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December 12, 1967

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Middleton Construction

JOB NO.

7100

SUBJECT

Kaiser Engineer's Weekly Field Activity Report

Transmitted herewith is the subject report for the week ending December 12, 1967.

CAF/sec

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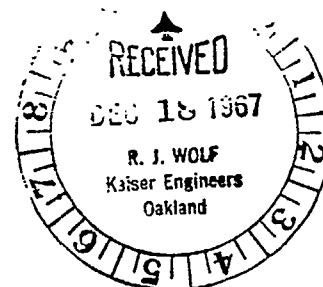
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KAISER ENGINEERS
WEEKLY FIELD ACTIVITY REPORT
Week Ending December 12, 1967

WEATHER: Rainy three days during
the period. General
weather conditions cold.

TEMPERATURE: Maximum - 55 degrees
Minimum - 32 degrees

CLIENT: Armco Steel Corporation

LOCATION: Middletown, Ohio

JOB NUMBER: 6471

JOB VISITORS

L. H. Mimer

SUMMARY FORCE REPORT

	<u>Kaiser Engineers</u>		<u>Subcontractors</u>	<u>Foothill Electric</u>	<u>Total</u>
	<u>Exempt</u>	<u>Non-Exempt</u>			
Management	5	3		1	9
General Supervision	14	3	23	6	46
Field Engineering	48	21	11	15	95
Warehs. & Mtl. Control	4	7		1	12
Survey	2	15	4		21
Office Srv. & Repro.	1	6			7
Clerical			18	16	34
Craft *	—	<u>1,071</u>	<u>1,177</u>	<u>743</u>	<u>2,991</u>
TOTAL	74	1,126	1,233	782	3,215

* Average for week of men on payroll.

Average for week of Crafts is as follows:

Kaiser Engineers	1,003
Subcontractors	1,138
Foothill Electric	<u>700</u>

Total Crafts Working 2,841

WEEKLY FIELD ACTIVITY REPORT
Week Ending December 13, 1967

GENERAL COMMENTS

Testing and start-up has and will be sufficiently complete by Friday, December 15, whereby rolling of steel will commence Monday, December 18. At that time construction will be excluded from the slab yard, furnace area, main mill aisle from column 2 to 41, oil cellar from column 13 to 31, flume, and scale pit pump rooms.

The waste heat boiler is on the line now producing 40 to 50,000 lbs/hr and steam is being transported to East Works. Efficiency runs and other tests will be run as soon as the first steel is produced next week through the roughers.

The steam line expansion joints have been repaired and back-up steam will thus be assured to the Hot Strip Mill proper and the Hot Strip Mill pump house.

The millwrights walked off the job Tuesday and Wednesday, December 12 and 13 and returned Thursday. They left because of a dispute over service time on lube oil systems.

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Week Ending December 12, 1967

PROJECT PROGRESS

1. 7148 - HOT STRIP MILL

- 1.3 Structural and Miscellaneous Steel: The miscellaneous ironworker force in the Hot Strip Mill was maintained at 36 ironworkers during the period. In the downcoiler area, progress was continued on handrail, grating and installation of maintenance platforms. In the furnace area, the stairway at column 13 between C and D was completed and installation of the furnace #1 water shield was completed. Installation of the extractor area stile between furnace #1 and 2 was also completed. The access platforms in the boiler area were completed this period. Progress was initiated on installation of the collector rail canopy for scale pit #1 and 2. Hatch cover and grating installation will continue as required to comply with mechanical progress in the rougher and finisher areas during check out and testing procedures.
- 1.4 Roofing and Siding: 1,700 square feet of siding was installed in the Hot Strip Mill for a total to date of 666,693 square feet. This siding consisted of waste heat boiler liner panel installation. Progress continued during the period on heat shield installation for the waste heat boilers. Heat shields for furnace #1 are complete and the overall heat shield progress is 60% complete. Installation of louvers was accomplished on the pedestrian tunnel enclosures this period.
- 1.5 Heating and Ventilating: Steam and air piping continued during the period in bag houses 10, 12 and 14. The Honeywell representative is on the job site and balancing of control devices in the bag houses continued throughout the period. Control devices for bag houses 1 through 5 and 15 are now complete and ready for operation. Electrical progress continued during the period in bag houses 11, 12 and 13. The remaining 12 bag houses are electrically complete. The heating units have been installed by Norm Woolley in the Hot Strip Mill grease houses and the remaining work to complete these systems consists of electrical requirements for the exhaust fans and completion of piping to the units. Four of the ten step-down transformer, permanent power supply units, were installed during the period. No progress was experienced in the pump house and switchgear building during the period. In the switchgear house, the remaining work consists mainly of connecting up the steam piping to the heater units.
- 1.6 Mechanicals: During the period, Eichleay Corporation maintained an average work force of 62 men on mechanical installation in the Hot Strip Mill. In the furnace area, installation of the hold-down guides for extractor #3 was completed. Mechanical installation of the dry scale hoist is also completed. In the rougher area, mechanical testing was accelerated during the period. Numerous adjustments and replacements were required by start-up. The Eichleay forces are working closely with the start-up group in

WEEKLY FIELD ACTIVITY REPORT
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accomplishing all necessary requirements for the final rougher check out prior to rolling steel through the mills. The machining of the delivery side guides for the four-high mills was completed this period. In the finisher area, clean-up of roll assemblies and roll changers is underway. Good progress was maintained on re-installation of the finishing mill motors. All stator components have been returned to the job site and are re-installed. In the runout area, the 31 table motors were returned from the Westinghouse factory and installation of these motors is in progress and will complete next period. The components required for the revisions to the radial turn on conveyor #6 are presently being fabricated in the Link-Belt shop. Installation of this revision work will depend on delivery of the Link-Belt components. Installation of chains, drives and position indicators continued in the coil conveyor area during the period. Progress continued on installation of the drag chain drive and cross belt conveyor for the scale pit wet scale removal system. Uncoupled tests were accomplished on finishing mill main motors #1 and 2. Coupled tests for the period were as follows: two electric driven boiler feed water pumps, four high pressure descaling pumps, one turbine driven boiler feed pump, three mill water return pumps, one emergency water pump in the boiler area, one looper air compressor and one high pressure descale air compressor. The following equipment was accepted by Armco operations during the period: the #1 and 2 electrical driven boiler feed pump, #1 and 2 roll transfer cars, the boiler area service water pump at boiler house 3. Westinghouse continued with the P50 and P550 check out and test program in the R2 and R6 areas throughout the period.

- 1.7 Piping: During the period, 2,623 feet of pipe was installed for a total to date of 336,091 feet. 5,480 feet remains to be installed by Kaiser forces in the Hot Strip Mill. Major systems worked on during the period were: grease, hydraulic system 19, mill water, oil skimmer piping, steam piping and instrumentation. Hydro testing and flushing was completed this period for hydraulic system 18 between the power pack and the downcoiler area, supply system. Preparations are presently underway for the hydro testing of hydraulic system 17. Piping progress continued on hydraulic system 19 throughout the period. This system is 30% complete. In sump pump pit #4, the seal plates were welded and the pumps are now ready for testing and check out. At scale pits #1 and 2, all pumps are now operable and three pumps have been in operation. Additional anchors were added on the header side to prevent pump vibration. The two chemical dilution pumps including related vacuum systems were completed and checked out for operations. The #1 air compressor in the pump house was piped complete and the drive motor uncoupled test is scheduled for Wednesday the 13th to be followed up by the coupled tests. In the clarifier area, final check out was accomplished on the electrical motors for chemical tank "C". Pickling of the hydraulic piping for the flocculator units has been accomplished and the piping in the "C" tank area re-installed. Check

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out of the "C" tank system is scheduled to commence next period. Hydro testing of the high pressure descaling system was completed this period and flushing of the system is scheduled for next period. During this flushing exercise, each of the five high pressure descaling pumps will be operated for approximately a 30 minute period and flushing will continue until the system has been cleared for all areas.

1.8 Electrical: Foothill Electric Corporation installed 1,700 lbs. of exposed conduit for a total to date of 1,453,000 lbs. or 97% complete. 4 high voltage terminations were accomplished for a total to date of 498 or 85% complete. 17,000 feet of low voltage cable was installed for a total to date of 1,722,000 feet or 98% complete. 500 low voltage cable terminations were accomplished for a total to date of 28,800 or 93% complete. 4,600 feet of control cable was installed for a total to date of 1,843,000 feet or 99% complete. 1,400 control cable terminations were accomplished for a total to date of 551,000 or 95% complete. 1,500 feet of computer cable was installed for a total to date of 865,000 feet or 92% complete. 400 computer cable terminations were made for a total to date of 28,000 or 93% complete. 3,700 lbs. of lighting conduit and 26,000 feet of lighting wiring was installed during the period. 1,700 lbs. of structural grounding was installed for a total to date of 140,500 lbs. or 88% complete. 700 feet of communication wiring was installed including 70 terminations and 900 feet of TV conductor was installed this period. Foothill Electric maintained an average work force of 410 men in the Hot Strip Mill areas during the period.

1.9 Miscellaneous Subcontracts: Chicago Bridge and Iron completed their remaining connection work on the water surge storage tank this period.

Moeschl-Edwards completed the installation of railway doors 584 and 586 in the clarifier building this period. Some operated mechanisms are missing for these doors but will be re-installed when new deliveries arrive at the job site.

Owens Corning Fiberglas Company continued with insulation of steam and lube oil piping in the Hot Strip Mill during the period. Insulation work on steam and condensate lines were accomplished in bag houses 1 through 5 and 15. 400 feet of high pressure steam line was insulated near column line 1 and 85 feet of steamline was insulated in the clarifier building this period. 810 feet of lube oil #4 piping was insulated this period and 1,499 feet of piping for lube oil 5.1, 5.2 and 6 were insulated during the period.

Delta Pipeline Constructors maintained an average work force of 30 men on service piping in the Hot Strip Mill during the period. 130 feet of well water header piping was installed for a total to date of 33,096

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feet. All additional air drops on the E and B line as required on AWO 735 were installed, 14 air connections and 3 air drops were also installed during the period. The underground fuel oil piping between the fuel oil storage tanks and the boiler area is complete and ready for pressure testing and banding.

McGraw Construction Company have completed the installation of mono-rails in the Hot Strip Mill oil cellar during this period.

Salem-Brosius are essentially complete with furnace #1. This furnace has been under operational control by Armco throughout the period. Heated slabs are in the furnace. The furnace was brought up to full heat and is presently on low heat. Slab movement through the furnace is expected to begin next period. Rework of furnace doors and snave guards were completed on furnace #1 and progress continued on installation of #3 furnace roof refractory and up-take sections. Furnace cooling water piping and drain piping was continued on unit #2 and electrical progress was continued during the period on both units #2 and 3. The undersized motors for furnace #1 were replaced. #1 furnace is now considered complete. Furnace #2 is 90% complete and furnace #3 is 80% complete.

Babcock and Wilcox completed boil-out of furnace #1 and steam-up is scheduled to begin this Tuesday evening. All related components required for operation of this boiler have been checked out satisfactorily. Insulation of the ID and FD turbines and related ductwork for the #3 unit continued during the period. The damper controls and linkage were also installed. The #1 FD and ID fan systems is complete and in operation. This fan and duct system contract is 92% complete.

Norm Woolley continued with drain piping and vent piping for ID and FD fan #2 and 3 this period. His progress in the waste heat boiler area is 99% complete.

Mo Piping contract for the waste heat boiler area is essentially complete. Some work was evident by his people on modifications and changes.

Honeywell continued with installation of instruments and instrument calibration in the waste heat boiler area. Some impulse lines were rerouted. Considerable time was spent assisting in boiler start-up. This contract is 78% complete.

2. 7146 - SIAB MILL

- 2.2 Concrete: 309 cubic yards of concrete was placed for a total to date of 46,987 cubic yards. Concrete during the period consisted of mill aisle slabs, the gantry rail foundation walls at scale pit 4 and the fume eliminator fan and motor foundation.

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- 2.3 Structural and Miscellaneous Steel: An average work force of 27 men installed miscellaneous iron in the slab mill during the period. Access crane service platforms were installed in the main mill aisle. Railroad beams over the crop conveyor were installed and erection of the scarfer maintenance structure was completed this period. Erection of the bag house filter stack was initiated this period.
- 2.6 Mechanical: Eichleay Corporation maintained an average work force of 47 men throughout the period on mechanical installation in the slab mill. Good progress was maintained in all main areas of the slab mill on mechanical erection. Major progress was evident on the main mill, feed rolls 6, 7 and 8, the delivery manipulator, the scarfer approach table #11 motor installation, the slab shear drive and the crop conveyor. No major equipment was received at the job site this period. 7,352 tons have been delivered to date or 96% complete.
- 2.7 Piping: Hunter (Contractor for the Slab Mill Piping) maintained an average work force of 61 men during the period. Progress continued on lube oil systems 3, 6, 7 and 11 during the period. The steam and condensate piping for lube oil systems 3, 6 and 7 is 90% complete in the vicinity of the oil reservoirs. Instrument air piping for these systems is also in progress. Progress continued during the period on header piping along D line in the main mill aisle. This header piping is 90% complete including the crossover piping in the trusses between E and D line. All of this crossover piping has been installed except for the water line. 650 feet of 2" grease header piping, 30 block valves and 130 grease points have been installed. The scale pit pumps have been set in place and piping to these pumps are presently being prefabricated for installation in the near future. 1,037 feet of pipe was installed this period for a total to date of 18,087 feet.
- 2.8 Electrical: 900 lbs. of exposed conduit was installed this period for a total to date of 70,400 lbs. or 44% complete. 7,700 lbs. of embedded conduit was installed for a total to date of 653,600 lbs. 300 lbs. of lighting conduit and 1,000 feet of lighting wire was installed this period. 900 lbs. of structural grounding was installed for a total to date of 22,900 lbs. or 46% complete. 4,800 feet of 13.8 KV cable was installed for a total to date of 7,100 feet or 53% complete. An average work force of 150 electricians worked during the period.
3. 7143 - SOAKING PITS
- 3.2 Concrete: 259 cubic yards of concrete was placed for a total to date of 28,972 cubic yards. Period concrete consisted mainly of the loading dock slab and miscellaneous foundations.

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- 3.6 Mechanical: The crane 357 drum guards have been fabricated and are ready for installation. The coupling guards have been checked and measured for fabrication. Electrical progress on crane 357 is 60% complete. The sheetmetal enclosure at service crane 370 was completed this period. Loftus Engineering maintained an average work force of 160 men on battery installation in the soaking pits. Good progress was evident on soaking pit facilities during the period. The archway and collecting flue brick is complete for all battery units with the exception of the down-take bricking on batteries 1 and 2. Brickwork for batteries 4, 5 and 6 is 87% complete and 68% complete for batteries 1, 2 and 3. Equipment installation for batteries 4, 5 and 6 is 94% complete and 91% complete for batteries 1, 2 and 3. Electrical progress on batteries 4, 5 and 6 is 27% complete and 9% complete on the remaining batteries. Average piping progress on batteries 4, 5 and 6 is 70% complete and 10% complete on the remaining batteries. Installation of pit dampers and cinder bells were completed for all batteries this period and cold air actuators and dampers were installed on batteries 4, 5 and 6 during the period.
- 3.7 Piping: Delta Pipeline Constructors maintained an average work force of 24 men on service piping in the soaking pit during the period. 965 feet of treated water piping has been installed to date. 735 feet of natural gas installed, 120 feet of compressed air installed and 65 feet of grease piping installed to date. A total of 1,885 feet of service piping has been installed in the soaking pit area to date.
- 3.8 Electrical: 8,500 lbs. of exposed conduit was installed for a total to date of 48,400 lbs. or 35% complete. 960 feet of 13.8 KV cable was installed during the period for a total to date of 38% complete. 130 lbs. of structural grounding was installed for a total to date of 6,600 lbs. or 26% complete.
4. 7128 - BASIC OXYGEN SHOP AND MOLD YARD
- 4.2 Concrete: 156 cubic yards of concrete was placed during the period for a total to date of 19,111 cubic yards. Period concrete consisted mainly of conveyor support piers, #1 fan foundation and scrap scale pit #1 and 2 base slabs.
- 4.3 Structural and Miscellaneous Steel: 293 tons of structural steel was erected at the main BOF building facility for a total to date of 4,225 tons. (This total to date includes the Mold Yard.) At the main BOF building, 2,183 tons of structural steel, excluding anchor bolts and base plates, has been installed to date. Three erection rigs erected steel on the main BOF building during the period. A fourth erection rig was delivered to the job site and will begin

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erection next period. The office building structural steel was completed. Chicago Bridge and Iron have completed erection of the bottom portion of the nitrogen sphere and continued with erection and fit-up of the upper sections. Welding of the upper sections was also initiated during the period.

4.4 Roofing and Siding: 720 square feet of siding was installed at the Mold Preparation Building for a total to date of 62,360 square feet.

4.6 Mechanical: Erection of the two overhead cranes in the Mold Yard Building was delayed because of the trolley delivery. It is anticipated that this delivery will arrive at the job site on Wednesday, December 13.

5. 7145 - STRIPPER BUILDING

5.3 Structural and Miscellaneous Steel: 13 tons of steel for the Stripper Building stairway was erected during the period for a total to date of 938 tons.

5.8 Electrical: The underground conduits at the rectifier building were completed and the concrete encasement for these duct runs below the slab elevation was also accomplished.

6. 7150, 7156 and 7159 - PICKLE AREA

6.1 Excavation and Backfill: Excavation and backfill work was accomplished at the #2 catenary pit area and strip dryer area near column line 34 in support of foundation work for #4 pickle line. Backfill was also evident in the maintenance aisle in advance of floor slab installation. Excavation was initiated for the #1 catenary pit on pickle line #5 foundation and the tension roll foundation in this same area.

6.2 Concrete: 353 cubic yards of concrete was placed in the pickle line #4 facility for a total to date of 8,518 cubic yards. 143 cubic yards of concrete was placed in the pickle line #5 facility for a total to date of 5,710 cubic yards. During the period, the entry end of the #5 pickle tank foundation was placed as well as floor slabs in the maintenance aisle.

6.4 Roofing and Siding: 100 square feet of siding was installed at the pickle line facility for a total to date of 111,056 square feet. 720 square feet of painted siding was installed at the pickle line building for a total to date of 11,230 square feet.

6.6 Mechanical: Erection of the girder and trolley east end overhead crane at the pickle coil storage building was completed this period and progress continued on the erection of girders and trolleys for the west end crane. Erection of these major items is scheduled to complete next period.

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- 6.7 Piping: Norm Woolley initiated installation of service piping in the Green Coil Storage Building on Tuesday, December 12. Roof drainage pipe for the Green Coil Storage Building has been completed.
- 6.8 Electrical: At the Pickle Line Building, installation of high bay lighting fixtures is 60% complete. Cable tray supports between column 16 and the motor room are complete and installation of tray was started. Assembly of the 13.8 KV switchgear in the #4 motor room was initiated. The 480 volt substation was delivered this period to its permanent location from temporary storage in the Hot Strip Mill. Insulation of cable tray from the crane feeder switch to the collector rail was completed. In the Green Coil Storage Building, progress continued throughout the period on installation of the four distribution panels and junction boxes. Conduit installation continued along C line and installation of the crane communication system was initiated.

7. UTILITIES

7105 - Miscellaneous Piping: Delta Pipeline Constructors installed 60 feet of 10" plant air, 60 feet of 6" natural gas, 60 feet of 4" oxygen and 120 feet of 12" natural gas during the period between Hot Strip Mill and the Green Coil Storage Building. The 12" underground steam pipe east of the roll shop was also pressure tested this period.

7109 - Pipeline: No progress was evident during the period. Delta Constructors are awaiting final inspection of the hydrogen, nitrogen and coke oven underground pipe systems.

7110 - Power Distribution: R. H. Bouligny initiated installation of control wiring in the melt area substation for the 13.8 KV switchgear. Installation of the feeder cables for the 13.8 KV power has been completed to the main substation. At the cold finish substation, progress consisted mainly of accomplishing punch list items and insulation of the tele-communication system. The high voltage cable has been pulled between the cold finish substation and the 13.8 KV switchgear located in the #4 motor room at the pickle building along the temporary pole line. Pot-head terminations were also initiated for this line during the period. The tele-communication cable required to serve the Hot Strip Mill substation and the cold finish substation was installed by Ohio Bell Telephone Company this period. Splices for this system are still in progress.

7111 - Sanitary Sewers: In the Steelmaking Area, Delta Pipeline Constructors completed the infiltration requirements at manholes 572 and 573. Surface water has presently been diked away from other manholes in this area during this rainy season. Progress was also evident on sanitary sewer piping for the lab building and the locker room facility in the BOF area.

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7112 - Drainage and Site Development: 5,534 cubic yards of excavation was completed for a total to date of 709,730 cubic yards. 5,335 cubic yards of backfill was accomplished for a total to date of 964,464 cubic yards. Delta Pipeline Constructors installed 19 feet of underground storm drain piping for a tie-in near the south area locker room. Riser pipes were also installed for three manholes in this area. John B. Jurgenson Company placed 509 cubic yards of gravel base and 291 cubic yards of asphaltic base in the clarification area during the period.

7113 - Trackwork: DHS Corporation installed 1,009 feet of track south of scale pit #1 and some track was also installed inside the soaking pit building this period for a total track installed to date of 89,520 linear feet. Initial ground control was established this period at the Crawford Street entrance and subgrade will be accomplished in this area as soon as the ground conditions permit.

7114 - Locker Rooms: David L. Smith Construction Company are presently installing the remaining furniture required for the south area locker room. Painting of this locker room continued throughout the period with the first application completed and the second application presently underway. The accoustical ceilings and light fixtures were completed for the left side locker facility and progress is continuing on the right side. Flooring for the toilet and shower facility was also completed during the period. David L. Smith is presently waiting for the delivery of the permanent heating unit. Temporary heating is being provided but will be replaced with the permanent unit as soon as delivery of the unit is completed. Completion of this facility is scheduled for December 22, 1967. At the Steelmaking Area, progress continued during the period on installation of locker bases and installation of plumbing and electrical fixtures in the toilet and washroom areas.

7155 - Waste Disposal for the Pickle Facility: 1,621 cubic yards of excavation was accomplished for a total to date of 85,102 cubic yards. 132 backfill yards was made during the period. 41 cubic yards of concrete was placed in building grade beams for a total to date of 785 cubic yards. Forming of remaining grade beams and installation of reinforcing piers continued throughout the period. Progress on foundation work in this area is presently being restrained by a lack of electrical subfloor information and anchor bolt information.

OAF/sec

Prepared by O. A. Finsand
O. A. Finsand

Approved by G. L. Roberts
G. L. Roberts
Construction Manager

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