

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

P076638404

FACILITY: HyCAL	SRN / ID: P0766
LOCATION: 27800 W.Jefferson Avenue, GIBRALTAR	DISTRICT: Detroit
CITY: GIBRALTAR	COUNTY: WAYNE
CONTACT: Steve Swan , Plant Manager	ACTIVITY DATE: 01/13/2017
STAFF: Katherine Koster	SOURCE CLASS: Minor
SUBJECT: FY2017 Targeted Inspection	
RESOLVED COMPLAINTS:	

**REASON FOR INSPECTION:** Targeted Inspection

**INSPECTED BY:** Katie Koster, AQD

**PERSONNEL PRESENT:** Steve Swan, Plant Manager

**FACILITY PHONE NUMBER:** 734-561-2001

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#### **FACILITY BACKGROUND**

HyCAL Corporation is owned by parent company Ferragon Corporation. The prior company was Steel Rolling Holdings Inc. HyCAL acquired the assets from Steel Rolling Holdings in February 2015; although HyCAL was operating under the name of Ferrous CAL Co at that time. The company is not affiliated with the old McLouth Steel company and as such, it requested a separate address to differentiate itself from that company. The property is surrounded by McLouth Steel property, some of which is a Superfund site.

The B2111 SRN, associated with Steel Rolling Holdings, covers the equipment in PTI 91-09 which HyCAL purchased and is operating in the exact same location; aside from some equipment that was removed. However, the SRN is associated with the address of 28000 W Jefferson in Gibraltar. The equipment did not change physical location but since HyCAL requested a new address so as to not be affiliated with McLouth, the company and equipment is associated with a different address, 27800 W Jefferson. Field staff recommended that in this particular case, the SRN remain the same even though the address changed as the physical location of the equipment did not change. A similar situation occurred at AK Steel when it was formerly Severstal Dearborn and Severstal received a new address to be separate from Ford Dearborn Assembly but retained the same SRN. However, the AQD Emissions Reporting Unit decided to assign a new SRN, P0766, as it is a different address.

HyCAL operates a hydrogen cooled continuous annealing line that is one of the first of its kind. The advantages of hydrogen cooling are that it eliminates steam pockets and off flat errors that are common in water quench lines which increases yield, cleanliness, and flatness. Facility also operates batch annealing furnaces, an emergency generator, and a temper mill.

As of May 2017, the facility is operating Monday through Friday, 1 shift per day, for the continuous annealing furnace. The batch anneal runs 4 days per week around the clock. There are 13 employees.

#### **PERMIT BACKGROUND/SOURCE STATUS**

A construction waiver request was received on August 31, 2016 for HyCAL in order to begin installation of a continuous annealing line (CAL). The waiver states that the continuous annealing line will be exempt per Rule 282(b)(i) . Exempt equipment does not need a construction waiver. However, attached to the waiver was a PTI application although the application states that its purpose is to remove equipment that is no longer on site and apply an exemption to the remaining equipment which would make the need for a permit moot. The existing permit number is PTI 91-09. The letter states that the EUTANDEMMILL and EUBOILER that were in the existing permit have been removed and that the remaining existing emission units, EUANNEAL1-17 meet the PTI exemption under Rule 282(b)(i)

The application was logged into the PTI system. I reviewed the information provided in the waiver and the permit application, and the PTE for the existing batch annealing furnaces (EUANNEAL1-17) is above NOX significance threshold of 40 tons. Therefore, it does not appear that the permit can be voided because the facility is precluded from using the exemptions based on Rule 278. At this time, it appears that the batch anneal furnaces should be treated as one project so the PTE of all furnaces is aggregated.

AQD permit staff, Mr. Dave Riddle, agreed. On 9/22/2016, I called Mr. Steve Swan, HyCAL Plant Manager. I informed him that if the CAL equipment is exempt, a waiver is not necessary and therefore, they are not going to receive a waiver letter from DEQ. I also explained that AQD does not "approve" exemptions and the onus is on the facility to determine their compliance status with the exemption and so the company would not be receiving a written letter about the exemption either. I reviewed the information that was sent and did not see any glaring omissions. I also explained that AQD believes that the current permit should not be voided; instead it should be modified to remove equipment that is no longer on site and that the batch anneal furnaces have to remain in the permit even though there are no permit conditions per se because due to Rule 278 they cannot operate under an exemption. He responded with "ok".

PTI 91-09A was issued in January 17, 2017 for the following equipment:

- EUEMGEN 1.76 MMBtu/hr natural gas fired emergency generator (150 KVA power supply) (est. 200 HP)
- EUANNEALING1-17Ebner Furnaces - Seventeen Annealing Oven Heating Bells and Thirty Three Annealing Oven Bases. 3.6 MM Btu/hour/Heating Bell. Natural Gas Fired, \* The installation date represents the restart of nine existing heating bells that were previously installed and subsequently shut down. It also represents the installation of eight new heating bells
- EUCAL Continuous anneal line. Heat treating of steel coils. Coils are attached head-to-tail using electrical resistance welding. Aqueous cleaning followed by annealing in a roller hearth furnace (Design heat input: 20.6 MMBtu/hr; fuel: natural gas)
- EUSKINPASS Electric temper mill (skin pass) for steel coils; no rolling solution is applied. Rust preventative coating electrostatically applied
- EUAIR Four furnace air rotation units, each 2.14 MMBtu/hr natural gas

Facility appears to be a true minor source at this time. The NOx PTE is calculated in the permit application (Table 5) and was reviewed by AQD staff. The PTE is 76.38 tpy of NOx at maximum capacity (8760 hours) and with no operational or production restrictions. The NOx facility wide limit in the permit of 76.4 was included as a "safeguard" in case additional NOx generating equipment is installed in the future that would make the PTE greater than 100 tons.

PTE:

Batch anneal: 43.96 tpy

CAL: 28.7 tpy

Emergency Generator (at 500 hours): 0.04 tpy

Air rotation heaters: 3.68 tpy

Total NOx: 76.38

The PTE demonstration from permit application is attached.

#### COMPLAINT/COMPLIANCE HISTORY

Based on a check of the MACES database, no complaints have been received against the facility. No inspections have been performed since HyCAL began operations in 2015.

#### OUTSTANDING CONSENT ORDERS

None

#### OUTSTANDING LOVs

None

#### INSPECTION NARRATIVE

I arrived at the facility on 1/13/17 and met with Mr. Steve Swan, Plant Manager. The facility is in the process of modifying the existing permit (PTI 91-09). We discussed the following equipment:

- Tandem Mill is non-operational; to be scrapped by 2017
- Boiler is in storage
- Batch anneal furnaces are in use; this is a slow cooled process
- Continuous Annealing Line (CAL) is being installed. It is a fast cooled process and is the first line in the world to use hydrogen for cooling/quenching as opposed to water
- Building has new siding, a new roof, and all of the lots have been paved
- Natural gas fired back up emergency generator has been installed

According to Mr. Swan, the facility currently uses around 2000 MCF of natural gas per month but the CAL is not operating yet. AQD will return 2nd quarter of 2017 to see if CAL is up and running and evaluate compliance with PTI.

AQD inspector, Katie Koster, returned to HyCAL on 5/23/17 and met with Mr. Steve Swan. PTI 91-09A was issued on 1/17/17. The CAL has been up and running but it is still in "startup" mode. We viewed the continuous annealing line. It was not operating at the time due to some equipment issues. The start of the line includes two pay off reels, the resistance welder, tension leveler, accumulator, and wash line containing a surfactant to remove residual rolling oil from the coils. Next, the strip enters the furnace. At the entrance to the furnace, there is a continuous N<sub>2</sub> purge to prevent O<sub>2</sub> from entering and H<sub>2</sub> from exiting the furnace. Ceramic radiant tubes indirectly heat the steel to 1790 degree F. Next, Zone 1 and Zone 2 are slow cooling zones and then the strip enters the hydrogen cooling area where H<sub>2</sub> is circulated at 500 mph. There are water heat exchanges to cool the H<sub>2</sub> as it is being recirculated. Hydrogen cooling is new technology and it gives steel a better finish, prevents the wavy "potato chip" look, and produces a higher strength steel. After it comes out of the furnace, the strip is sprayed with a rust preventative oil and recoiled.

The emergency generator is run once a week for 20 minutes. The hour clock reads 9.5 hours. The generator is needed so that the steel does not sit on the brush rolls for an extended amount of time in the event of a power outage. The generator is a Generac model SG150 rated at 150 kW.

The batch anneal area has 17 furnace bases right now. Three steel coils can be stacked on a base. A plate is placed in between each coil. An inner cover is placed over the coils and oxygen is purged using nitrogen and hydrogen. Hydrogen is used because it "cleans" the steel better. Coils stay in the batch anneal furnace anywhere from 16-40 hours. Afterwards, the steel is air cooled to 700 degrees and then a

cooling cover is applied that uses water cooling. According to Mr. Swan, HyCAL is working with a customer to increase the number of furnaces. There are foundations in place for 6 more bases. The temper mill is used after batch annealing to correct shape errors. A rust preventative oil is applied here too and is the same as the oil used at the CAL.

The skinpass process applies rust preventative coating, Ferrocote EGL-1. Coating is sprayed only on one side and the rolling action serves to coat both sides. HyCAL only processes cold rolled steel for now. Facility has only purchased on 275 gallon tote of Ferrocote since start up.

Four air rotation units were installed for heating; however, HyCAL did not need to heat the building during the winter due to heat from the furnace. Even though it has not been heated, air is continuously recirculated.

#### APPLICABLE RULES/PERMIT CONDITIONS – PTI 91-09A

##### EUEMGEN

**DESCRIPTION:** 1.76 MMBtu/hr natural gas fired emergency generator (150 KVA power supply) (est. 200 HP). Emergency Engines subject to 40 CFR 63 Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE). New/Reconstructed emergency engines ≤ 500 HP constructed on or after June 12, 2006

**IN COMPLIANCE.** At this time, the hour meter reads 9.5 hours. The generator has only been started up for readiness checks and it has been fired on natural gas. It has not even been installed for a year. Additionally, the nameplate capacity is 150 kW. Staff is recording the hour meter every time the unit is run. AQD received the appropriate notifications. A letter was hand delivered on January 13, 2017 stating that the engine was going to be operated in a certified manner. Monthly maintenance is scheduled. Attached are the three most recent maintenance records. Facility appears to be following the manufacturer maintenance plan which was presented to me during the inspection. The engine should be able to meet the emission limits if it is operated in a certified manner. As such, the engine appears to be operating in compliance with applicable regulations.

##### FGANNEALING

**DESCRIPTION:** Seventeen natural gas fired batch annealing oven heating bells and continuous annealing line.

Emission Units: EUANNEALING1-17, EUCAL

##### II. MATERIAL LIMITS

1. **IN COMPLIANCE.** The furnace is run on natural gas. the permittee shall burn only natural gas in FGANNEALING.

No other conditions exist in this FG table

##### FGFACILITY

###### I. EMISSION LIMITS

1. **IN COMPLIANCE.** NOx is limited to 76.4 tpy on a 12 month rolling time period as determined at the end of each calendar month. Based on records provided, from January 2016 – April 2017, the highest 12 month rolling NOx emissions were 1.72 tons in April 2017. NOx emissions are based on fuel usage and emission factors as required by the PTI. See attached.

##### III. PROCESS/OPERATIONAL RESTRICTIONS

1. **IN COMPLIANCE.** No fugitive dust issues were noted during the inspection. Roads were paved; speed limit signs were posted. The permittee shall not operate FGFACILITY unless the program for continuous fugitive emissions control for all plant roadways and all material handling operations

specified in Appendix A has been implemented and is maintained.

#### VI. MONITORING/RECORDKEEPING

1. IN COMPLIANCE. Calculations were provided during the inspection and are attached. The permittee shall monitor and record, in a satisfactory manner, the combined natural gas usage rates and calculate the associated NO<sub>x</sub> emissions in tons for EUEMGEN, EUAIR, FGANNEALING, and any other equipment that generates NO<sub>x</sub> emissions, on a monthly and 12-month rolling time period basis.

No other conditions exist in this FG table

#### Appendix A FUGITIVE DUST PLAN

IN COMPLIANCE – Roadways are paved, speed limits posted. No records exist because no dust control has yet to have been applied. No dust issues were noted during the inspection.

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#### NSPS/MACTS

RICE MACT and NSPS JJJJ apply to the emergency engine. Conditions are in the permit and were already discussed above.

#### APPLICABLE FUGITIVE DUST CONTROL PLAN CONDITIONS

The fugitive dust plan was already evaluated above as part of permit. At this time, no fugitive dust issues have been noted.

#### MAERS REPORT REVIEW

Facility is not subject to MAERS because at this point it is a true minor source. Also, AQD is not requiring MAERS reporting and/or Cat III or Cat II fees for sources that are only subject to those categories due to NSPS JJJJ or RICE MACT subject equipment.

#### FINAL COMPLIANCE DETERMINATION

At this time, the facility appears to be in compliance with the air quality regulations evaluated in this report.

NAME Kate Kolt

DATE 6/27/17

SUPERVISOR W.M.