



Flat Rolled Products

Trentwood Works

August 19, 2016

Ms. Gina McCarthy
U.S. Environmental Protection Agency
1200 Pennsylvania Ave. NW
Washington, DC 20640

**Re: Kaiser Aluminum Trentwood Works
Spokane Valley, WA
“Hooding” Impracticability Determination Request**

Dear Administrator McCarthy:

Kaiser Aluminum Fabricated Products, LLC (“Kaiser”) is submitting this “hooding” impracticability determination request pursuant to the National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production (Subpart RRR). 40 CFR § 1512(e)(5).

Kaiser owns and operates its Trentwood Works aluminum rolling mill facility located in Spokane Valley, Washington that is subject to Subpart RRR for the aluminum melting portion of its operations as an area source of hazardous air pollutants. At its Trentwood facility, Kaiser is contemplating construction of one or more round top melting furnaces in its existing cast house and submits this request because it is anticipated that construction would not be feasible if installation of hooding is required under Subpart RRR. The following describes the design and operation of these potential new round-top melting furnaces, the reasons why installation of hooding would be impractical under 40 CFR § 1512(e)(6), as well as, how the proposed round-top furnaces will be designed and operated to minimize emissions during testing under 40 CFR § 1512(e)(7).

Potential New Round Top Furnaces at Kaiser’s Trentwood Facility

Kaiser is contemplating potential construction of one or more new round top melting furnaces in its existing cast house at its Trentwood facility that ultimately provides rolling ingot for its on-site hot rolling, cold rolling and heat treating operations for the production of aerospace and general engineering semi-finished goods.

Kaiser is considering new round-top melting furnaces since round top furnaces are the preferred equipment to handle the heavy gauge aluminum materials used in Kaiser's rolling operations, because:

- Heavy gauge feed stock used by Kaiser is too large to charge through a side door in a box furnace. (See Figure 1).¹
- Kaiser manufactures "heavy gauge" products and round tops are required for charging internally generated scrap that is recycled from downstream operations. (See Figure 2).
- Round top furnaces suffer less refractory damage when heavy gauge charge is used because charging heavy gauge scrap through the side door of box furnace will damage the furnace floor. Additionally, round top furnace walls are more easily cleaned than box furnace walls because there is complete access to the furnace walls (no corners).
- The melt rate and efficiency of a round-top furnace is superior to a box furnace as round-top furnaces typically have a 15% faster melt time and at least a 5% better energy efficiency than box furnaces (providing a smaller greenhouse gas footprint).

Under 40 CFR 1512(e)(6) Installation of Hooding that Meets ACGIH Guidelines Will Be Impractical for Potential New Round Top Furnaces at Kaiser's Trentwood Facility.

Pursuant to 40 CFR § 1512(e)(6) installation of hooding that meeting ACGIH Guidelines is impractical if, "[b]uilding or equipment obstructions (for example wall, ceiling, roof, structural beams, utilities, overhead crane or other obstructions) are present such that the temporary hood cannot be located consistent with acceptable hooding design and installation practices."

Potential new round top furnaces at Trentwood would use a common overhead crane system for material charging and other furnace related process steps. The removal of the top of these melting furnaces is necessary so that the overhead crane system can bring the "charging bucket" that is suspended from the crane over the top of the furnace and lower it into the furnace for the placement of heavy gauge scrap into the furnace. Hooding or baffles would not be feasible for this new casting facility because they would materially impede the use of the overhead crane system. In addition, the potential furnaces would be "tilting" furnaces (furnace is hydraulically tipped to rapidly transfer its molten metal so as to minimize heat loss and improve operating efficiencies) and as such cannot have any structures above it that would interfere with its ability to "tilt".

¹ Figures attached provide information from Kaiser's existing operations that depict the design and operation of the potential new round top furnaces being considered for construction at Kaiser's Trentwood facility.

Under 40 CFR 1512(e)(5) and (7) Operation of New Round Top Furnaces and Testing Procedures Would Minimize Unmeasured Emissions during a Performance Test.

New round top furnaces being considered at the Trentwood facility will be designed and operated to minimize emissions without the use of hooding.

- First, the new round top furnaces will be designed so that the furnace burners do not operate (pilot light only) whenever the furnace top has been removed or the skim door opened. (See Figure 3).
- Second, only salt flux will be used in these round top melters, so any concerns with respect to the use of gaseous flux are eliminated.
- Third, unlike box furnaces that require multiple charges per melt cycle, the need to add additional charges to these potential new round top furnaces (which requires removal of the top) is infrequent (i.e., top removal after initial charge will occur less than 10% of the time). Moreover, during the infrequent time in which these round top furnaces are re-charged after an initial melt, only dry “clean” additional charge materials will be added to molten bath of the initial charge. These dry clean additional charge materials qualify as “clean charge” under 40 CFR § 1503.
- Fourth, dross skimming and in general the addition of any alloying metals occurs through a furnace side door but only after the initial charge has reached “flat bath” state (after approximately three hours), ensuring that substantially all potential melting emissions have been routed through the round top stack before the side door is opened.

In summary, Kaiser’s operating procedures for these potential new round top furnaces will ensure that burner operation cannot occur during operational steps that require the furnace top or its skim door to open and that the initial aluminum scrap materials obtain “clean charge” status prior to the side door or furnace top being opened and then only “clean charge” materials are subsequently added to the molten bath reducing the chance for emissions.

40 CFR § 1512(e)(7) provides ten different alternatives to ensure testing procedures will minimize emissions in the absence of ACGIH compliant hooding. Although each of these alternatives alone should be enough to minimize emissions under the rule, Kaiser’s operation of the new potential round top furnaces at its Trentwood facility will utilize six of the ten alternatives, including:

- Minimizing the time the furnace door is open or the top is off (the furnace door or top will be opened/removed infrequently and for short durations)

- Delaying gaseous fluxing until charging doors are closed and, for round top furnaces until the top is off (Kaiser will only use salt flux not gaseous flux in melting furnaces.)
- Agitating or stirring molten metal as soon as practical after salt flux addition and closing the door as possible after solid fluxing operations, including mixing and dross removal (Kaiser will utilize “magnetic stirrers” which stir the molten metal while the top in place and skim door closed. The skim door will be open for a minimal period of time and closed as soon as possible after dross removal.)
- Keeping building doors and other opening closed to the greatest extent possible to minimize drafts that would divert emissions from being drawn into the furnace (As a matter of standard procedure, Kaiser will keep building doors closed during testing.)
- Maintaining burners on pilot light operation while the doors are open or the top is off (In addition to minimizing the occasions when the skim door is open and the top is off, Kaiser will maintain burners on pilot light only when the skim door is open or the top is off.)
- Removing the furnace cover one time in order to add a smaller representative charge then replacing the top. (Kaiser will minimize the times the top needs to be removed during the melt cycle. Currently, less than 10% of the time furnaces receive additional charge materials and when the top is removed emissions are minimized because the initial charge materials will have achieved flat bath state (molten) and only clean charge materials will be added.) 40 CFR § 1512(e)(7)(iv)-(vii), (x).

Other potential alternatives for minimizing emissions provided under 40 CFR 1215(e)(7) will not be feasible with Kaiser’s potential new round top furnaces. Installing hooding that does not meet ACGIH guidelines or installing temporary baffles on the sides or top of the furnaces under 40 CFR § 1215(e)(7)(iii)-(iv) will not be feasible, because any hooding or baffles installed on the top or side of the furnaces will materially impede the use of common overhead crane system or impede the tilting capability of the furnace. (See Figures 4 and 5). Moreover, using the building as an enclosure under 40 CFR § 1512(e)(7)(ii) will not be feasible because any potential new round top furnaces will be contained in the existing cast house. (See Figure 6).

Conclusion

Kaiser is considering the construction of new round top furnaces at the Company’s Trentwood facility. In order to confirm the feasibility of this potential project, Kaiser is petitioning the EPA administrator under Subpart RRR as the relevant authority for area sources, for a determination that installation of ACGIH compliant hooding is impractical for the proposed round top furnaces. Based on the information provide

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above and attached, Kaiser's proposed round top furnaces meet the requirements for a determination of impracticability under 40 CFR § 1512(e)(5) – (7) because equipment design (a common overhead crane system and "tilting" capability) prevents the installation of hooding and because Kaiser's round top furnace design and operation will minimize emissions during testing.

Please feel free to contact me at (509) 927-6554 if you should have any questions.

Sincerely,



Bernard P. (Bud) Leber, Jr.
Environmental Engineering Manager
Kaiser Aluminum Fabricated Products, LLC

Enclosures.

cc: Dennis McLerran, U.S.EPA Administrator for Region 10
Charles French, U.S. EPA OAQPS

FIGURE 1 - HEAVY GAUGE RECYCLED AEROSPACE SCRAP

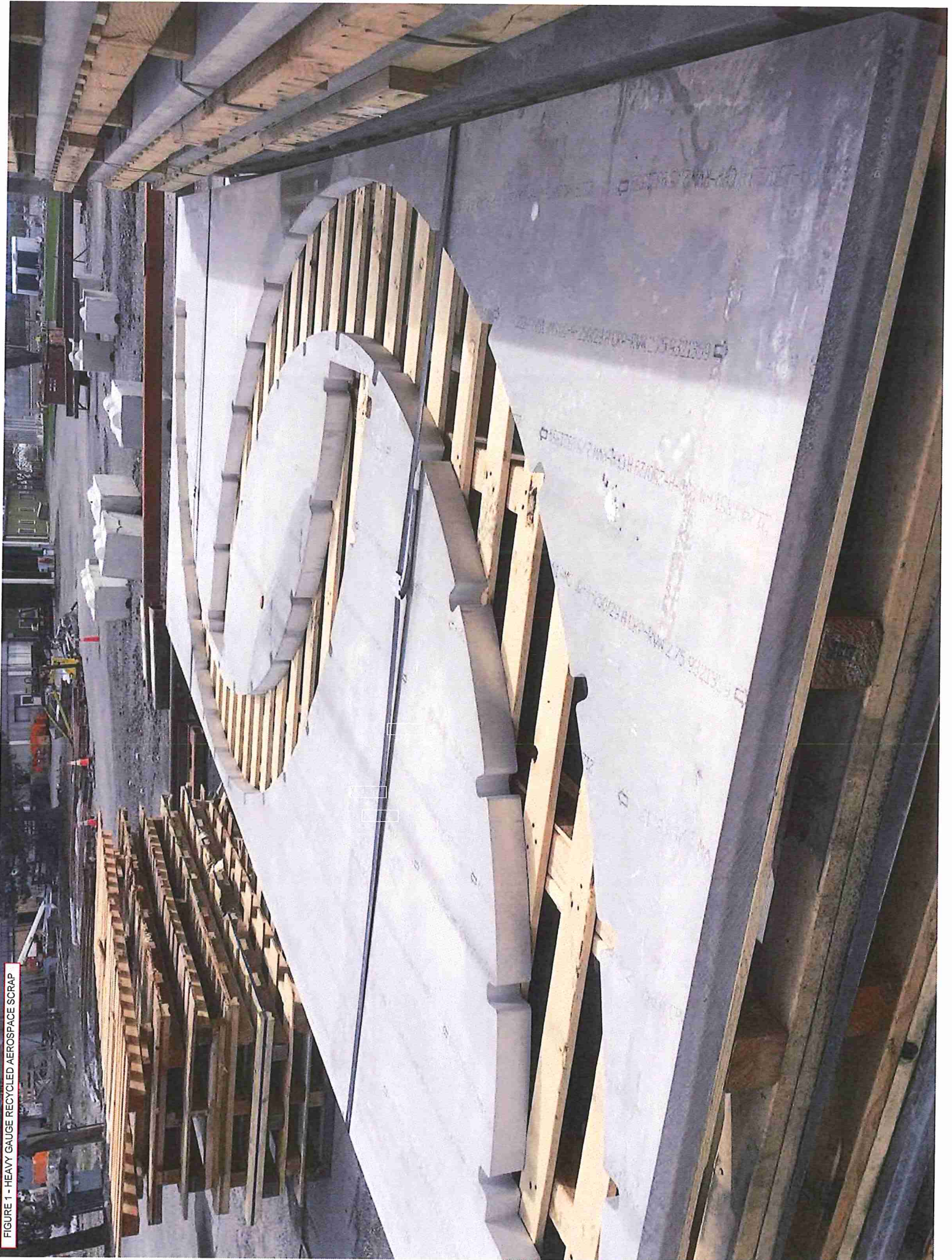


FIGURE 2 - THORPE LID OFF DURING CHARGING - REPROCESSING INGOT

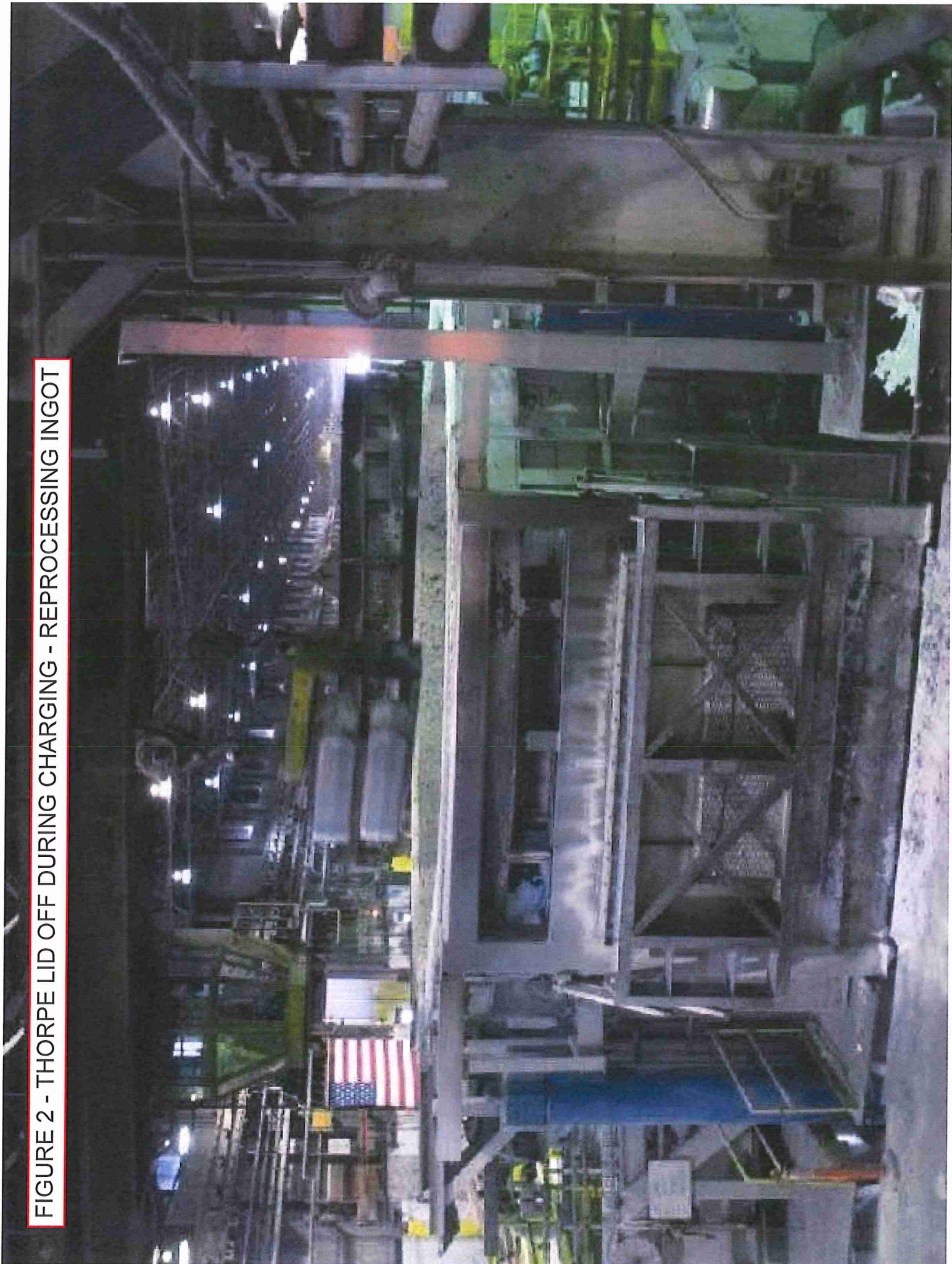


FIGURE 3 - THORPE TILTING ROUND TOP

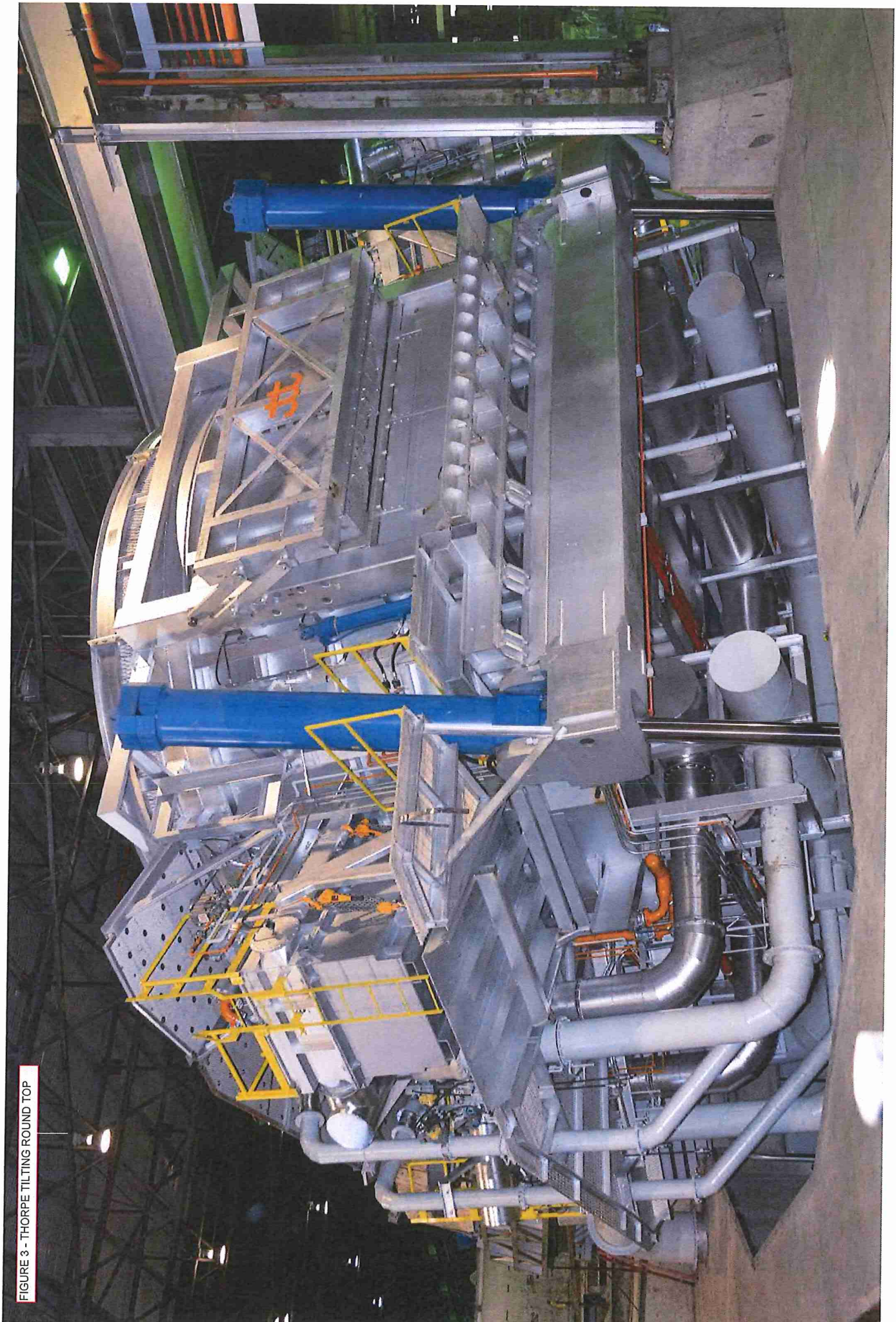


FIGURE 4 - CHARGING BUCKET OVER MELTER

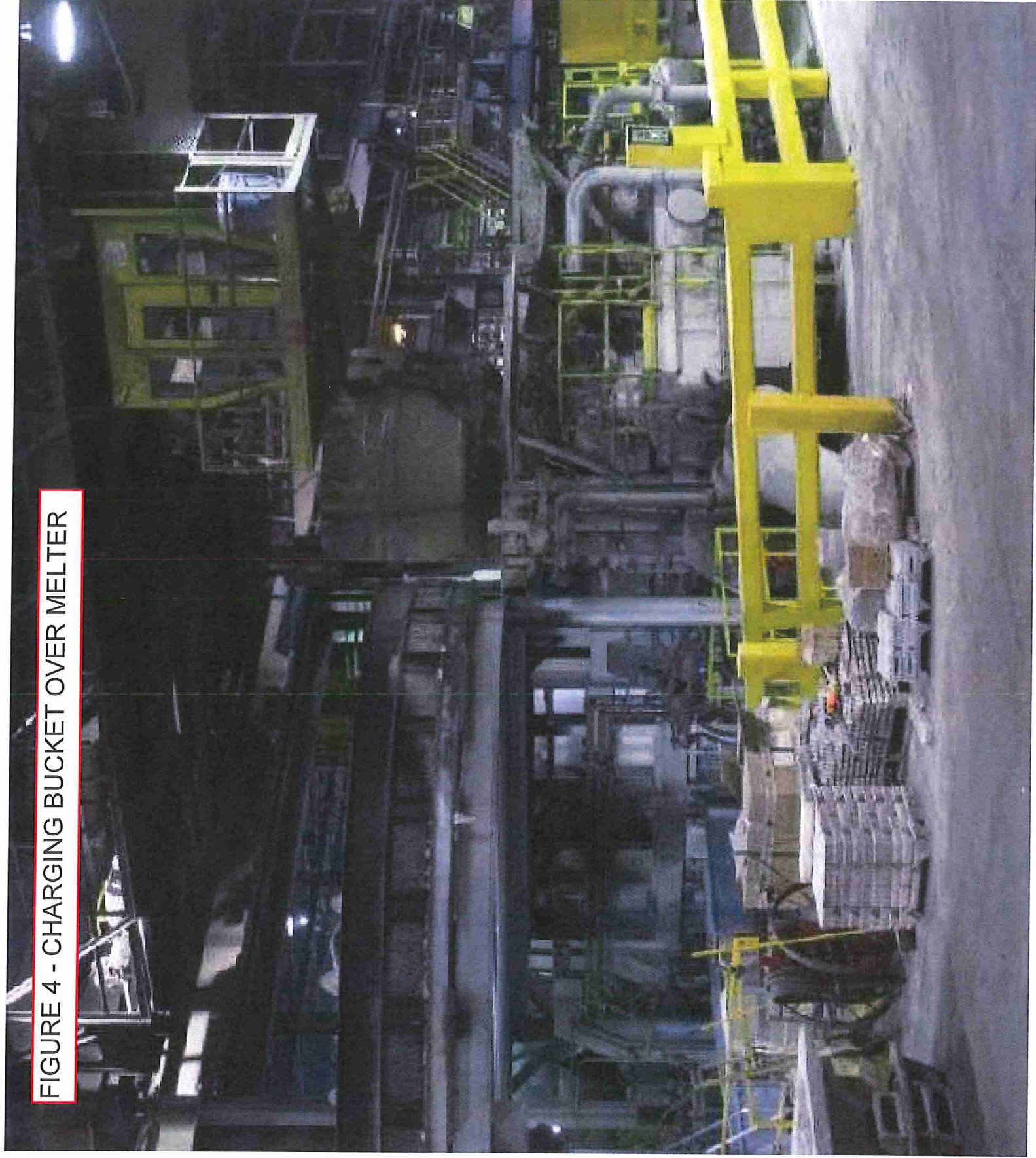


FIGURE 5 - CHARGE BUCKET (HOLDS 8 TONS)



FIGURE 6 - MELTING CASTING GALLERY

