activities of Kaiser Engineers, Inc. at Middletown, Ohio for the month of January 1972. This is the final issue of the Monthly Progress Report for Middletown.

FXK:lh  
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*2*

KEN 008885

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and Design Offices

Construction

KEN 008887

# INTER-OFFICE MEMORANDUM

TO R. J. Wolf  
AT Oakland

COPIES TO See Distribution

DATE February 29, 1972

FROM F. X. Kast  
*F. X. Kast*

AT Middletown *ll*

JOB NO. 6471

SUBJECT Monthly Progress Report - January 1972  
Middletown Project 600



The enclosed monthly progress report covers the activities of Kaiser Engineers, Inc. at Middletown, Ohio for the month of January 1972. This is the final issue of the Monthly Progress Report for Middletown.

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FINAL  
MONTHLY PROGRESS REPORT  
"PROJECT 600"  
MIDDLETOWN WORKS EXPANSION PROGRAM  
ARMCO STEEL CORPORATION

JANUARY, 1972

KAISER ENGINEERS, INC.  
MIDDLETOWN, OHIO

KEN 008886

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## PROGRAM SUMMARY

All Project 600 work at Middletown is now completed.

The total amount appropriated was \$433,315,009. (This represents \$412,757,159 for the total design and construction budget, and \$20,557,850 for Armco Other Related Costs). Final costs at completion were \$432,320,195. These final costs include \$223,094 of open commitments and an allowance of \$22,050 for remaining contingency to cover vendor assistance and follow-up during initial operation.

Operation of the final project, the Continuous Casting Facility (6471-36), was started during the month when the first heat was cast on January 25. 165 tons of slabs were continuously cast before a running stopper forced the balance of the 200 ton heat to be aborted.

All construction work was completed during the month, when the last of the construction craft labor were terminated January 27. The Construction Office was closed, and all Construction Management personnel were moved off the site January 28. All remaining Project Management personnel in the Central Office will be phased out during the next six weeks when final reports are completed and important records are properly stored.

Detail Design for the "Engineering Only" services for the Hot Rolled Processing Facilities (6471-41) continued in the Chicago Office during the month.

Average construction manpower working in the field during January was 30, down 59 from December.

KEN 008888

## PROJECT STATUS SUMMARY

### ACTIVE PROJECTS

| Facility                                  | Scheduled<br>Completion Date<br>& Budget           | Status                                                                          |
|-------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------|
| 7141<br>Hot Rolled<br>Processing Facility | September 1972<br>(Engineering Only)<br>\$ 865,100 | Detail design is 67% complete<br>with 77% scheduled.<br>Construction by Others. |

### COMPLETED PROJECTS

|                                                                                                                   |                                |                                                                    |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------|
| 7132<br>Vacuum Degassing                                                                                          | July 1971<br>\$ 4,442,000      | Project is completed and<br>accepted by Armco<br>February 4, 1972. |
| 7136<br>Continuous Casting                                                                                        | November 1971<br>\$ 26,563,150 | Project is completed and<br>accepted by Armco<br>February 4, 1972. |
| 7176<br>No. 4 Coating<br>Line                                                                                     | October 1971<br>\$ 27,589,000  | Project is completed and<br>accepted by Armco<br>February 4, 1972. |
| For other Projects completed and accepted, see the December, 1970 and<br>September, 1971 Monthly Progress Reports |                                |                                                                    |

### PROGRESS

| Activity                            | Percent Completed - Authorized<br>Projects (not including No. 4<br>Coating Line - by Armco) |        |
|-------------------------------------|---------------------------------------------------------------------------------------------|--------|
|                                     | Scheduled                                                                                   | Actual |
| Detail Design (Equivalent Drawings) | 99                                                                                          | 99     |
| Construction (Physical Progress)    | 100                                                                                         | 100    |

KEN 008889

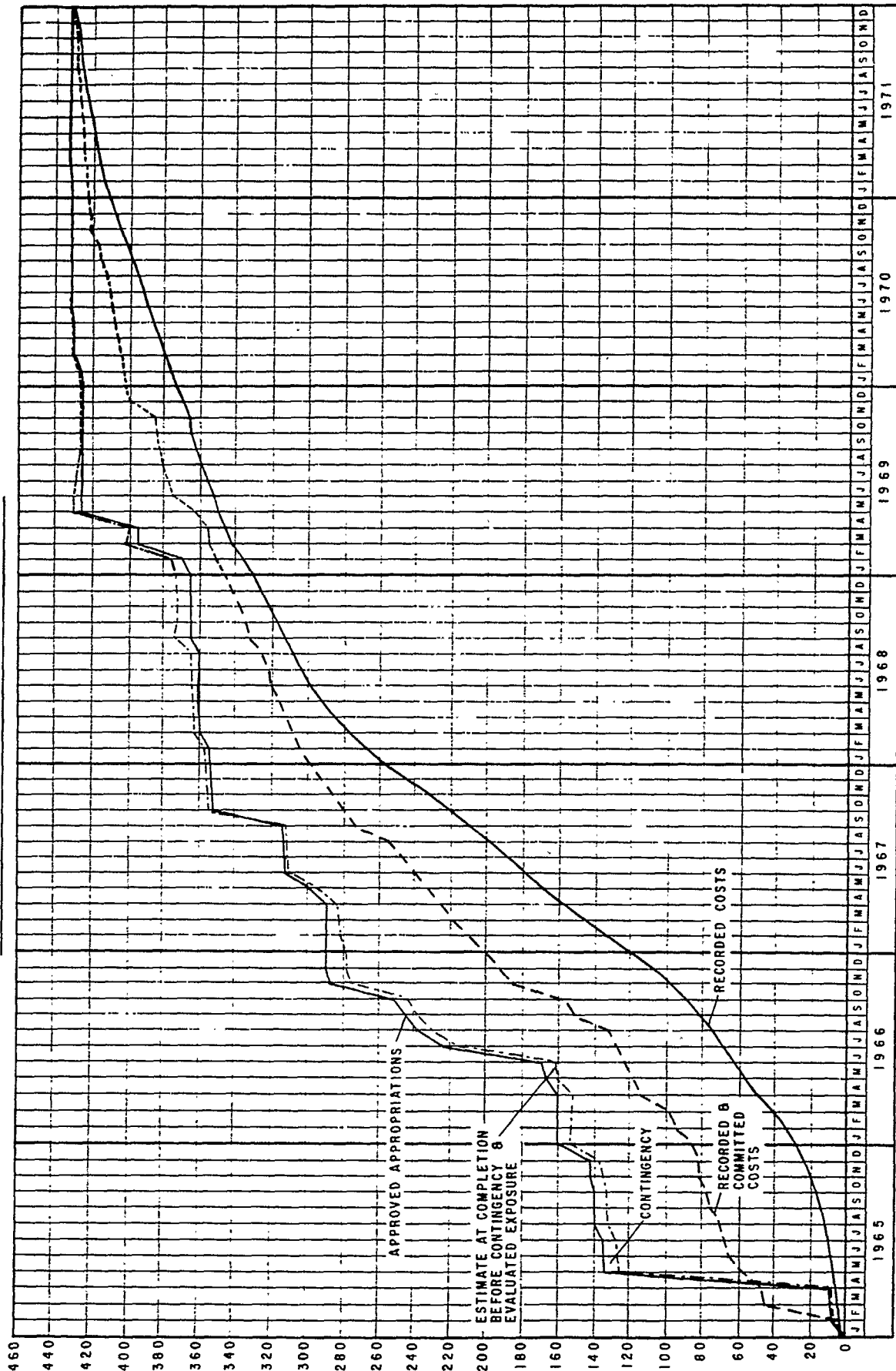
MIDDLETOWN WORKS  
PROJECT 600

January 25, 1972

| Proj.<br>No. | Description                                 | Total<br>Appropriated | Cost at<br>Completion | (Over)<br>Under |
|--------------|---------------------------------------------|-----------------------|-----------------------|-----------------|
| 7100         | Indirect Management Costs thru 1971         | \$ 32,668,091         | \$ 32,701,453         | \$(33,362)      |
| 7104         | Steam Systems                               | 3,437,000             | 3,529,617             | (92,617)        |
| 7105         | Water Systems                               | 8,759,000             | 8,418,368             | 340,632         |
| 7106         | Air Systems                                 | 578,000               | 561,951               | 16,049          |
| 7108         | Oxygen Services                             | 532,000               | 450,518               | 81,482          |
| 7109         | Natural Gas, Fuel Systems                   | 1,132,000             | 929,505               | 202,495         |
| 7110         | Electrical Distribution System              | 5,940,600             | 5,962,215             | (21,615)        |
| 7111         | Sanitary Sewers                             | 533,000               | 440,798               | 92,202          |
| 7112         | Site Development                            | 7,176,900             | 6,758,830             | 418,070         |
| 7113         | Railroads & Rolling Stock                   | 8,146,460             | 7,615,398             | 531,062         |
| 7114         | Locker Rooms                                | 678,000               | 661,856               | 16,144          |
| 7115         | Power Distribution - No. 4 Coating Line     | 847,000               | 705,992               | 141,008         |
| 7116         | Slag Processing Relocation                  | 2,068,408             | 2,068,408             | --              |
| 7128         | Basic Oxygen Shop                           | 36,828,000            | 36,451,697            | 376,303         |
| 7132         | Vacuum Degassing (L-D)                      | 4,442,000             | 4,755,000*            | (313,000)       |
| 7136         | Continuous Casting (L-D)                    | 26,563,150            | 23,500,000*           | 3,063,150       |
| 7143         | Soaking Pits                                | 15,996,000            | 16,296,205            | (300,205)       |
| 7145         | Ingot Stripping Facilities                  | 1,957,000             | 1,763,095             | 193,905         |
| 7146         | Slab Mill                                   | 33,950,000            | 32,111,756            | 1,838,244       |
| 7148         | Hot Strip Mill                              | 130,808,000           | 144,330,501           | (13,522,501)    |
| 7150         | Green Coil Storage Building                 | 5,328,000             | 4,224,549             | 1,103,451       |
| 7156         | #4 Strip Pickler Facilities                 | 15,592,000            | 15,922,814            | (330,814)       |
| 7159         | #5 Strip Pickle Line                        | 13,891,000            | 13,741,083            | 149,917         |
| 7160         | Tandem Cold Mill                            | 36,896,000            | 35,304,461            | 1,591,539       |
| 7164         | 94 Annealing                                | 6,439,400             | 4,722,486             | 1,716,914       |
| 7176         | No. 4 Coating Line                          | 27,589,000            | 24,600,000*           | 2,989,000       |
| 7182         | Terminal Treatment - Cold Mill Waste        | 1,199,000             | 926,697               | 272,303         |
| 7186         | Pollution Abatement - Pickling Waste Distr. | 3,340,000             | 2,864,942             | 475,058         |
|              |                                             | \$433,315,009         | \$432,320,195         | \$994,814       |

(\*) Estimate-at-Completion

ARMCO STEEL CORPORATION  
PROJECT 600  
MIDDLETOWN WORKS EXPANSION PROGRAM  
COST AND COMPARISON TO ESTIMATE



MILLIONS OF DOLLARS

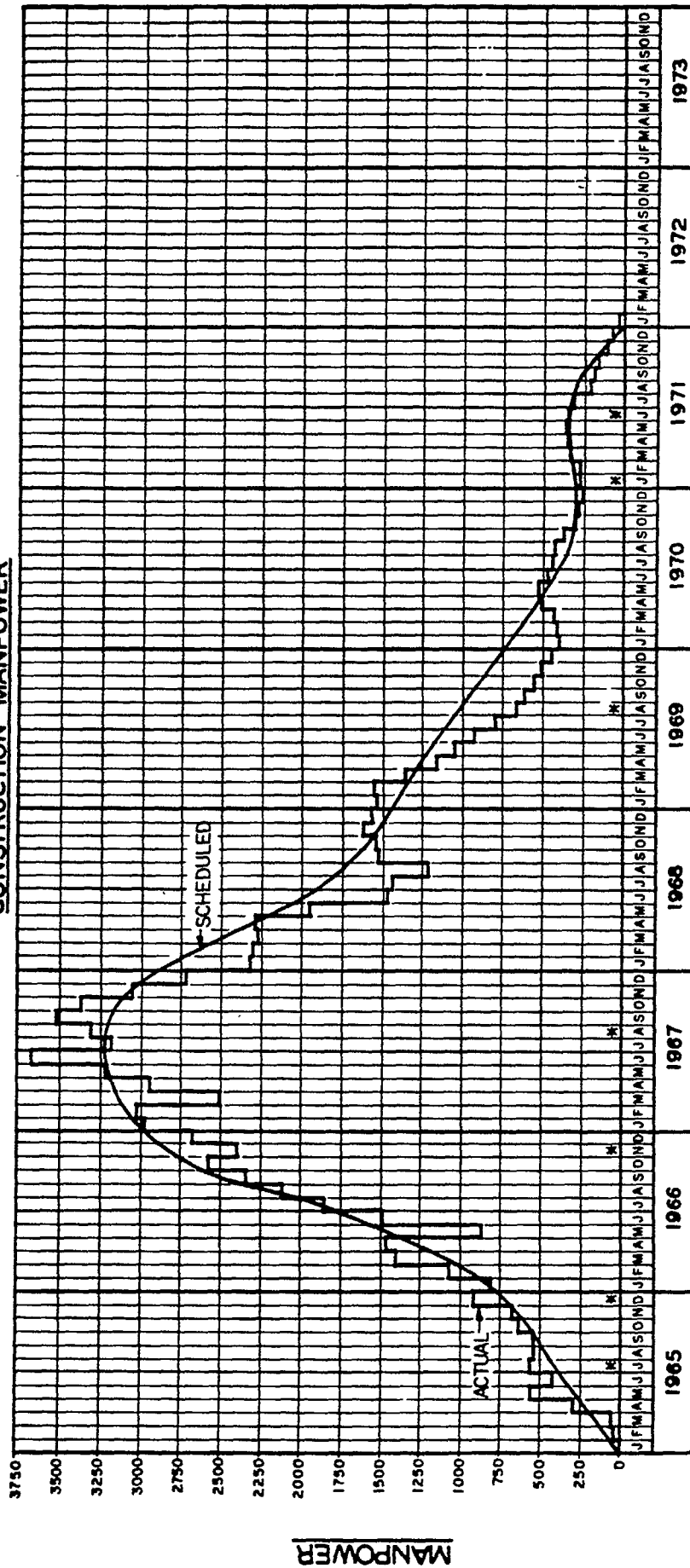
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# ARMCO STEEL CORPORATION

## PROJECT 600

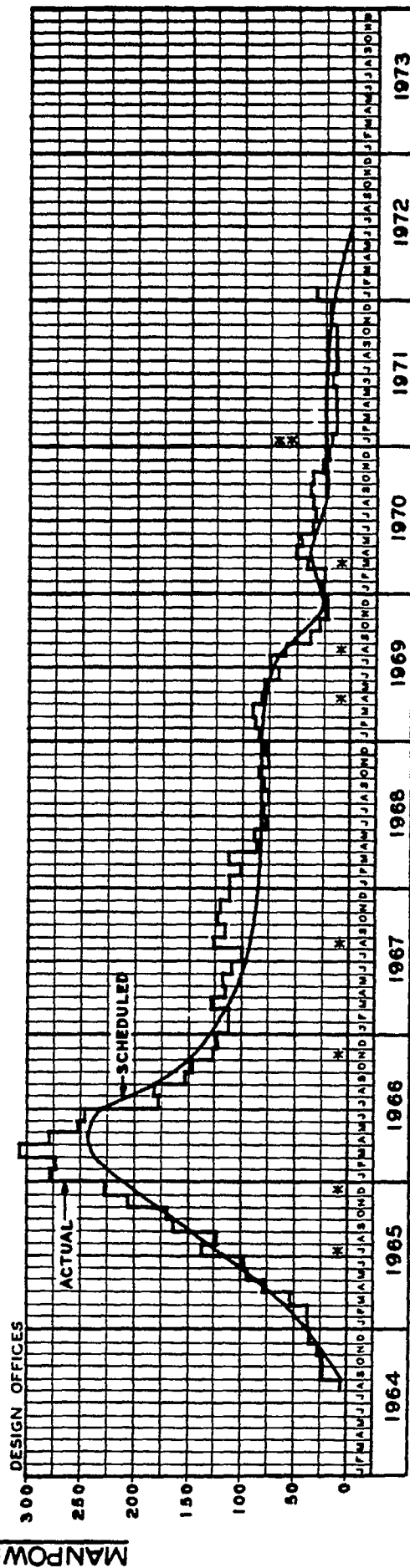
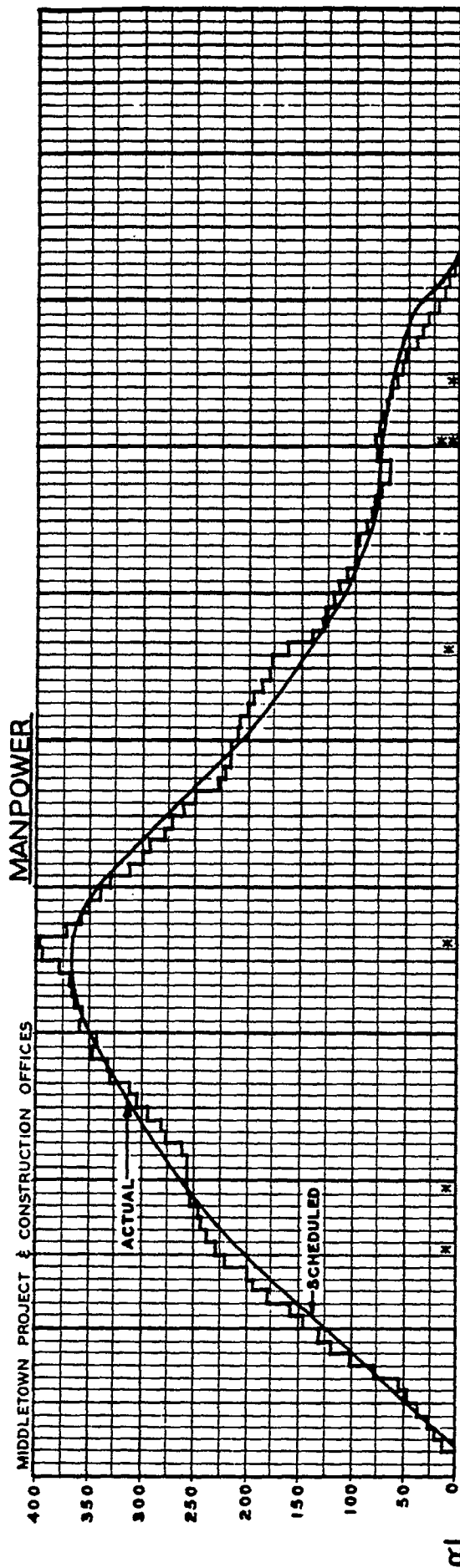
### MIDDLETOWN WORKS EXPANSION PROGRAM

#### CONSTRUCTION MANPOWER



\* FORECAST REVISED

# ARMCO STEEL CORPORATION PROJECT 600 MIDDLETOWN WORKS EXPANSION PROGRAM



\* FORECAST REVISED

\* HOT ROLLED PROGRAM ADDED

# INTER-OFFICE MEMORANDUM

TO L. H. Oppenheim  
AT Oakland

DATE February 24, 1972

FROM F. X. Kast

AT Middletown

JOB NO. 6471

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MAR 6 1972

J. E. HUGHES

SUBJECT Summary Cost and Comparison to Estimate Report - January 1972  
Middletown Works Expansion Program - Armco Steel Corporation

Attached is the Summary Cost and Comparison to Estimate Report for the Middletown Works Expansion Program for January 1972:

During the month, the estimate at completion for the project total (authorized projects only) was decreased \$162,000, as a result of reflecting decreases on two projects. Details of these changes are as follows:

## 6471-32 Vacuum Degassing Facilities

|                                                      |                   |
|------------------------------------------------------|-------------------|
| - Savings in Mechanical Start-up Costs at Completion | \$ (6,000)        |
| - Increase in Direct Cost at Completion              | 900               |
| - Savings in Indirect Cost at Completion             | (1,500)           |
| - Savings in Evaluated Exposure at Completion        | (5,400)           |
|                                                      | <u>\$(12,000)</u> |

## 6471-36 Continuous Casting Facilities

|                                                         |                    |
|---------------------------------------------------------|--------------------|
| - Increase in Cost at Completion of Closed Sections     | \$ 1,873           |
| - Miscellaneous savings in Direct Cost at Completion    | (10,462)           |
| - Savings in Refractory Work at Completion              | (6,511)            |
| - Savings in Mechanical Vendor Assistance at Completion | (50,300)           |
| - Savings in Start-up Costs at Completion               | (10,000)           |
| - Savings in Electrical Vendor Assistance at Completion | (31,600)           |
| - Savings in Engineering and Staff at Completion        | (20,000)           |
| - Overrun in Clean-up Costs at Completion               | 1,000              |
| - Unused Contingency at Completion                      | (24,000)           |
|                                                         | <u>\$(150,000)</u> |

KEN 008894

L. H. Oppenheim

- 2 -

February 24, 1972

Costs at Completion for all other projects remained unchanged.

This is the final Cost and Comparison to Estimate Report for the Middletown Works Expansion Program.

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Att.

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J. E. Hughes ✓  
E. D. Lowell  
G. L. Roberts  
H. O. Tracy  
R. J. Wolf

Chicago

G. A. Zwissler  
  
Butler  
M. A. Czaruk

Middletown

K. D. Killin  
E. W. Ward (2)

KEN 008895

FINAL

Summary  
Cost & Comparison to Estimate Report

January 1972  
Project 6471

Middletown Works Expansion Program  
Armco Steel Corporation

KAISER ENGINEERS, INC.  
MIDDLETOWN, OHIO

KEN 008896

# SUMMARY COST & COMPARISON TO ESTIMATE REPORT

Report Date: February 4, 1972  
 Period Ending January 25, 1972

| Project<br>Section | Description                   | Total<br>Recorded<br>&<br>Committed | Appropriated<br>Budget | ESTIMATE AT COMPLETION |             |                        | (Over)<br>Under<br>Appropriated<br>Budget | Percent<br>Expended |
|--------------------|-------------------------------|-------------------------------------|------------------------|------------------------|-------------|------------------------|-------------------------------------------|---------------------|
|                    |                               |                                     |                        | Current                | Previous    | Increase<br>(Decrease) |                                           |                     |
|                    |                               |                                     |                        |                        |             |                        |                                           |                     |
| 7100               | Indirect Mgmt Costs Thru 1971 | 32,701,453                          | 32,668,091             | 32,701,453             |             | (33,362)               | 100                                       |                     |
| 7104               | Steam Distribution            | 3,529,617                           | 3,437,000              | 3,529,617              | 3,529,617   | (92,617)               | 100                                       |                     |
| 7105               | Water Systems                 | 8,418,368                           | 8,759,000              | 8,418,368              | 8,418,368   | 340,632                | 100                                       |                     |
| 7106               | Air Distribution              | 561,951                             | 578,000                | 561,951                | 561,951     | 16,049                 | 100                                       |                     |
| 7108               | Oxygen Systems                | 450,518                             | 532,000                | 450,518                | 450,518     | 81,482                 | 100                                       |                     |
| 7109               | Gas /Fuel Distribution        | 929,505                             | 1,132,000              | 929,505                | 929,505     | 202,495                | 100                                       |                     |
| 7110               | Electrical Distribution       | 5,962,215                           | 5,940,600              | 5,962,215              | 5,962,215   | (21,615)               | 100                                       |                     |
| 7111               | Sanitary Sewers               | 440,798                             | 533,000                | 440,798                | 440,798     | 92,202                 | 100                                       |                     |
| 7112               | Site Development              | 6,758,830                           | 7,176,900              | 6,758,830              | 6,758,830   | 418,070                | 100                                       |                     |
| 7113               | Railroads & Rolling Stock     | 7,615,398                           | 8,146,460              | 7,615,398              | 7,615,398   | 531,062                | 100                                       |                     |
| 7114               | Locker Rooms                  | 661,856                             | 678,000                | 661,856                | 661,856     | 16,144                 | 100                                       |                     |
| 7115               | Power Distribution            | 705,992                             | 847,000                | 705,992                | 705,992     | 141,008                | 100                                       |                     |
| 7116               | Slag Processing Relocation    | 2,068,408                           | 2,068,408              | 2,068,408              |             | --                     | 100                                       |                     |
| 7128               | Basic Oxygen Facilities       | 36,451,697                          | 36,828,000             | 36,451,697             | 36,451,697  | 376,303                | 100                                       |                     |
| 7132               | Vacuum Degassing              | 4,708,037                           | 4,442,000              | 4,755,000              | 4,767,000   | (12,000)               | 98                                        |                     |
| 7136               | Continuous Casting            | 23,175,423                          | 26,563,150             | 23,500,000             | 23,650,000  | (150,000)              | 97                                        |                     |
| 7143               | Soaking Pits                  | 16,296,205                          | 15,996,000             | 16,296,205             | 16,296,205  | (300,205)              | 100                                       |                     |
| 7145               | Ingot Stripping               | 1,763,095                           | 1,957,000              | 1,763,095              | 1,763,095   | 193,905                | 100                                       |                     |
| 7146               | Slab Mill                     | 32,111,756                          | 33,950,000             | 32,111,756             | 32,111,756  | 1,838,244              | 100                                       |                     |
| 7148               | Hot Strip Mill                | 144,330,501                         | 130,808,000            | 144,330,501            | 144,330,501 | (13,522,501)           | 100                                       |                     |
| 7150               | Green Coil Storage            | 4,224,549                           | 5,328,000              | 4,224,549              | 4,224,549   | 1,103,451              | 100                                       |                     |
| 7156               | No. 4 Pickle Line             | 15,922,814                          | 15,592,000             | 15,922,814             | 15,922,814  | (330,814)              | 100                                       |                     |
| 7159               | No. 5 Pickle Line             | 13,741,083                          | 13,891,000             | 13,741,083             | 13,741,083  | 149,917                | 100                                       |                     |
| 7160               | Tandem Cold Mill              | 35,304,461                          | 36,896,000             | 35,304,461             | 35,304,461  | 1,591,539              | 100                                       |                     |
| 7164               | Annealing                     | 4,722,486                           | 6,439,400              | 4,722,486              | 4,722,486   | 1,716,914              | 100                                       |                     |
| 7176               | Coating Line                  | 24,116,887                          | 27,589,000             | 24,600,000             | 24,600,000  | 2,989,000              | 97                                        |                     |
| 7182               | Term Treat Cold Mill Waste    | 926,697                             | 1,199,000              | 926,697                | 926,697     | 272,303                | 100                                       |                     |
| 7186               | Pollution Abatement           | 2,864,942                           | 3,340,000              | 2,864,942              | 2,864,942   | 475,058                | 100                                       |                     |

TOTAL AUTHORIZED APPROPRIATIONS

431,465,542      433,315,009      432,320,195      432,482,195      (162,000)      994,814      99

## SUMMARY COST AND COMPARISON TO ESTIMATE REPORT

JOB NO. 6471-32 VACUUM DEGLASSING

REPORT DATE FEBRUARY 04, 1972

PERIOD ENDING JANUARY 25, 1972

| PROJECT<br>SECTION | DESCRIPTION                                                  | TOTAL<br>RECORDED<br>AND<br>COMMITTED | ESTIMATE AT COMPLETION |                      |                      | (COVER)<br>UNDER       |                        |                     |
|--------------------|--------------------------------------------------------------|---------------------------------------|------------------------|----------------------|----------------------|------------------------|------------------------|---------------------|
|                    |                                                              |                                       | APPROPRIATED<br>BUDGET | CURRENT              | PREVIOUS             | INCREASE<br>(DECREASE) | APPROPRIATED<br>BUDGET | PERCENT<br>EXPENDED |
|                    | CLOSED SECTIONS - DIRECT COSTS                               | 4,164,499                             | 3,533,400              | 4,168,000            | 4,167,100            | 900                    | (634,600)              | 100                 |
| 625                | CONTRACTOR START-UP-MECHANICAL                               | 29,577                                | 36,000                 | 30,000               | 36,000               | (6,000)                | 6,000                  | 98                  |
|                    | TOTAL DIRECT COST                                            | 4,194,076                             | 3,569,400              | 4,198,000            | 4,203,100            | (5,100)                | (628,600)              | 100                 |
|                    |                                                              | 368,945                               | 684,600                | 369,000              | 370,500              | (1,500)                | 315,600                | 99                  |
|                    | TOTAL INDIRECT COST                                          | 368,945                               | 684,600                | 369,000              | 370,500              | (1,500)                | 315,600                | 99                  |
|                    | TOTAL DESIGN AND CONSTRUCTION<br>OTHER RELATED COSTS (ARMCO) | 4,563,021<br>145,016                  | 4,254,000<br>188,000   | 4,567,000<br>188,000 | 4,573,600<br>188,000 | (6,600)                | (313,000)              | 100<br>77           |
|                    | TOTAL APPROPRIATED<br>EVALUATED EXPOSURE                     | 4,708,037                             | 4,442,000              | 4,755,000            | 4,761,600<br>5,400   | (6,600)<br>(5,400)     | (313,000)              | 99                  |
|                    | TOTAL PROJECT<br>ENGINEERING REPORT BUDGET                   | 4,708,037                             | 4,442,000<br>4,615,000 | 4,755,000            | 4,767,000            | (12,000)               | (313,000)              | 99                  |

## ANALYSIS OF MAJOR CHANGES IN ESTIMATE AT COMPLETION

| Job No.                                           | 6471-32 - Vacuum Degassing Facilities | Report Date:                           | February 4, 1972                         |                        |                                          |
|---------------------------------------------------|---------------------------------------|----------------------------------------|------------------------------------------|------------------------|------------------------------------------|
|                                                   |                                       | Period Ending:                         | January 25, 1972                         |                        |                                          |
| Project Section                                   | Description                           | Current Estimate at Completion 1/25/72 | Previous Estimate at Completion 12/21/71 | Increase or (Decrease) | Remarks                                  |
| XXX                                               | Closed Sections - Direct Costs        | 4,168,000                              | 4,167,100                                | 900                    | Minor Changes.                           |
| 625                                               | Contractor Start-up - Mechanical      | 30,000                                 | 36,000                                   | (6,000)                | Project Complete.                        |
| XXX                                               | Closed Sections - Indirect Costs      | 369,000                                | 370,500                                  | (1,500)                | Project Complete.                        |
| TOTAL DESIGN & CONSTRUCTION APPROPRIATION 6471-32 |                                       |                                        |                                          |                        |                                          |
| 999                                               | Evaluated Exposure                    | 4,567,000                              | 4,573,600                                | (6,600)                |                                          |
|                                                   |                                       |                                        | 5,400                                    | (5,400)                | Not Required.                            |
| TOTALS & NET CHANGE                               |                                       |                                        |                                          |                        |                                          |
|                                                   |                                       | 4,567,000                              | 4,579,000                                | (12,000)               | Anticipated decrease of Project Overrun. |

APPROVED CHANGES TO THE SCOPE OF WORK

Job No. 6471-32 - Vacuum Degassing      Report Date: February 4, 1972  
 Period Ending: January 25, 1972

| Number<br>of Change                         | Date of<br>Change | Description of Changes                                        | Direct Cost | Indirect Cost | Total<br>Approved<br>Changes |
|---------------------------------------------|-------------------|---------------------------------------------------------------|-------------|---------------|------------------------------|
| 1.                                          | 4-10-70           | Delete Electric Preheat System                                | (225,000)   | (27,787)      | (252,787)                    |
| 2.                                          | 4-10-70           | Add Preheat Exhaust System                                    | 52,000      | 6,422         | 58,422                       |
| 3.                                          | 1-11-71           | Additional Analyzing Equipment in<br>Degassing Control Pulpit | 10,000      | 1,235         | 11,235                       |
| 4.                                          | 3-30-71           | Revision to Vessel Cooling Water System                       | 92,000      | 11,362        | 103,362                      |
| TOTAL APPROVED CHANGES TO THE SCOPE OF WORK |                   |                                                               |             |               | ( 79,768)                    |

APPROVED CHANGES COVERED BY SUPPLEMENTAL APPROPRIATIONS:

|        |         |                                                               |           |
|--------|---------|---------------------------------------------------------------|-----------|
| 7132-1 | 7/23/70 | Delete Electric Preheat System and Add Preheat Exhaust System | (173,000) |
|--------|---------|---------------------------------------------------------------|-----------|

KEN 008900

# SUMMARY COST AND COMPARISON TO ESTIMATE REPORT

JOB NO. 6471-36 CONTINUOUS CASTING FACILITIES

REPORT DATE FEBRUARY 04, 1972

PERIOD ENDING JANUARY 25, 1972

| PROJECT<br>SECTION            | DESCRIPTION                     | TOTAL<br>RECORDED<br>AND<br>COMMITTED | APPROPRIATED<br>BUDGET | ESTIMATE AT COMPLETION |            | INCREASE<br>(DECREASE) | APPROPRIATED<br>BUDGET | PERCENT<br>EXPENDED |
|-------------------------------|---------------------------------|---------------------------------------|------------------------|------------------------|------------|------------------------|------------------------|---------------------|
|                               |                                 |                                       |                        | CURRENT                | PREVIOUS   |                        |                        |                     |
| CLOSED SECTIONS - DIRECT COST |                                 |                                       |                        |                        |            |                        |                        |                     |
| 401                           | MAJOR MECHANICAL EQUIPMENT      | 10,926,480                            | 11,471,400             | 10,927,373             | 10,925,500 | 1,873                  | 544,027                | 99                  |
| 410                           | TWO-STRAND CASTING MACHINE      | 5,978,465                             | 6,373,300              | 5,984,800              |            |                        | 388,500                | 99                  |
| 411                           | CSTG LOLE TRANS CAR (UPR FLR)   | 1,792,337                             | 1,809,200              | 1,798,700              |            |                        | 10,500                 | 99                  |
| 412                           | CAR PULLER                      | 141,353                               | 105,900                | 144,100                | 140,900    | 3,200                  | (38,200)               | 98                  |
| 413                           | LADLES - 225 TON                | 22,318                                | 21,500                 | 22,318                 | 24,200     | (1,882)                | (818)                  | 100                 |
| 423                           | EQUIPMENT LIGHTING              | 99,585                                | 92,600                 | 102,400                | 102,400    |                        | (9,800)                | 97                  |
| 475                           | MISC STEEL FOR EQUIPMENT        | 63,103                                | 23,300                 | 63,103                 | 68,000     | (4,897)                | (39,803)               | 98                  |
| 507                           | MATERIAL HANDLING EQUIPMENT     | 146,060                               | 168,300                | 148,300                | 150,300    | (2,000)                | 20,000                 | 97                  |
| 508                           | REFRACTORY WORK                 | 60,217                                | 75,300                 | 60,217                 | 65,100     | (4,883)                | 15,083                 | 100                 |
| 514                           | RUBBLE BOXES                    | 12,689                                | 19,200                 | 12,689                 | 19,200     | (6,511)                | 6,511                  | 100                 |
| 515                           | SHLVS FOR TNDOSH STPR RDS & NOZ |                                       | 2,600                  | 2,600                  |            |                        |                        |                     |
| 516                           | PERSUNNEL & TOOL LOCKERS        |                                       | 3,000                  | 3,000                  | 3,000      |                        |                        |                     |
| 624                           | VENDOR'S ASSISTANCE - MECH.     | 42,790                                | 172,000                | 99,700                 | 150,000    | (50,300)               | 72,300                 | 42                  |
| 625                           | CONTRACTOR START-UP - MECH.     | 177,985                               | 350,000                | 188,000                | 198,000    | (10,000)               | 162,000                | 91                  |
| 644                           | VENDOR'S ASSISTANCE - ELECTR    | 31,734                                | 100,000                | 43,400                 | 75,000     | (31,600)               | 56,600                 | 73                  |
| 645                           | CONTRACTOR START-UP - ELECTR    | 115,700                               | 78,000                 | 120,900                | 120,900    |                        | (42,900)               | 95                  |
| 850                           | PAINTING ELECTR EQUIP & DEVS    | 17,348                                | 25,000                 | 19,000                 | 19,000     |                        | 6,000                  | 89                  |
| 880                           | ELECTR SUBCTR'S OVRHD & FEE     | 153,754                               | 248,900                | 166,000                |            |                        | 82,900                 | 92                  |
| TOTAL DIRECT COST             |                                 |                                       |                        |                        |            |                        |                        |                     |
|                               |                                 | 19,781,918                            | 21,142,600             | 19,909,700             | 20,016,700 | (107,000)              | 1,232,900              | 99                  |
| 920                           | ENGINEERING AND STAFF           | 1,316,515                             | 1,105,000              | 1,325,200              | 1,345,200  | (20,000)               | (220,200)              | 99                  |
| 930                           | CONSTRUCTION OVERHEAD           | 221,731                               | 360,000                | 221,800                | 220,800    | 1,000                  | 138,200                | 99                  |
| 998                           | CONTINGENCY                     |                                       | 1,928,900              | 16,650                 | 40,650     | (24,000)               | 1,912,250              |                     |
| TOTAL INDIRECT COST           |                                 |                                       |                        |                        |            |                        |                        |                     |
|                               |                                 | 1,538,246                             | 3,393,900              | 1,563,650              | 1,606,650  | (43,000)               | 1,830,250              | 98                  |
| TOTAL DESIGN AND CONSTRUCTION |                                 |                                       |                        |                        |            |                        |                        |                     |
|                               |                                 | 21,320,164                            | 24,536,500             | 21,473,350             | 21,623,350 | (150,000)              | 3,063,150              | 99                  |
| OTHER RELATED COSTS           |                                 |                                       |                        |                        |            |                        |                        |                     |
|                               |                                 | 1,855,259                             | 2,026,650              | 2,026,650              | 2,026,650  |                        |                        | 81                  |
| TOTAL PROJECT                 |                                 |                                       |                        |                        |            |                        |                        |                     |
|                               |                                 | 23,175,423                            | 26,563,150             | 23,500,000             | 23,650,000 | (150,000)              | 3,063,150              | 97                  |
| ENGINEERING REPORT BUDGET     |                                 |                                       |                        |                        |            |                        |                        |                     |
|                               |                                 |                                       | 26,272,900             |                        |            |                        |                        |                     |

KEN 008901

## ANALYSIS OF MAJOR CHANGES IN ESTIMATE AT COMPLETION

Job No. 6471-36 - Continuous Casting FacilitiesReport Date: February 4, 1972Period Ending: January 25, 1972

| Project Section                  | Description                      | Current Estimate at Completion 1/25/72 | Previous Estimate at Completion 12/21/71 | Increase or (Decrease) | Remarks                                         |
|----------------------------------|----------------------------------|----------------------------------------|------------------------------------------|------------------------|-------------------------------------------------|
| XXX                              | Closed Sections                  | 10,927,373                             | 10,925,500                               | 1,873                  | Cost at Completion.                             |
| XXX                              | Various                          | 438,038                                | 448,500                                  | (10,462)               | Minor Changes.                                  |
| 508                              | Refractory Work                  | 12,689                                 | 19,200                                   | (6,511)                | Cost at Completion.                             |
| 624                              | Vendors Assistance - Mechanical  | 99,700                                 | 150,000                                  | (50,300)               | Re-estimate to Complete - Work Near Completion. |
| 625                              | Contractor Start-up - Mechanical | 188,000                                | 198,000                                  | (10,000)               | Re-estimate to Complete - Work Near Completion. |
| 644                              | Vendors Assistance - Electrical  | 43,400                                 | 75,000                                   | (31,600)               | Re-estimate to Complete - Work Near Completion. |
| 920                              | Engineering & Staff              | 1,325,200                              | 1,345,200                                | (20,000)               | Re-estimate to Complete - Work Near Completion. |
| 930                              | Construction Overhead            | 221,800                                | 220,800                                  | 1,000                  | Clean-up Costs overran estimate.                |
| 998                              | Contingency                      | 16,650                                 | 40,650                                   | (24,000)               | Re-evaluation of Requirements to Complete.      |
| TOTALS & NET CHANGE PROJECT 7136 |                                  | 13,272,850                             | 13,422,850                               | (150,000)              | Additional anticipated project underrun.        |

KEN 008902

APPROVED CHANGES TO THE SCOPE OF WORK

Job. No. 6471-36 - Continuous Casting Facilities

Report Date: February 4, 1972

Period Ending: January 25, 1972

| Number<br>of Change             | Date of<br>Change | Description of Change                                                                                                                                               | Direct Cost | Indirect Cost | Total<br>Approved<br>Changes |
|---------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------|------------------------------|
| 1.                              | 1-12-70           | Added new office complex & relocated<br>budgeted office complex                                                                                                     | 11,400      | 1,408         | 12,808                       |
| 2.                              | 1-12-70           | Added Cold Well, pumps, instrumentation,<br>and piping                                                                                                              | 88,600      | 10,942        | 99,542                       |
| 3.                              | 1-12-70           | Deleted torch fume exhaust system                                                                                                                                   | (150,000)   | (18,525)      | (168,525)                    |
| 4.                              | 7-30-70           | Extend Slab Yard 60 feet east                                                                                                                                       | 147,100     | 18,167        | 165,267                      |
| 5.                              | 7-30-70           | On-site fabrication of spare spray headers                                                                                                                          | 133,100     | 16,438        | 149,538                      |
| 6.                              | 4-30-71           | Add grease house, revise slab marker type,<br>delete slag pot and stand, add slag track,<br>delete ventilation system, and add hydraulic<br>fluid bulk storage tank | (113,600)   | (14,030)      | (127,630)                    |
| TOTAL APPROVED CHANGES IN SCOPE |                   |                                                                                                                                                                     |             |               | 131,000                      |

APPROVED CHANGES COVERED BY SUPPLEMENTAL APPROPRIATIONS:

|        |         |                                                                           |           |
|--------|---------|---------------------------------------------------------------------------|-----------|
| 7136-2 | 1-12-70 | Added office complex, Cold Well, and deleted<br>torch fume exhaust system | (50,000)  |
| 7136-  | 6-10-70 | Additional Armco Spares                                                   | 486,250   |
| 7136-3 | 6-29-71 | Miscellaneous deletions and additions to original scope                   | (146,000) |
| TOTAL  |         |                                                                           | 290,250   |