DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B706125663

FACILITY: Gerdau MacSteel Monroe		**SRN / ID:** B7061
LOCATION: 3000 E FRONT STREET, MONROE		**DISTRICT:** Jackson
CITY: MONROE		**COUNTY:** MONROE
CONTACT: Craig Metzger , Environmental Manager - Monroe Mill		**ACTIVITY DATE:** 06/12/2014
STAFF: Sersena White	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MAJOR
SUBJECT: Scheduled targeted inspection with AQD Permit staff accompanying to observe processes involved in a permit to install revision.		
RESOLVED COMPLAINTS:		

SRN: B7061
Company Name: Gerdau Special Steel North America – Monroe Mill
Company Address: 3000 E. Front Street, Monroe, MI 48161
Company Contact: Craig Metzger – Environmental Manager
Company Contact e-mail: Craig.Metzger@gerdau.com

Other Participants:
Representing Gerdau- Otto Alvarado – Director of Safety & Environment
Gerdau Legal Counsel – Paul M. Collins – Attorney and Counselor at Law – Miller Canfield
Representing AQD:
Scott Miller – Jackson District Supervisor
Mark Mitchell – Thermal/Chemical Process Permit Unit Supervisor
Annette Switzer – Permit Engineer
Ambrosia Brown – Permit Engineer

Introduction
The purpose of the visit was to conduct a compliance evaluation based upon the current MI-ROP-B7061-2009 permit requirements, and provide an opportunity for AQD staff to actually see the emission units and control devices which are involved in the current permit revision (PTI 102-12A). This revision is requesting a reduced increase in output from PTI 102-12. The facility is currently in the process of renewing their Title V permit and we want to best accommodate the requirements of the existing ROP and the revised permit to install in finalizing the renewable operating permit. It has been proposed to section the ROP into a Current Output and an Increased Output section so that compliance can be determined on a per section basis. If at all possible, the best scenario would be to issue the PTI 102-12A it will replace the existing ROP entirely.

We arrived at approximately 9:10 a.m. to the Security area, where we were issued personal protection equipment to fulfill the safety requirements of Gerdau. The required PPE is long pants, steel toed boots or closed toe hard sole shoes, no jewelry, *safety glasses with side shields, *green jacket, *hearing protection, *hard hat with chin strap and *Hi visibility vest. An * indicates items that Gerdau could and did provide.

We participated in pre-tour/inspection meeting where everyone was introduced to each other and Craig presented a Safety Procedures and guidelines slideshow.

Craig provided an update on the current status of emission units in operation. The Vacuum Tank Degassers are currently going through a commission stage. The operators are learning how to operate the equipment using molten metal and checking the desired chemistry and timing requirements prior to delivery to the caster. They can only accurately determine how to accomplish proper operation by actually using it as if were in production mode. The only new emission unit that is in production status is the new caster and cooling tower.

Facility Tour
Scrap Yard
At approximately 9:35 a.m. we began the tour of the facility starting at the scrap yard. Craig described the many different grades of scrap and they come from several sources. The scrap is stored by type (bundle, frag, turnings, scrap bar, etc.) over a drainage system that is serviced by the on-site water treatment system. They do not want water to enter the EAF due to potential danger of water and electricity mixing. The front end loaders

scrape up the material using billets as a bucket guide to prevent dirt from being picked up when the scrap is loaded. Craig stated that the weight of the scrap is measured first by the front end loaders. The required scrap is selected by a scrap recipe and put into the charge bucket. After all the scrap is loaded, the charge bucket is weighed to determine the amount scrap going to the EAF. While in the scrap yard I observed a water truck in the east end of the plant applying water to a roadway. All of the roadways appeared to be in good condition from a fugitive dust stand point.

From the scrap yard we went into the baghouse control room, where we observed the control panel used to monitor the operation of the baghouse fans and the Direct Evacuation Fan in the control room. (Photo DSC00064 & 66)

Electric Arc Furnace EU-EAF, Baghouse & CEMS
We then observed the EAF Dust silo and load out area where Craig explained that fugitive emissions resulting from truck loading is controlled by a timer after the loading of the truck is finished to ensure no fugitive dust escapes to the ambient air. The collected fugitives are returned to the baghouse. (Photo DSC00070)

After leaving the baghouse we went to control room where Continuous Emission Monitoring System (CEMS) monitor Data Acquisition Handling System (DAHS) are located and observed the monitors displaying CO and Opacity data (Photos DSC00067-68). After leaving the CEMS control room we went to the Electric Arc Furnace pulpit. On the way there we observed the ladle preheat stations (Photo DSC00072), where there are currently two in use and another one will be added later according to Craig. We could also see the Vacuum Tank Degassers in the background (on the left). While we were in the EAF pulpit we were able to observe an initial charge and the replacement of an electrode. The molten metal from the EAF is gravity fed into a ladle below. The EAF is slightly tilted to facilitate unloading and provide clearance of the DEC duct from the EAF (Photo DSC00081).

Twin Vacuum Tank Degassers EU-VTD
After we left the EAF pulpit we went to the VTD area, where there was one (Photo DSC00082) of two in operation. The VTD has a control room with computers and monitors to display real time operating parameters and a visual image of inside the VTD. A ladle with the molten metal is lowered into one of the two vessels. A hood is placed over the VTD to retain as much heat as possible. Argon gas is injected from below to produce stirring and alloys are added by feeding rod according to the heat (metal) specification by the customer. There is no heat applied during this stage of the process and stirring is generated by bubbling in the argon gas. Maintaining the temperature of the heat is critical in order for the caster to turn the molten metal into billets. A couple of photos were taken of the dry pump cleaning baghouse used to clean the air used for the vacuums in this process. It was originally planned to be located inside the building, but evidently there was not enough room. (Photos DSC00091-92)

Billet Caster EU-CASTER
The caster has a control room where computers and monitors (Photos DSC00086-88) are used to display the parameters for the caster operations and other process locations associated with the process. After leaving the control room, went to the see the top of the caster where a two wing turret system (Photo DSC00089) allows alternate loading of molten metal into the caster. We were also able to see the roof vent (Photo DSC00090) that will eventually be closed and ducted to the baghouse as part of the increased output production plan. After we left the melt shop we observed the billet torch cutting station (Photo DSC00083). At the time of the inspection, there were no billets being cut because there was no molten metal in the caster. After we left the billet cutting station we went to the billet reheat furnace (Photos DSC00093-97) which was operating at the time of the inspection.

Rolling Mill & Finishing
A single billet exits the furnace and enters the steel bar rolling mill process. Several stands of different size rollers shape the billet into the pre-set diameter size for customer's orders. After the bars are sized and cut with a shear, they are cooled and chamfered which means the flat ends are rounded on the outer edge of the bar. Some of the steel bars are further processed using heat to change the functional characteristics of the metal using one of three heat treating furnaces. The three furnaces are identified as STC1, STC2 and the Flinn. All of the furnaces have individual natural gas meters, which are monitored and recorded to determine emission calculations. After heat treatment, the bars go through a straightener, a scaler which removes the outer surface of the bar and leaves if very shiny. The bars are bundled and stored for distribution.

After leaving the bundler area we went to observe the scrap yard torch cutting operation (Photo DSC00098). There is only one torch cutter and that person removes all of the hoses from the piece that will be

cut up using a propane torch. The particular piece that was being prepared for cutting was an automotive die. According to Craig, Gerdau applies the general condition for opacity to this process, which they can comply with due to the fact that the torch cutting process is intermittent.

Conclusion

After the tour we returned to the conference room at approximately 1:24 p.m. We discussed our observations and how to move forward on processing the permit to install and the ROP renewal process.

I need to follow-up with Craig regarding the pre-inspection questions and the proposed ROP contents so that we can ensure that all questions are answered and that the correct emission units will appear in the proper section of the renewed ROP. A meeting is scheduled for July 2, 2014 to discuss the status of PTI 102-12A. Some of my pre-inspection questions were answered as result of the inspection.

I shared the photos I had taken with Gerdau to ensure nothing proprietary was on the camera. There were at least three photos that were deleted prior to leaving the facility. We left the facility at approximately 2:47 p.m.

I told them that based upon my observations including records provided by Craig on his computer, Gerdau Monroe is complying with the requirements of the current ROP MI-ROP-B7061-2009.

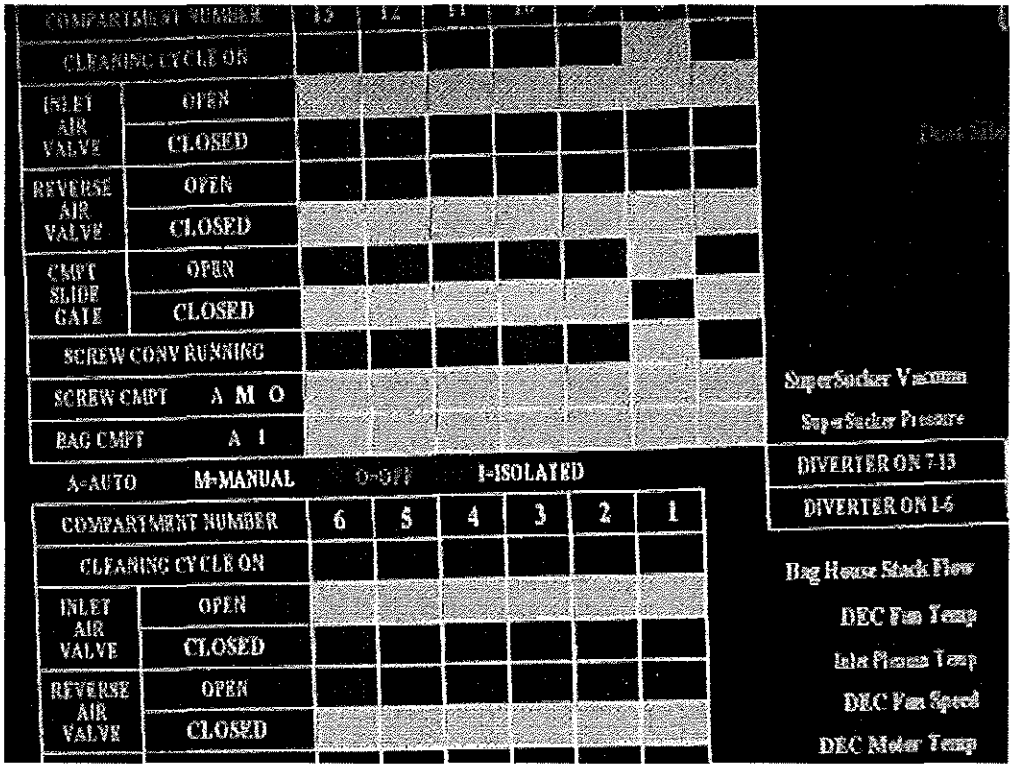

Image 1(DSC00064) : Photo of screen image in baghouse control room where fan information is monitored and displayed.

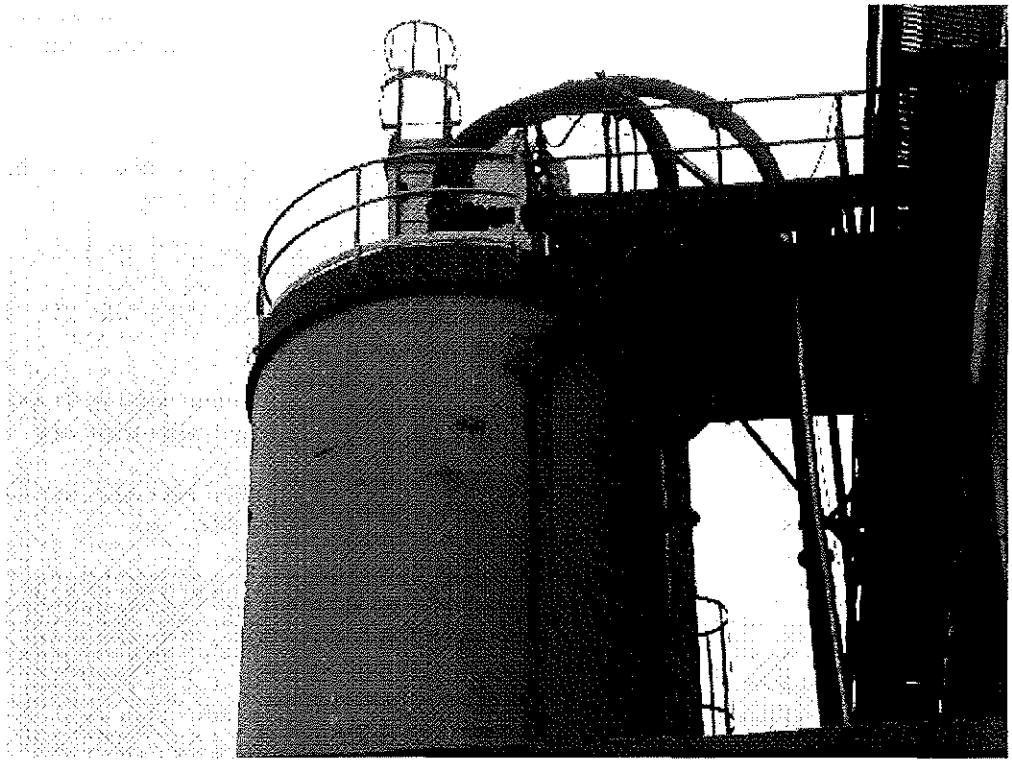

Image 2(DSC00070) : Photo of baghouse dust silo with bin vent to control fugitive emissions during truck loading.

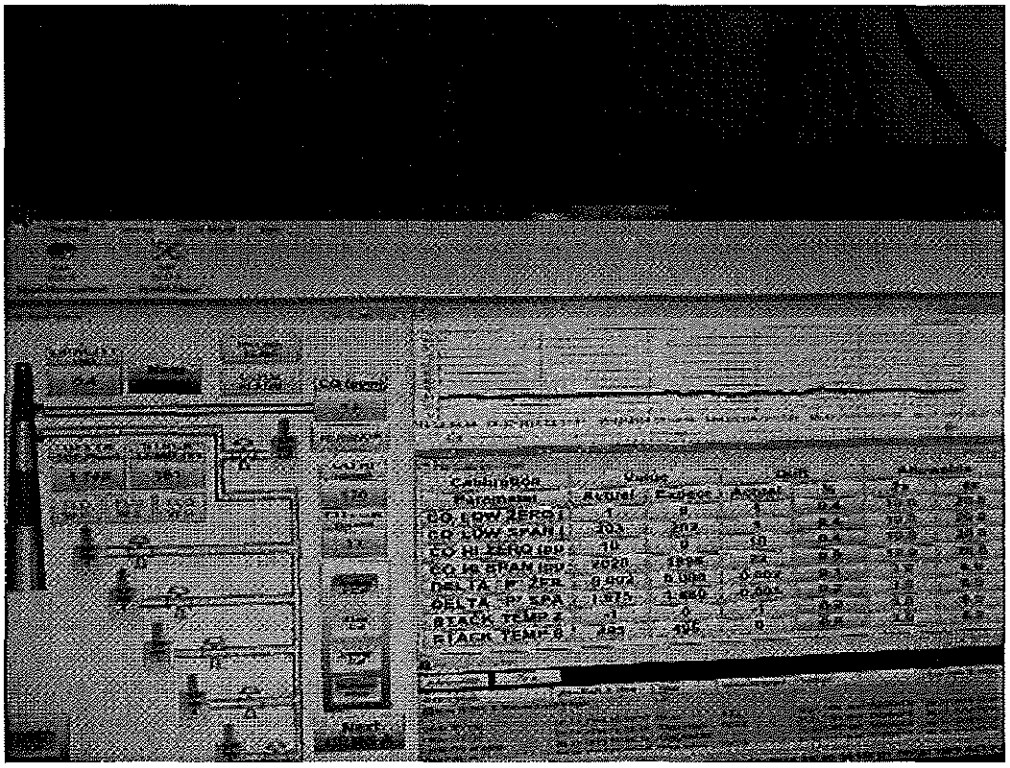

Image 3(DSC00067) : CO CEMS data monitor display

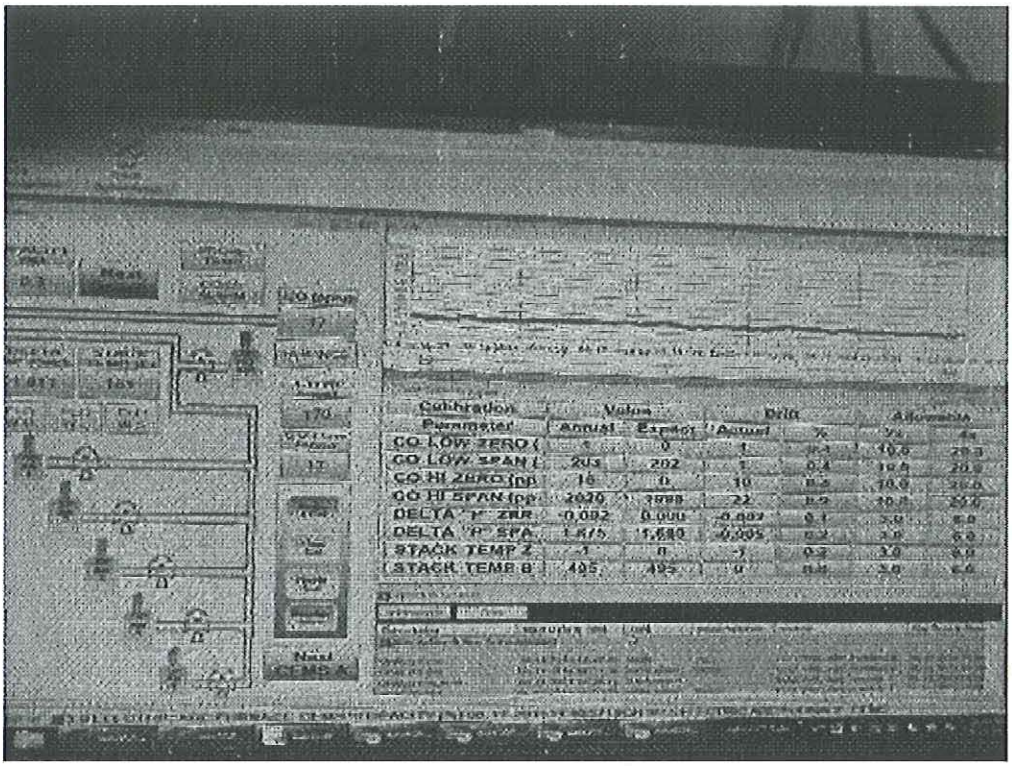

Image 4(DSC00068) : CO and Opacity Data monitor display

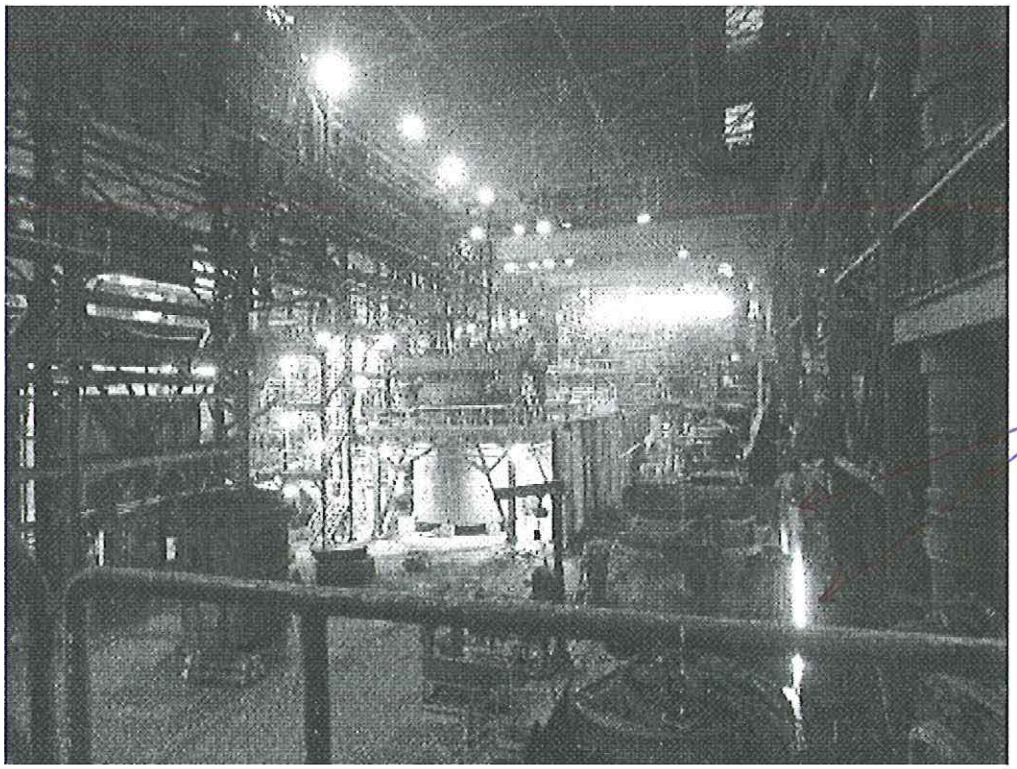

Image 5(DSC00072) : Photo of ladle preheating stations

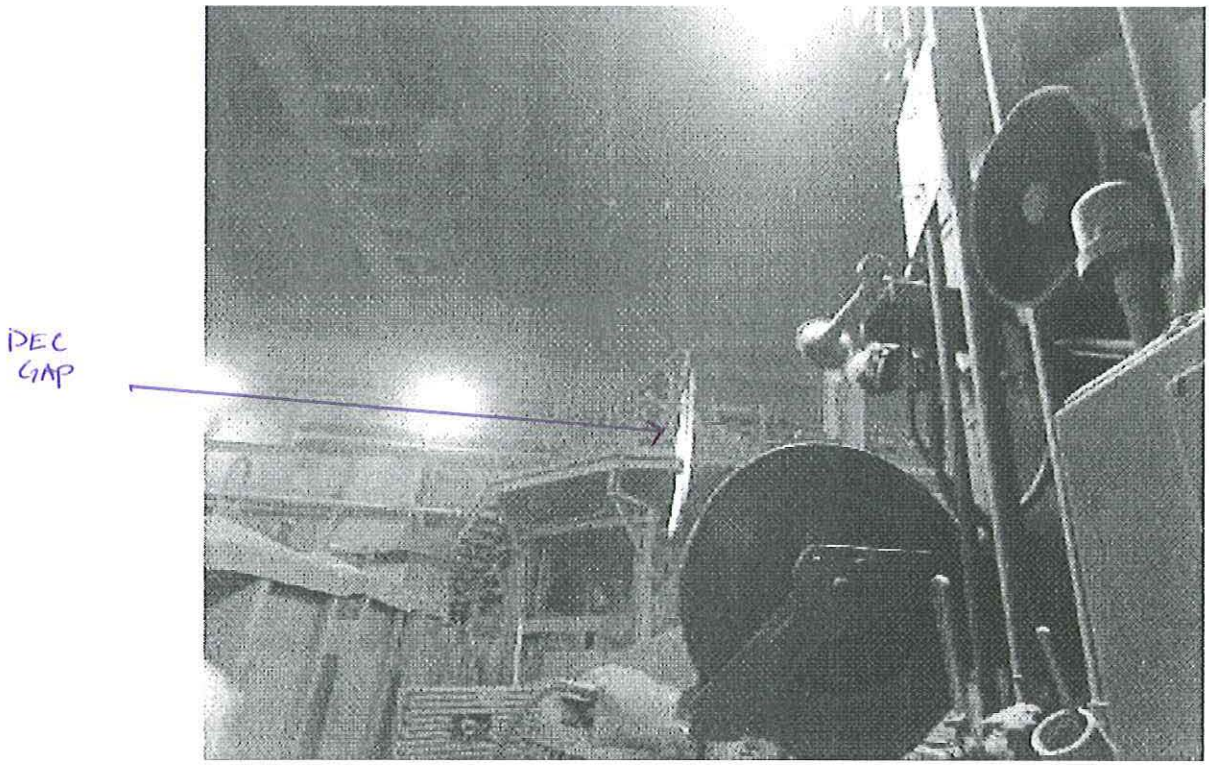

Image 6(DSC00081) : Photo of DEC duct capture of emissions from EAF

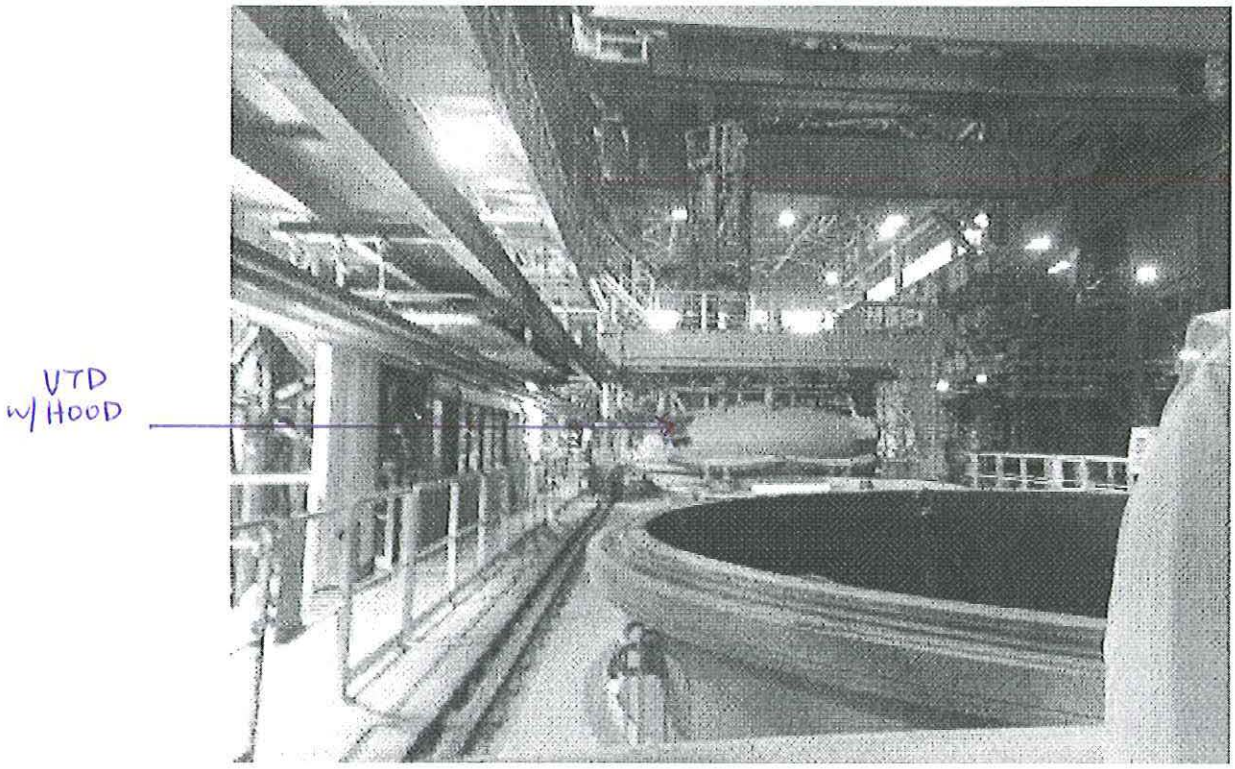

Image 7(DSC00082) : Photo of both VTD with hood in place on the one in use

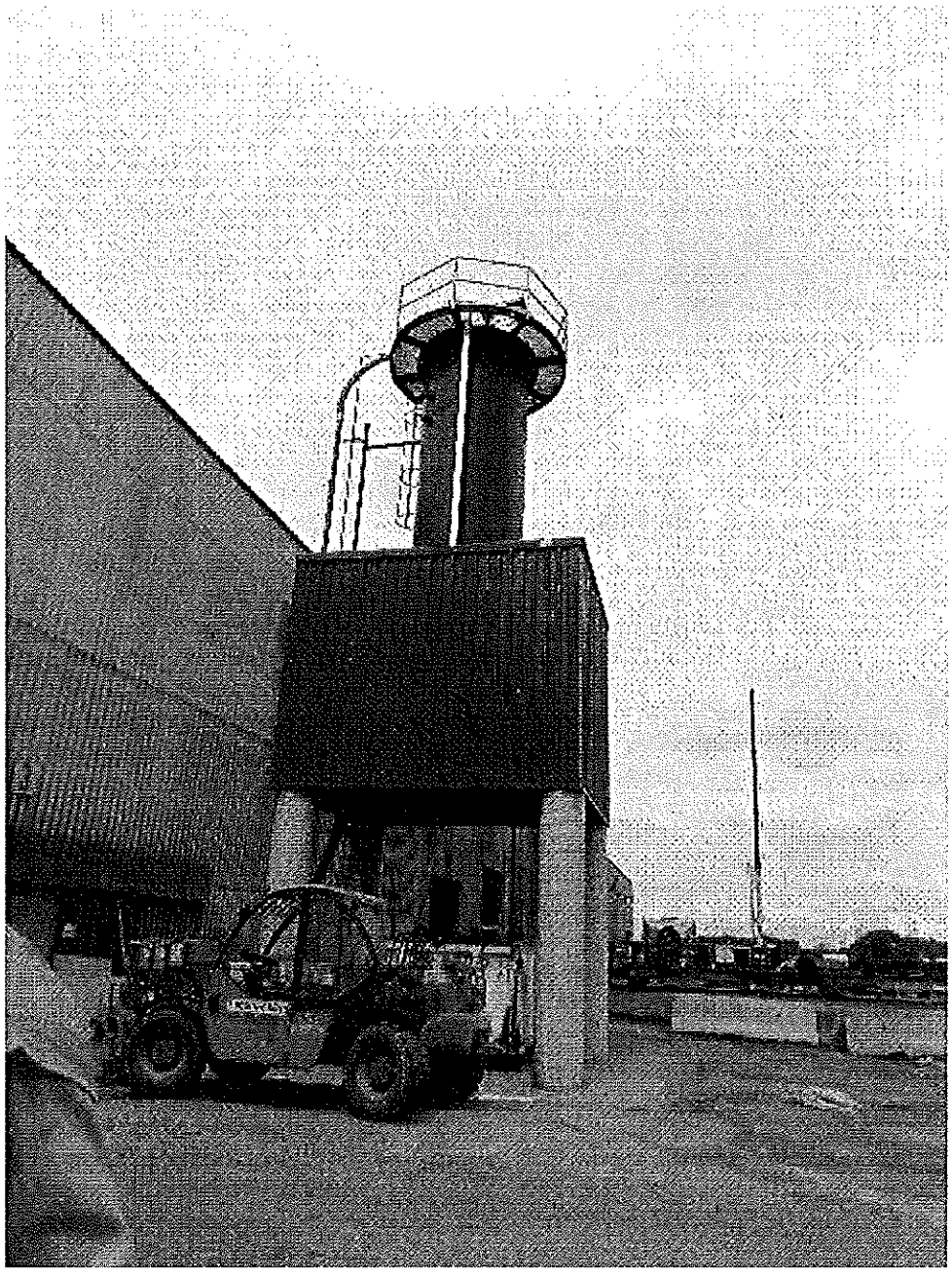

Image 8(DSC00091) : Photo of dust collection system for vacuum system serving the twin VTD's

Image 9(DSC00092) : Another view of the dust collection system for the vacuum pumps serving the VTD's

Image 10(DSC00086) : Photo of monitoring inside the Caster control room.

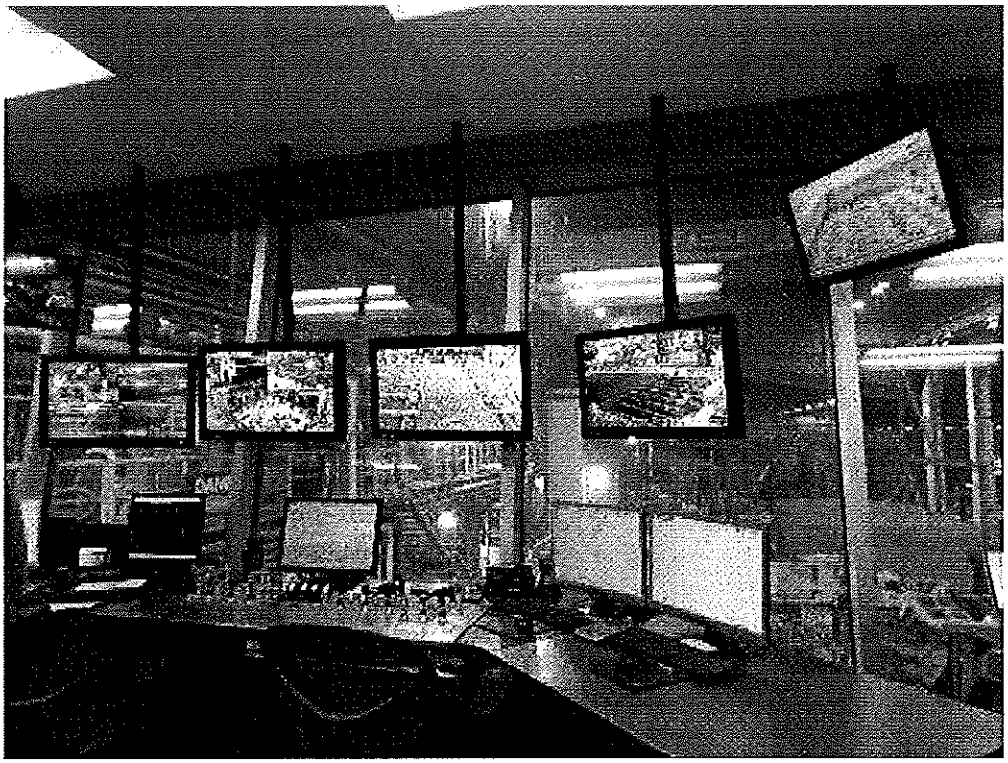

Image 11(DSC00087) : Another view of monitoring inside the Caster control room.

Image 12(DSC00088) : Photo of another view where the new billet reheat furnace will be located from inside the Caster control room

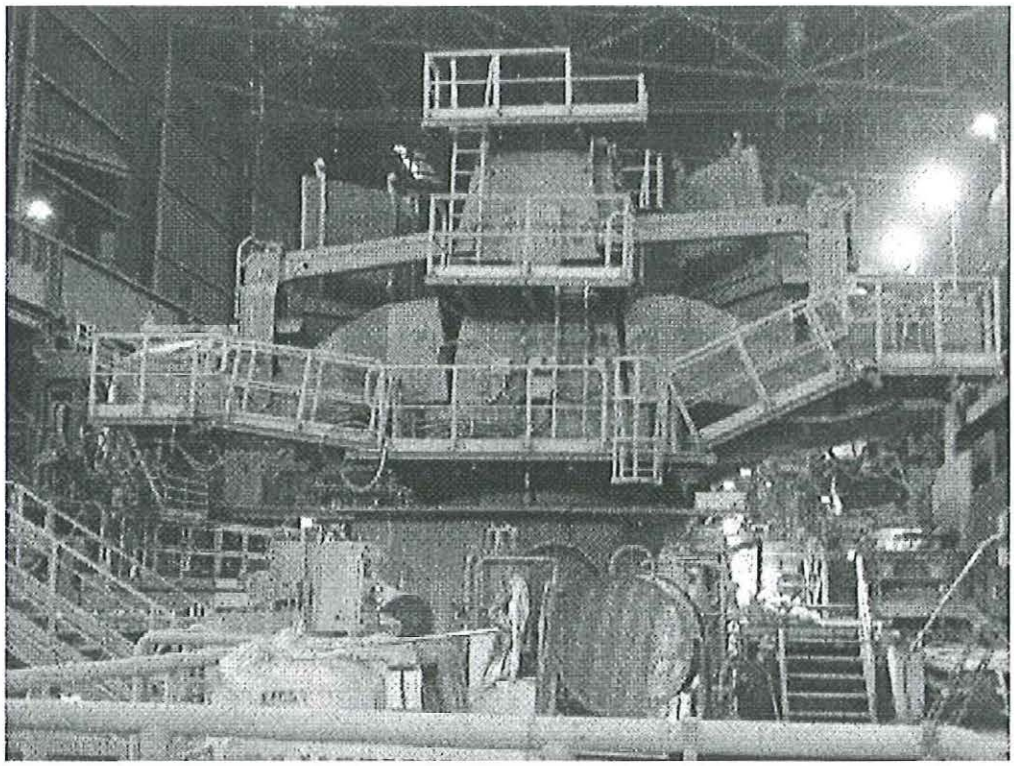

Image 13(DSC00089) : Photo of Caster with twin turrets which rotate to receive molten metal to be cast into billets

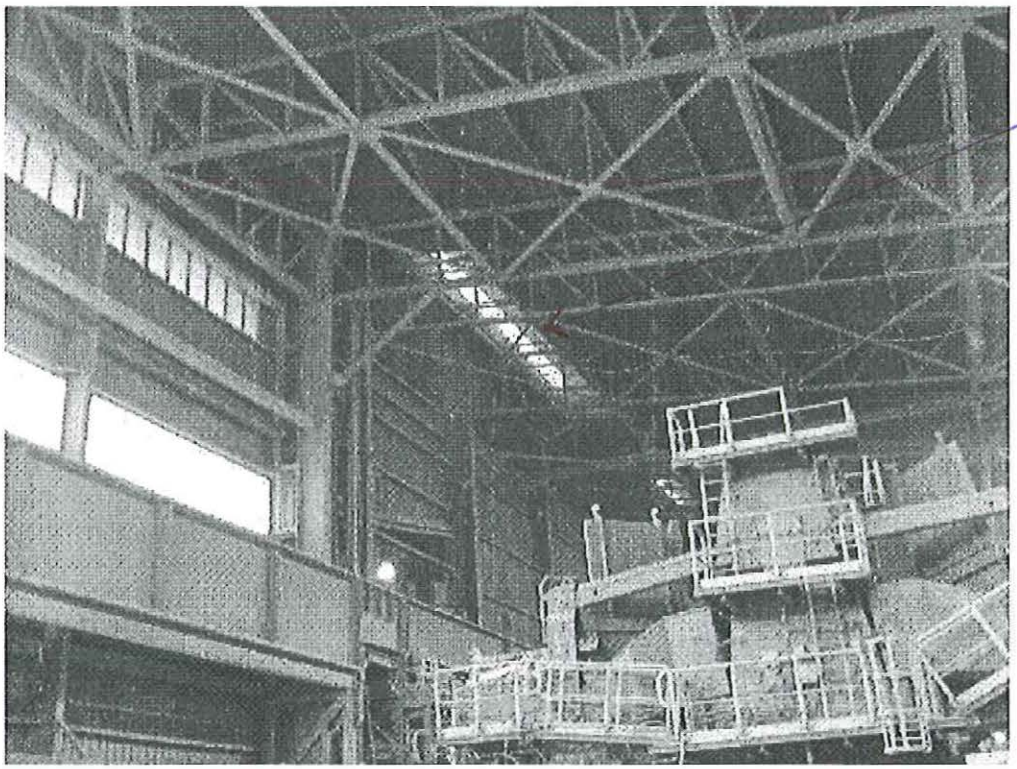

Image 14(DSC00090) : Photo of roof vent in top left area above the caster that will be closed off to reduce fugitive emissions

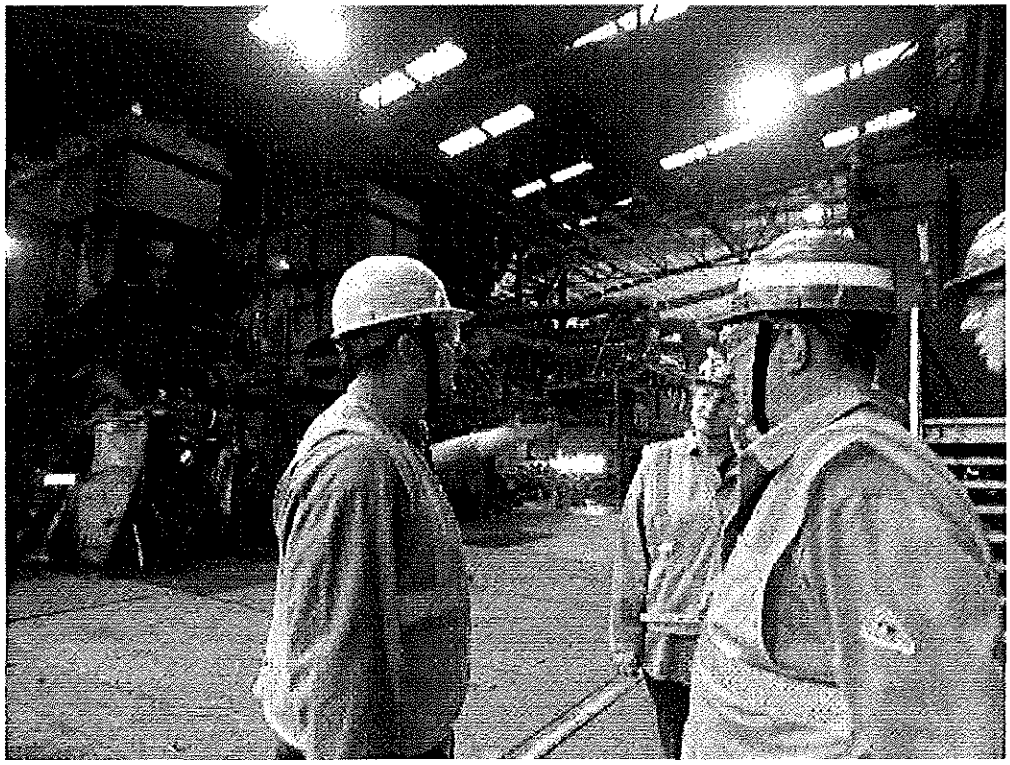

Image 15(DSC00093) : Photo of a reheated billet exiting the billet reheat furnace

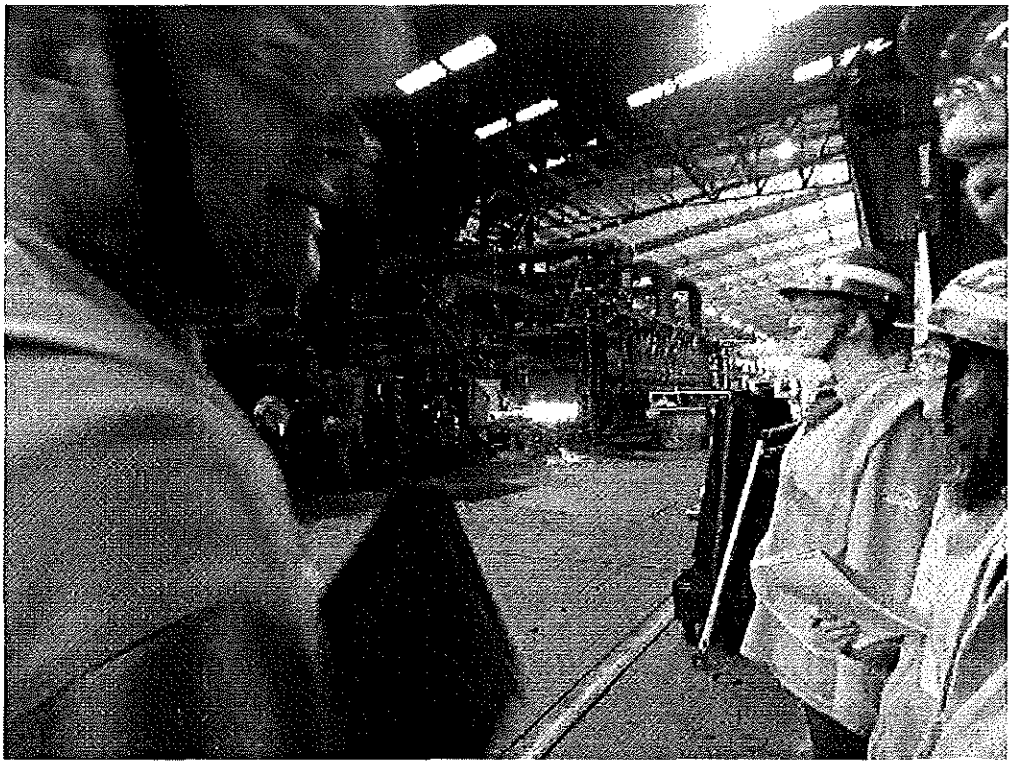

Image 16(DSC00094) : Photo of reheated billet moving from the reheat furnace on it's way to the rolling mill stands

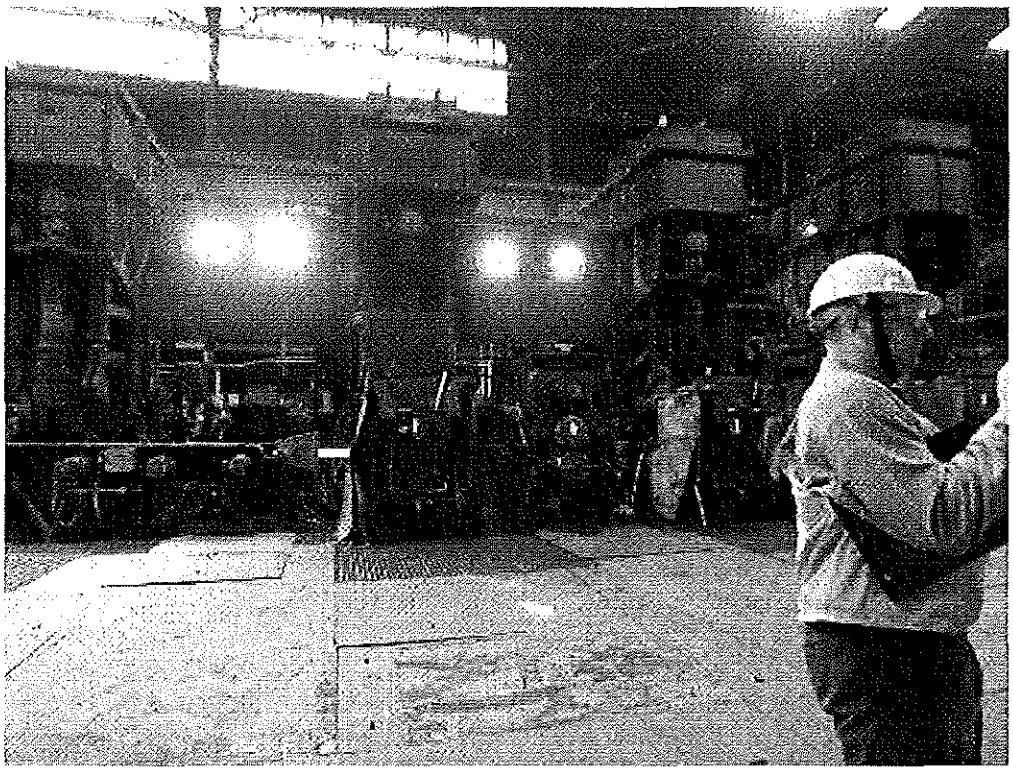

Image 17(DSC00095) : Photo of billet beginning to be reshaped after passing through one milling stand (Left side of photo red hot piece)

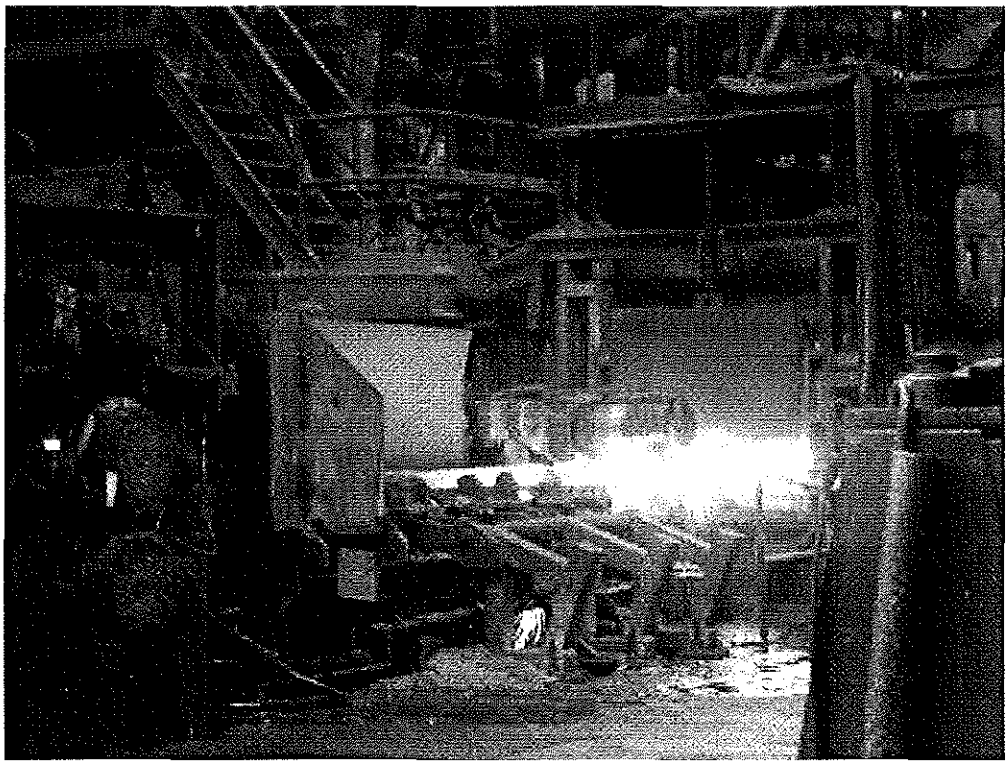

Image 18(DSC00096) : Photo of reheated billet beginning the milling process

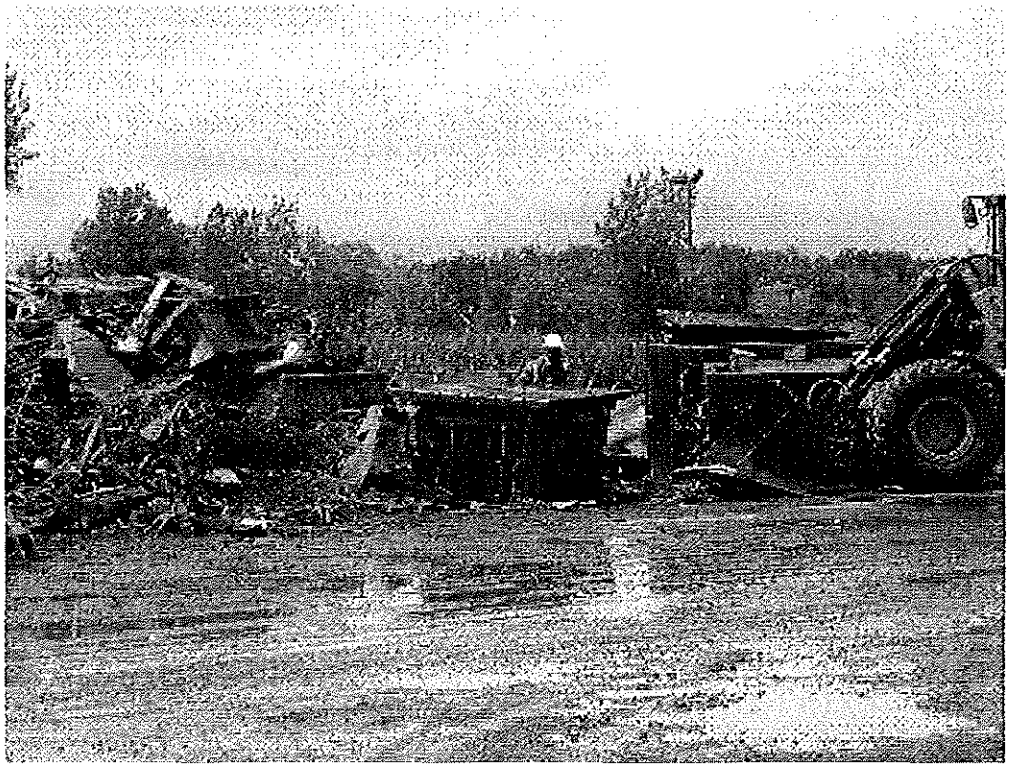

Image 19(DSC00098) : Photo of scrap yard torch cutter operator removing hoses from the piece that will be cut

up

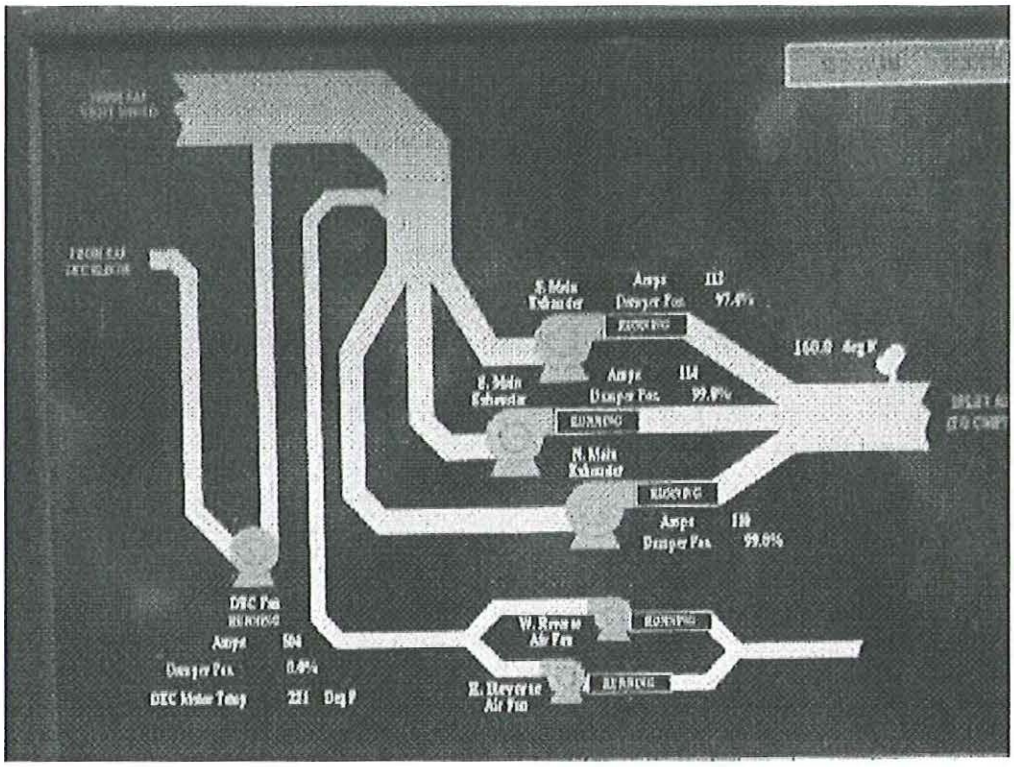

Image 20(DSC00066) : Photo of fan operating status in baghouse control room

NAME Susan M. White DATE 6-30-2014 SUPERVISOR