

INTER-OFFICE MEMORANDUM



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DATE

November 28, 1967

FROM

O. A. Finsand

AT

*O.A. Finsand*  
Middletown Construction

JOB NO.

7100

COPIES TO

SUBJECT Kaiser Engineers' Weekly Field Activity Report

Transmitted herewith is the subject report for the week ending November 23, 1967.

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KEN 003815

KAISER ENGINEERS  
WEEKLY FIELD ACTIVITY REPORT  
Week Ending November 28, 1967

WEATHER: Rain in early portion of period. Cold and freezing conditions still existing.

Client: Armco Steel Corporation

Location: Middletown, Ohio

TEMPERATURE: Maximum - 50 degrees  
Minimum - 20 degrees

Job Number: 6471

JOB VISITORS

none

SUMMARY FORCE REPORT

|                        | Kaiser Engineers |                   | Subcontractors | Foothill Electric | Total        |
|------------------------|------------------|-------------------|----------------|-------------------|--------------|
|                        | <u>Exempt</u>    | <u>Non-Exempt</u> |                |                   |              |
| Management             | 5                | 3                 |                | 1                 | 9            |
| General Supervision    | 14               | 3                 | 23             | 6                 | 46           |
| Field Engineering      | 49               | 21                | 11             | 16                | 97           |
| Warehs. & Mtl. Control | 4                | 7                 |                | 1                 | 12           |
| Survey                 | 2                | 16                | 4              |                   | 22           |
| Office Srv. & Repro.   | 1                | 7                 |                |                   | 8            |
| Clerical               |                  |                   | 17             | 16                | 33           |
| Craft *                | —                | <u>1,332</u>      | <u>1,193</u>   | <u>681</u>        | <u>3,206</u> |
| TOTAL                  | 75               | 1,464             | 1,248          | 721               | 3,433        |

\* Average for week of men on payroll.

Average for week of Crafts is as follows:

|                      |            |
|----------------------|------------|
| Kaiser Engineers     | 1,244      |
| Subcontractors       | 1,098      |
| Foothill Electric    | <u>649</u> |
| Total Crafts Working | 2,991      |

WEEKLY FIELD ACTIVITY REPORT  
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PROJECT PROGRESS

1. 7148 - HOT STRIP MILL

- 1.2 Concrete: 24 cubic yards of concrete was placed during the period for a total to date of 210,666 cubic yards. Period concrete consisted mainly of concrete fill for the railway track through the clarifier building at the unloading area.
- 1.3 Structural and Miscellaneous Steel: The miscellaneous ironwork force in the Hot Strip Mill was reduced to 45 men during the period. In the furnace area, platforms were installed at elevation 154 for access to valves for waste heat boilers 1, 2 and 3. Platforms in the #1 boiler area are essentially complete. Heat shields for the #1 waste heat boiler are also complete. Progress is continuing for the other two units. Ladder and handrail requirements were completed at the slab yard scheduling office. In the rougher and finishing areas, safety requirements were worked on throughout the period. The safety requirements for the rougher area are almost complete. Installation of stairways and platforms continued during the period in the down coiler area. Completion of this work will follow the completion of electrical and piping runs for the mechanical equipment. In the roll shop, brackets were installed for the jib crane and remaining platforms at the roll lathe foundation will be completed after the lathe has been set in place. Remaining ironwork in the Hot Strip Mill consists mainly of additional safety requirements and installation of hatch covers or grating to comply with mechanical progress.
- 1.5 Heating and Ventilating: Ten of the fifteen Hot Strip Mill bag houses are complete except for piping insulation and final testing. These completed bag houses are 1 through 6, 8, 9, 14 and 15. Bag houses 5 and 15 were charged this period which completed nine bag houses charged and ready for operation. Steam coil piping continued during the period in bag houses 7 and 10. The leaking pipes in bag house 8 were repaired and the system is in satisfactory operation. The Thompson control engineer was to arrive at the job site last period, but was delayed and is scheduled for December 1, 1967 for the check out and adjustment of the bag house control systems. Foothill Electric continued with power wiring and lighting during the period in bag houses 10, 11, 12 and 13. Installation of heating units in the two Hot Strip Mill grease houses was in progress by Norm Woolley during the period. The units were set and piping to the units is in progress. Installation of the ten step down transformers by Norm Woolley for the heating and ventilating systems is scheduled to complete by December 7. The ten gas fired heaters along E line in the Hot Strip Mill remained in operation during the period. The three D line heaters are expected to be operational next period. Seven of the twelve gas fired heaters are presently in operation in the clarification building. The steam heating units for the roll shop building and the Hot Strip Mill motor room are in operation and functioning satisfactory.

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- 1.6 Mechanical: During the period, Eichleay Corporation maintained an average work force of 42 men on mechanical installation in the Hot Strip Mill. In the furnace area, the dry scale skip hoist structure is ready for roofing and siding. The hold-down guides were installed on extractor #1 and progress is continuing on hold-down guide installation for unit #2. In the rougher area, the #4 edger remedial work has been completed. Some machining of the delivery side guides for roughers 4, 5 and 6 is presently being accomplished at the Armco Machine Shop. Back-up roll piping is complete for roughers 4, 5 and 6. In the finisher area, stators for all main drive motors have been returned to the job site with the exception of the bottom half for motor #7. These motors are presently being installed and recoupled in their permanent positions. Couplings have been aligned on #1 and 2 motors. Progress continued on completion work for slides and sleds for the finishing mill roll changers in preparation for testing of these units. In the runout area, the 31 runout motors which were returned to the Westinghouse factory two weeks ago for remachining have not been returned to the job site to date. Installation of these 31 motors will complete the 322 motors for the runout area. Installation of chain drives and donndrivers for the conveyor system continued during the period. The redesign requirements for the radial problem on conveyor #6 has been approved by Armco. The components required for this redesign have not been received at the job site from Link-Belt factory. This revision will be completed as soon as the parts are available. Mechanical installation of the wet scale drag system at scale pit #3 is 90% complete. Drag chains were installed during the period and installation of the drag chain drives and the cross belt conveyor system is presently in progress. The #2 roll grinder in the roll shop is complete except for testing. Delivery of the #3 roll grinder is not expected until early next week. Uncoupled tests were completed as follows: downcoiler #1 mandrell drive, wrapper roll drive, pinch roll drive and downcoiler #2 wrapper roll drive. The following equipment has been accepted by Armco for operation: boiler house #3 equipment --- #1 forced draft fan, #1 pressure reducing station and electric driven service water pump; clarifier pump house equipment --- two electric driven furnace cooling water pumps, one turbine driven furnace cooling water pump and two electric driven furnace cooling tower pumps.
- 1.7 Piping: During the period, 2,318 feet of piping was installed for a total to date of 330,837 feet. 8,353 feet remains to be installed by Kaiser forces in the Hot Strip Mill. Major systems worked on during the period were: grease systems, hydraulic system 17, hydraulic system 19, furnace cooling water, mill low pressure water, plant air, steam, heating and ventilating and instrumentation. Pickling and partial flushing is complete on hydraulic system 18 between the suction headers and the top spray retractor cylinders for the runout tables. Installation of jumpers and vents in preparation for the hydro test of hydraulic system 17 is in progress. The hydro test is scheduled for December 6. Pickling of the flocculator hydraulic systems was completed this period and the pipes have been returned to the clarification building for re-installation.

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The lubrication pipe for the #1 air compressor was also pickled and is presently being installed in place. Hot flush of this system is scheduled for next period. Two cooling water supply pumps are presently in operation and the circulation system through the #1 furnace appears to be functioning satisfactorily. This system is partially under the control of Armco operations. One pump in scale pit 1 and 2 was made ready for operation and is scheduled for check out next period.

- 1.8 Electrical: Foothill Electric Corporation installed 19,600 lbs. of exposed conduit for a total to date of 1,424,000 lbs. 800 feet of 2.4 KV cable was installed for a total to date of 54,100 feet or 99% complete. 27 high voltage terminations were accomplished for a total to date of 503 or 86% complete. 61,000 feet of low voltage cable was installed for a total to date of 1,703,600 feet or 97% complete. 960 low voltage terminations were accomplished for a total to date of 29,800 or 97% complete. 45,000 feet of control cable was installed for a total to date of 1,773,000 feet or 96% complete. 1,600 control cable terminations were made for a total to date of 52,600 or 91% complete. 25,000 feet of computer cable was installed for a total to date of 829,000 feet or 88% complete. 300 computer cable terminations were made for a total to date of 27,100 or 91% complete. 8,900 lbs. of lighting conduit was installed and 4,300 feet of lighting wire was installed during the period. 1,400 lbs. of structural grounding was installed for a total to date of 138,300 lbs. or 98% complete. 800 feet of communication wiring was installed this period. Foothill maintained an average work force of 460 men in the Hot Strip Mill.
- 1.9 Miscellaneous Subcontracts: Walker service engineers are presently at the job site continuing the installation of weir plates and filler plates for the six clarifiers at the clarification plant.

Mo Pipeline Company completed the stress relieving of high pressure descaling water welds on November 26, 1967.

Owens Corning Fiberglas Company continued throughout the period with insulation of steam and lube oil systems in the Hot Strip Mill. 140 feet of steamline was insulated in the clarification pump house area and 1,000 feet of steam and condensate piping was insulated in the slab yard bag house area. 868 feet of insulation was accomplished for lube oil #4 during the period and 288 feet of Morgoil #1 was insulated. Satisfactory progress is being maintained in the boiler area on insulation of piping systems. The 425 lb. steam piping is 95% complete and the 24" through 16" high pressure steam header pipe between the pipe trench and the boiler area is 90% insulated.

Delta Pipeline Constructors maintained an average work force of 42 men on service piping in the Hot Strip Mill. During the period, 406 feet of service piping was installed for a total to date of 32,766 feet. Twelve airline drops and two cutting station drops were

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installed along D and E lines this period. Progress was also evident on wall water offsets and tie-ins along E line. The header piping across the mill aisle between D and E lines at column line 48 was completed this period. Delta Pipeline Constructors continued with installation of underground oil and steam piping between the fuel oil storage tanks and the fuel oil pump house. These underground pipelines are almost complete and preparations are underway for pressure testing of the systems before backfill of trenches can be accomplished.

Progress continued throughout the period by McGraw Construction Company on installation of service monorails and jib crane installation in the Hot Strip Mill oil cellar.

Salem-Brosius continued throughout the period with dry-out of furnace #1. The temperature in this furnace was brought up to 1200° F. There will be a 24 hour hold in this temperature before bringing the temperature up to 2400° F. Dry out of this furnace is scheduled to complete on December 4. Armco operators are working with Salem-Brosius start-up personnel for this operation. Refractory installation for furnace #3 continued throughout the period. Refractory work at furnace #2 is essentially complete and gas, fuel oil and steam pipe in underway. Insulation of furnace #1 is 86% complete and painting is 73% complete. Progress to date is as follows: furnace #1 - 99% complete, furnace #2 - 88% complete and furnace #3 - 78% complete.

Babcock and Wilcox swept out and washed down boiler #1 in preparation for boil-out. Testing is in progress for the waste heat boiler pilot burners and gas systems. Boil-out is scheduled to commence as soon as this gas system check is complete.

Mo Piping (Piping Contractor for the Waste Heat Boiler 2½" and over piping) completed pressure tests for the fuel oil piping and steamlines to the inlet air heaters for units #2 and 3. Drain line piping, steam tracers and expansion loops for the fuel oil headers was also in progress through the period. This contract is 99% complete.

Norm Woolley (Contractor for the Waste Heat Boiler 2" and under piping) continued throughout the period with the gas system test and check out. Piping progress for the period consisted mainly of additional steam traps and by-pass assemblies. This contractor is 97% complete.

Minneapolis-Honeywell (Instrumentation Contractor for the Waste Heat Boiler) continued during the period with testing of stainless steel impulse lines and calibration of instruments as required by the vendor's service engineer. Instrumentation work related to boiler #1 is essentially completed and testing of the panels for this unit continued throughout the period. This contract is 75% complete.

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Babcock and Wilcox operated the induced draft fan for boiler #1 this period thus, completing the fan and draft systems for the #1 unit. Progress continued on insulation and lagging of ductwork at induced draft fan #2 and 3. This fan and duct system contract is 92% complete.

2. 7146 - SLAB MILL

- 2.2 Concrete: 116 cubic yards of concrete was placed for a total to date of 46,545 cubic yards. Concrete during the period consisted of rail road track subslab between column 5.5 and 7, service bay slab and the scarfer flume deck.
- 2.3 Structural and Miscellaneous Steel: The shells for bag houses #1 and 2 were completed during the period. Progress continued on bag houses 4 and 5. Connecting ductwork from the bag houses to the main building is scheduled to start next week. All heating and ventilating ductwork for the mill office building has been installed above the ceiling. Work was resumed on the installation of the main mill pulpit and expediter pulpit.
- 2.4 Roofing and Siding: 3,941 square feet of siding was installed for an adjusted total to date of 109,302 square feet. The red siding along E line is now 70% complete.
- 2.6 Mechanical: Eichleay Corporation maintained an average work force of 46 men throughout the period on mechanical installation in the slab mill. The manipulator drive housing was returned from the factory to the job site during the period and is presently being installed in place. Anchor bolt correction work was continued during the period and is estimated at 90% complete. The Mesta equipment which had been stored between column line 1 and column line 4 in the Hot Strip Mill slab reject lay down area was removed from this area and transferred to the slab mill. Mechanical progress in the slab mill is as follows: ingot buggy drive, 30%; double manipulator, 15%; main mill, 45%; slab shear, 45%; crop conveyors, 40%; slab scale equipment, 90%; slab piler, 35%; transfer cars, 65%; and the slab mill motor generator units, 45%.
- 2.7 Piping: Hunter (Piping Contractor for the Slab Mill) maintained an average work force of 60 men during the period. Progress continued during the period on installation of lube oil systems 3, 6, 7 and 11 in the oil cellar. Some steam and condensate piping was also evident in the oil cellar. In the slab mill proper, installation continued on the header piping along D and E lines. The D line main header piping is 95% complete and progress was evident on air and natural gas drops along both D line and E line. 895 feet of piping was installed during the period for a total to date of 15,750 feet.

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2.8 Electrical: 700 lbs. of exposed conduit was installed during the period for a total to date of 68,700 lbs. or 43% complete. 3,200 lbs. of embedded conduit was installed for a total to date of 636,700 lbs. or 98% complete. 750 lbs. of lighting conduit and 450 feet of lighting wiring was installed during the period. 2,000 lbs. of structural grounding was installed for a total to date of 21,300 lbs. or 43% complete. 1,400 feet of cable tray was installed for a total to date of 12,300 feet or 77% complete. An average work force of 65 electricians continued during the period in the slab mill.

3. 7143 - SOAKING PITS

3.2 Concrete: 109 cubic yards of concrete was placed for a total to date of 28,579 cubic yards. Period concrete consisted mainly of the loading dock ramp perimeter wall and the balance of the service bay suspended slab.

3.3 Structural and Miscellaneous Steel: The structural steel deck at elevation 107 between columns 9.5 and 10.5 is 80% complete. The covering repair support structure was erected this period.

3.6 Mechanical: Loftus Engineering maintained an average work force of 160 men on battery installation in the soaking pit facility. At batteries 4, 5 and 6, the equipment installation is 90% complete, brickwork, 85% complete; electrical work, 15% complete; and piping completion varies as follows: battery 6, 80%; battery 5, 70%; and battery 4, 35% complete. Progress is being maintained on all batteries with battery 6 leading. Brickwork for the archways and collecting flues at batteries 1 and 2 was completed this period. Nine cinder bell door cylinders were installed this period and installation of the air damper door cylinders was completed.

3.7 Piping: Delta Pipeline Constructors maintained an average work force of 16 men on service piping in the soaking pit during the period. 520 feet of treated water piping has been installed to date, 120 feet of compressed air piping installed and 65 feet of grease piping installed for an overall total of 705 feet.

3.8 Electrical: 6,100 lbs. of exposed conduit was installed by Foothill Electric for a total to date of 36,500 lbs. or 28% complete. Electrical work was continued throughout the period on crane 357. This crane is scheduled to be electrically complete by December 15.

4. 7128 - BASIC OXYGEN SHOP AND MOLD YARD

4.1 Excavation and Backfill: 160 cubic yards of excavation was accomplished during the period for a total to date of 199,385 cubic yards. 704 cubic yards of backfill was completed for a total to date of 243,400 cubic yards. Excavation work was confined to scrap scale pits 1 and 2 and grade beam excavation along E line.

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- 4.2 Concrete: 92 cubic yards of concrete was placed for a total to date of 18,825 cubic yards. Concrete for the period consisted mainly of one car puller foundation, the #1 stack pier and remaining grade beams for the office and lab building.
- 4.3 Structural and Miscellaneous Steel: 375 tons of structural steel was erected at the main B.O.F. building for an overall total of 3,525 tons. (This total to date includes the Mold Yard.) At the main B.O.F. building, 1415 tons of structural steel excluding anchor bolts and base plates has been installed to date. Erection of the lab building is 62% complete. Chicago Bridge and Iron have completed the bottom half of the nitrogen sphere erection and welding of these lower sections is in progress.
- 4.4 Roofing and Siding: 4,140 square feet of siding was installed in the Mold Preparation Building for a total to date of 60,920 square feet.
- 4.6 Mechanical: The girders for the first mold yard crane have arrived at the job site. Erection of this crane will commence as soon as the remaining components are delivered to the job site.
5. 7145 - STRIPPER BUILDING
- 5.3 Structural and Miscellaneous Steel: 35 tons of structural steel was erected for a total to date of 925 tons. This steel consisted mainly of girts and purlins in advance of roofing and siding.
- 5.4 Roofing and Siding: 9,400 square feet of roofing was installed for a total to date of 10,340 square feet.
6. 7150, 7156 and 7159 - PICKLE AREA
- 6.1 Excavation and Backfill: Sheet piling and excavation was completed for the #2 catenary pit for the #4 pickle line and rebar installation for the catenary pit base was in progress at the close of this period.
- 6.2 Concrete: 221 cubic yards of concrete was poured in the pickle line facility for a total to date of 7,465 cubic yards. Equipment foundations for the #4 pickle line are complete between column line 18.5 and column 33. At the #5 pickle line area, equipment foundations are complete in the pickle tank area between columns 23 and 33. Foundation progress during the period consisted mainly of forming and installation of reinforcing steel for the wet loop pit and #4 and 5 pinch roll foundations on #4 line. Base slab forms and reinforcing steel installation was in progress for the #1 and 2 pay-off reel foundation. This base slab will be placed next period.

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**WEEKLY FIELD ACTIVITY REPORT**  
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- 6.4 Roofing and Siding: 3,535 square feet of siding was installed at the pickle line building for a total to date of 110,956 square feet. The siding consisted mainly of the west side wind wall which was near completion at the close of this period.
- 6.6 Mechanical: At the close of this period, Kaiser Engineers initiated erection of the two cranes for the Pickle Coil Storage Building. No structural steel progress was evident on this building during the period.
- 6.7 Piping: McGraw Construction Company continued with some progress on roof drainage piping for the Green Coil Storage facility. This drainage system is 98% complete. Roof drainage for the north lean-to of the Pickle Building was also in progress during the period.
- 6.8 Electrical: Lake Erie Electric completed the vertical cable tray installation at the Green Coil Storage Building for cranes 403 and 404. Electrical work on crane 403 is 85% complete and on crane 404, 80% complete. In the Pickle Line Building, Lake Erie Electric have removed the high bay lighting disconnect switches which interfered with the roof drainage piping. Design revisions showing the relocation for these switches is expected by next period. Installation of high bay lighting fixtures was initiated during the period.

7. UTILITIES

7105-Water Distribution: Delta Pipeline Constructors continued with installation of 12" natural gas and 12" steam header east of the Hot Strip Mill. 180 feet of furnace cooling piping and 310 feet of mill water piping was also installed during the period.

7109 - Pipeline: Delta Pipeline Constructors continued throughout the period with modification work to the valve station supports.

7110 - Power Distribution: At the Melt Area switching station, the 13.8 KV switchgear has been set in place and enclosed. Perimeter fencing at this station is 50% complete. At the Mold Preparation Building, R. H. Bouliguy installed cubicles for the 13.8 KV switch gear and high voltage cable was pulled to tower #22. The pot heads at tower #22 are 50% complete.

7111 - Sanitary Sewers: In the Steelmaking Area, Delta Pipeline Constructors began installation of 8" underground sanitary piping from the locker rooms to manhole 577. Some manhole tops were completed in the Steelmaking Area during the period.

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7112 - Drainage and Site Development: 6,382 cubic yards of excavation was completed for a total to date of 695,898 cubic yards. 7,648 cubic yards of backfill was completed for a total to date of 952,697 cubic yards. Delta Pipeline Constructors installed 101 linear feet of 21" corrugated metal pipe, 80 linear feet of 12" corrugated metal pipe and 113 linear feet of 18" corrugated metal pipe in the Steelmaking Area during the period. No progress was recorded by John R. Jurgensen Co. on road paving this period.

7113 - Trackwork: During the period, DHS Corporation installed 674 feet of track and one turnout. The trackwork at the clarification building was completed this period and some additional trackwork at the mold yard and Basic Oxygen furnace area was continued. Ballast was installed for the trackwork in the clarifier area. Track preparation and subgrade continued near scale pit #3 and track in this area (connecting tracks north of the Hot Strip Mill, bridging the conveyor trenches, to the east area) is expected to be in progress by next period.

7114 - Locker Rooms: David L. Smith Construction Company have completed installation of lockers in the south area locker room. During the period, ventilation ductwork for the lockers was in progress. Interior painting was initiated this period and the second course of suspended ceiling plaster was installed for the shower washroom and toilet areas. Accoustical ceilings and lighting fixture installation was also initiated. This locker room facility is nearing completion. At the Steelmaking Area, insulation of masonry walls for showers and toilet partitions continued during the period. Water piping and rough-in electrical work also was in progress throughout the period.

7186 - Waste Disposal for the Pickle Facility: 957 cubic yards of excavation was accomplished for a total to date of 83,353 cubic yards. 2,049 cubic yards of backfill was completed for a total to date of 79,937 cubic yards. The backfill was mainly in the vicinity of the waste disposal building and clarifier structure. Backfill was brought up to the top of the tunnel and sump pit and forming for the remaining building footings is in progress. The tank farm base slab is completely formed and concrete for this slab will be placed next period.

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