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

A285149842

FACILITY: Anderson Development Company		**SRN / ID:** A2851
LOCATION: 1415 East Michigan Street, ADRIAN		**DISTRICT:** Jackson
CITY: ADRIAN		**COUNTY:** LENAWEE
CONTACT: Nicole Collett , Environmental Manager		**ACTIVITY DATE:** 08/08/2019
STAFF: Stephanie Weems	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** SM OPT OUT
SUBJECT: Scheduled inspection		
RESOLVED COMPLAINTS:		

Synthetic Minor / Opt-Out Source. Full Compliance Evaluation (FCE) and Inspection (PCE) of Anderson Development Company (A2851).

Facility Contact

Chris Goeloe, Vice President of Quality and Responsible Care, 517-438-5324 (office), Chris.Goeloe@anddev.com.

Nicole Collett, Environmental Manager, 517-438-5325 (office), nicole.collett@anddev.com

Purpose

On August 8, 2018, I conducted an unannounced, scheduled inspection of the Anderson Development Company (ADC) facility located in Adrian, Michigan (Lenawee County) at 1415 East Michigan Street. The purpose of the inspection was to determine the facility's compliance status with applicable federal and state air pollution regulations, particularly Michigan Act 451, Part 55, Air Pollution Control Act and administrative rules, and conditions of Permit to Install (PTI) number 131-04E.

Facility Location

The facility is located within the city limits of Adrian. It is immediately surrounded by commercial / industrial sources, while pockets of residential areas are located about 1000 feet to the east and west.

Facility Background

Anderson Development Company, a subsidiary of Mitsui Chemicals, Inc, is a chemical manufacturing company. ADC is a member of the American Chemistry Council and operates under the Responsible Care Company Program. ADC's current product lines consist of a diverse line of differentiated specialty chemicals developed organically, transplanted from Mitsui Chemicals Research in Japan or developed by and custom manufactured for leading Fortune 100 chemical companies.

The current permit, PTI 131-04E was issued April 13, 2016. This permit was issued in response to issues found with stack ID SV00318. It appears that there was a discrepancy regarding the stack height reported in the previous permit and the actual height.

ADC's main products include: (1) high performance, volatile organic compounds (VOC) - free acrylic resins used by the automotive industry and others; (2) polyurethane chemicals intended to supply the CASE (Coatings, Adhesives, Sealants, and Elasticants) market; (3) boron compounds

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for use in the electronics and pharma industrial sectors and as catalysts; (4) custom chemical development/custom toll manufacturing, which includes lab bench-scale development, pilot testing, and full scale production.

Chemical production is done in either of one of the two chemical plants onsite. The permit distinguishes plant 1 and plant 2 as "PLT1" and "PLT2," respectively. PLT1 consists of 1 line, while PLT2 consists of 4 lines. In addition, the emission units (EU) listed in the permit are organized by manufactured product or manufacturing activity. EUPLT1 covers activities/products associated with polyurethane polymers and curatives. EUPLT2LINE1 covers activities/products associated with acrylic polymers. EUPLT2LINE2 covers activities/products associated with catalysts. EUPLT2LINE3 covers miscellaneous activities/products. EUPLT2LINE4 covers activities/products associated with thermoplastic resins.

Permit special condition (SC) III.1 requires that the facility not operate any EU processes unless an operation and maintenance (O&M)/malfunction abatement plan (MAP) for each EU and associated control devices, has been submitted to the division, and is implemented and maintained. The O&M/MAP allows for flexibility in product development, as it is what specifies various operational parameters for the respective process and associated air pollution control devises in order to maintain compliance with applicable emission limits. As new products are manufactured, ADC updates its O&M/MAP to maintain compliance with its permit.

ADC's 2018 Michigan Air Emissions Reporting System (MAERS) reported 2.14 tons of VOC, which is well below their permit limit of 50 tons per year (tpy).

Emission Unit / Flexible Group Details

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EUPLT1	**Manufacturing and associated unit operations for polyurethane polymers and curatives. The processes consist of reactors, vacuum pumps, a still and storage tank. The process equipment will be controlled by evaporators, a condenser, carbon adsorption units and scrubbers. Previously known as EU00009, EU00012, EU00016 and EUANDURSTRIP.**	

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EUPLT2LINE1	Manufacturing and associated unit operations for acrylic polymers. The process consists of reactors, storage tanks, process tanks and associated vacuum pumps. The processes are controlled by a condenser, caustic scrubber and activated carbon adsorption. Previously known as EU00003.	
EUPLT2LINE2	Manufacturing and associated unit operations for catalysts. The process consists of reactors, process tanks, waste tanks and vacuum pumps. The processes are controlled by a condenser, caustic scrubber and activated carbon unit. Previously known as EU00004.	
EUPLT2LINE3	Miscellaneous manufacturing and associated unit operations. The processes consist of reactors, a vacuum pump and other equipment. The processes are controlled by a condenser, caustic scrubber and activated carbon units. Previously known as EU00007 and EU00015.	
EUPLT2LINE4	Manufacturing and associated unit operations for thermoplastic resins. The process consists of storage tanks, distillation feed storage, reactors, filters, dryers and vacuum pumps. The processes are controlled by two condensers that each uses a different type of coolant. Previously known as EU00014.	

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGFACILITY	All process equipment source-wide including equipment covered by other permits, grand-fathered equipment and exempt equipment.	

Regulatory Applicability

The facility is a Synthetic Minor/Opt-Out Source for VOC and for hazardous air pollutants (HAPs) emissions. ADC accepted VOC and HAP emission limits in order to remain below major source emission thresholds.

The facility is regulated by PTI 131-04E and reports its emissions to MAERS.

Arrival & Facility Contact

No visible emissions or odors were observed upon my approach to the facility. I arrived at approximately 9:31 am, proceeded to the facility office, and, since there was no receptionist, phoned Nicole Collett, Environmental Manager, to request access for an inspection. We were joined by Chris Goeloe, Vice President, Quality and Responsible Care, who gave me a safety briefing about the facility. A pre-inspection conference was held with Chris and Nicole where I informed them of my intent to conduct a facility inspection and to review the various records required by their permit. Chris and Nicole extended their full cooperation during the inspection, accompanied me during the full duration of the inspection, and fully addressed my onsite questions and concerns.

Pre-Inspection Meeting

The pre-inspection began with a background presentation on ADC given by Chris, and included ADC's history, operational characteristics, and product lines. The facility has seen a slight increase in business this past year. ADC employs approximately 120 people across three plants. Plant 1 runs 2 12-hour shifts 7 days a week, Plant 2 runs 7 days a week, 8- and 12-hour shifts, and the pilot plant runs Monday – Friday 8- or 12- hour shifts depending on production needs.

To begin the meeting, I provided Chris and Nicole with a copy of the last inspection report, a copy of their PTI, and a list of requested records that I would like to review. This list can be found under the Recordkeeping Request section of this report.

I asked whether ADC experienced any recent issues or changes facility wide and Chris replied that no issues or changes were noted. Nicole did explain that at some point in the future ADC plans to update their permit by including one of their exempt processes that they currently operate under Rule 290. Chris and Nicole explained that, even though the emissions are very low for this process, including it in the permit would make it easier for the company in terms of recordkeeping and compliance.

I then inquired as to whether they had received the notification sent out by EGLE's Environmental Support Division about the possibility of their facility being subject to 40 CFR Part 63 Subpart VVVVV – National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources. Nicole said that they had received the information, and they determined that they are not subject to this regulation because they do not use as feedstock, produce, or generate the HAPs identified in 6V at concentrations greater than 0.1% for carcinogens of 1% for non-carcinogens.

We then reviewed the permit conditions of PTI 131-04E.

SC III.1 includes various conditions and requirements for the facility's O&M / MAP. The most recent MAP was submitted and reviewed by the AQD in March of 2017. Nicole confirmed that no additional changes have been made to it since the last submission.

SC III.2 includes requirements to keep in-place a Leak Detection and Repair (LDAR) monitoring program for all pipe fittings, flanges and pump seals in FGFACILITY. The last LDAR was conducted in July of 2019 using in-house employees with calibrated meters. No leaks or issues were identified. I requested a summary of the LDAR results to be submitted with the other requested information.

SC IV.1 requires all operating EUs to have associated control devices installed, maintained, and operated in a satisfactory manner. Air pollution control (APC) equipment is required to control generated emissions and is dictated by what chemical product is manufactured. The MAP document dictates what APC equipment is required for each EU. In addition, internal batch documents dictate requirements. Chris and Nicole informed me that the facility employs a batch document system, which is specific to each chemical product manufactured on site. The product's batch document is also used to summarize the chemical / reagent recipe, it specifies operational and monitoring requirements / parameters, and dictates which APC equipment is required to control emissions (e.g. evaporators, condensers, carbon adsorption / activated carbon units, or scrubbers). Nicole confirmed that they continue to conduct weekly checks for carbon-based control equipment.

SC IV.2 requires the facility to equip and maintain each process in the EU listed above that has a control device with a device to monitor the parameters specified in the O&M/MAP, required by SC III.1. The monitoring equipment is calibrated in-house. The main types of meters used by the facility to monitor parameters according to their MAP include temperature indicators and pH meters. The calibration frequency varies by process, and it is indicated in the facility's MAP. During the inspection, facility staff pointed-out the various meters used for monitoring but were generally not safely accessible to me.

Chris and Nicole then confirmed several processes that are exempt from operating under a PTI. One mineral spirit based cold cleaner is operated onsite and is exempt from obtaining a PTI under Rule 281. In addition, ADC operates two processes under a Rule 290 PTI exemption, the Polyurethane Dispersion (PUD) process and the Pilot Plant.

Onsite Inspection

Hard hat, steel-toed boots, safety glasses, and long-sleeves are required to enter the plant. Additionally, they request no rings to be worn.

We began by going through the Pilot Plant. This is a small portion of the building designated for small batches. The Pilot Plant is operated under Rule 290. I observed excellent housekeeping with all materials in closed containers and no leaks or odors observed.

Next, we proceeded to Plant 2. The plant manager for Plant 2 accompanied throughout our tour of this section.

We first observed the control room. The facility utilizes a distributed control system. The plant manager showed explained the different screens and how they showed the processes and air pollution control system for each line.

We then proceeded to observe operations at ADC's plant 2. EUPLT2LINE1, formally EU00003, which produces acrylic powder, has emissions that are controlled by a condenser, by a caustic scrubber and by monitoring the temperature at the vapor outlet using a probe. VOCs are controlled by carbon drums, as specified by the MAP. This process is also equipped with a baghouse to control particulates.

EUPLT2LINE4 / Admer (thermoplastic resins) product line, formally EU00014 has emissions that are controlled by condensers and by monitoring the temperature at the vapor outlet using probes. VOCs are controlled by carbon drums, as specified by the MAP.

We then observed the Borates product line, which is a part of EUPLT2LINE3 (used to produce acrylic resins), formally EU00007. Emissions are controlled by a condenser and by monitoring the temperature at the vapor outlet using a probe, and VOCs are controlled by carbon drums, as specified by the MAP. An additional catch drum is included prior to final stack discharge.

EUPLT2LINE2, formally EU00004, which produces various catalysts, was observed. Emissions are controlled by a condenser, by a caustic scrubber, and by monitoring the temperature at the vapor outlet using probes. VOCs are controlled by carbon drums, as specified by the MAP. An additional catch drum is included prior to final stack discharge.

Also, the former EU00015, which is now a part of EUPLT2LINE3, is used to recycle xylene, and its emissions are controlled by venting through a condenser and the same caustic scrubber used by EU00004 above, and then VOCs are controlled by carbon drums, as specified by the MAP.

The PUD process is also housed in Plant 2. This process is currently operated under a Rule 290 permit exemption because it has very low emissions.

For plant 2, I observed excellent housekeeping practices and no leaks or odors were observed during the inspection.

We then went to Plant 1. A large amount of Plant 1 is used for storage.

We observed the LFTDI Polyurethane process (formally EUANDURSTRIP). Emissions from this process are controlled via chilled glycol / condenser (operational performance monitored via a temperature probe) and carbon drums, as indicated by the MAP. The isocyanides may be removed from this process's product line using a wiped film evaporator (WFE), per customer needs.

Then we observed the P20 product line (formally EU00009) consisting of reactors (R) 350 and 351. Emissions are controlled by a condenser on R-351 and by monitoring the temperature at the vapor outlet using probes, and VOCs are controlled by carbon drums, as specified by the MAP.

We then observed the Andur Still process line, consisting of R-302. Emissions are controlled by a condenser and by monitoring the temperature at the vapor outlet using a probe, and VOCs are controlled by carbon drums, as specified by the MAP.

Next the Andur process line (formally EU00012) was observed, consisting of R-300 and R-301. Emissions are controlled by condensers and by monitoring the temperature at the vapor outlet using probes, and VOCs are controlled by carbon drums, as specified by the MAP. The curatives and the Andur products are used to manufacture the final urethane product.

R-330 and R-331 (formally EU00016) were observed. Emissions are controlled only with carbon drums.

The Siegwerk process line, which produces urethane containing higher levels of solvent, was observed, consisting of R-525 and R-526. Emissions are controlled by condensers and by monitoring the temperature at the vapor outlet using probes, and VOCs are controlled by carbon drums, as specified by the MAP.

The Wax product line was also observed. This was previously operated under a Rule 290 exemption but has since been incorporated into their Plant 1 process.

We then observed the cold cleaner that they have on site. It is a very small cold cleaner, and I observed that the lid was closed as required when not in use.

For plant 1 (EUPLT1), I observed excellent housekeeping practices, with only closed containers and no leaks or odors observed during the inspection.

Post-Inspection Meeting

We proceeded back to a conference room and held a brief post-inspection meeting. Nicole proceeded to show me the facility's recordkeeping logs for batch reports and carbon system exhaust checks/change out.

As indicated above, the facility employs a batch record for each product batch manufactured. Operators complete each batch form and it includes the recipe for the respective product (a confidential business item (CBI)), directions on how to make it, records of the amounts of each reagent added to the process, records of the final product yield, a summary of what they did, etc. Each batch record is a custom report, tailored to the products produced and contains specific instructions regarding what required air pollution control equipment, per the MAP, is required, and includes operational parameters. Their electronic batch record system is also tied into their accounting system in order to track their usage / expenses. The operational and monitoring parameters captured by each batch record are a method used by ADC to verify and demonstrate quality assurance to their customers.

SC VI.4 requires the facility to maintain the number of batches, as well as the weight and composition of each batch produced in each reactor. I viewed the electronic batch system during my inspection, and the facility appears to be in compliance with this condition.

Nicole also showed me the spreadsheet they use to track their carbon system. The spreadsheet includes dates of change out, as well as the calculations of contaminant removal efficiency for each carbon unit. She explained how inlet and outlet measurements are taken in the plant and calculations are done to determine contaminant removal efficiency. As specified in the MAP, when removal efficiency is less than 90% the carbon unit must be changed.

I informed Chris and Nicole that I did not have any immediate concerns at that time. Throughout the entire inspection, Chris and Nicole and the staff of ADC extended their full cooperation. I thanked Chris and Nicole for their time and departed the facility at approximately 11:46 am.

Recordkeeping Request

The following records were requested from ADC:

RECORD REQUEST

ALL RECORDS ARE REQUESTED FROM JULY 2018 TO PRESENT

1. Monthly and 12-month rolling VOC emission calculations for FGFACILITY (SC VI.2)
2. Individual and aggregate HAP emission calculations determining the annual emission rate of each HAP in tons per 12-month rolling time period. (SC VI.3)
3. Records showing the number of batches in each reactor at the facility. (SC VI.4a)
4. Records showing the weight and composition of each batch produced in each reactor. (SC VI.4b)
5. All records showing compliance with FGFACILITY Monitoring/Recordkeeping special condition 5 (SC VI.5)
6. Most recent summary of LDAR monitoring results. (SC III.2)
7. All recordkeeping items showing compliance for units operating under Rule 290 exemption.
8. Records for the carbon system exhaust check monitoring log and carbon change out records.

Recordkeeping Review

The cold cleaner is exempt from permitting under Rule 281(2)(h).

Nicole graciously showed me the batch and carbon systems records during the inspection. Both of these records show compliance.

Leak Detection and Repair (LDAR) records were supplied by Nicole. They are attached with this report in the facility file.

The diesel fire pump was installed at the facility March 9, 1994. It is, therefore, not subject to any New Source Performance Standards. There is a non-resettable hour meter located on the unit.

The HU-801 Johnson boiler was installed in 1975, and the HU-802 Cleaver Brooks boiler was installed in 2011. Both boilers use only natural gas, making them exempt from 40 CFR Part 63 Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. These boilers are also exempt from permitting under Rule 282(2)(b)(i) because they are well below the 50,000,000 Btu per hour limit.

Finally, ADC supplied a spreadsheet with their 12-month rolling emissions for VOC, individual HAPs, and total HAPs. A printout of this spreadsheet can be found with this report in the facility file. As of July 2019, the facility reports 1.7 tpy of VOC and 1.7 tpy total HAP emissions. This is well below their limit of 50 tpy for VOC and 20 typ of total HAPs. Additionally, the individual HAP emissions are all below the 8 tpy limit.

Compliance Summary

Based upon the visual observations and the review of the records, ADC appears to be in compliance with the requirements of their permit.

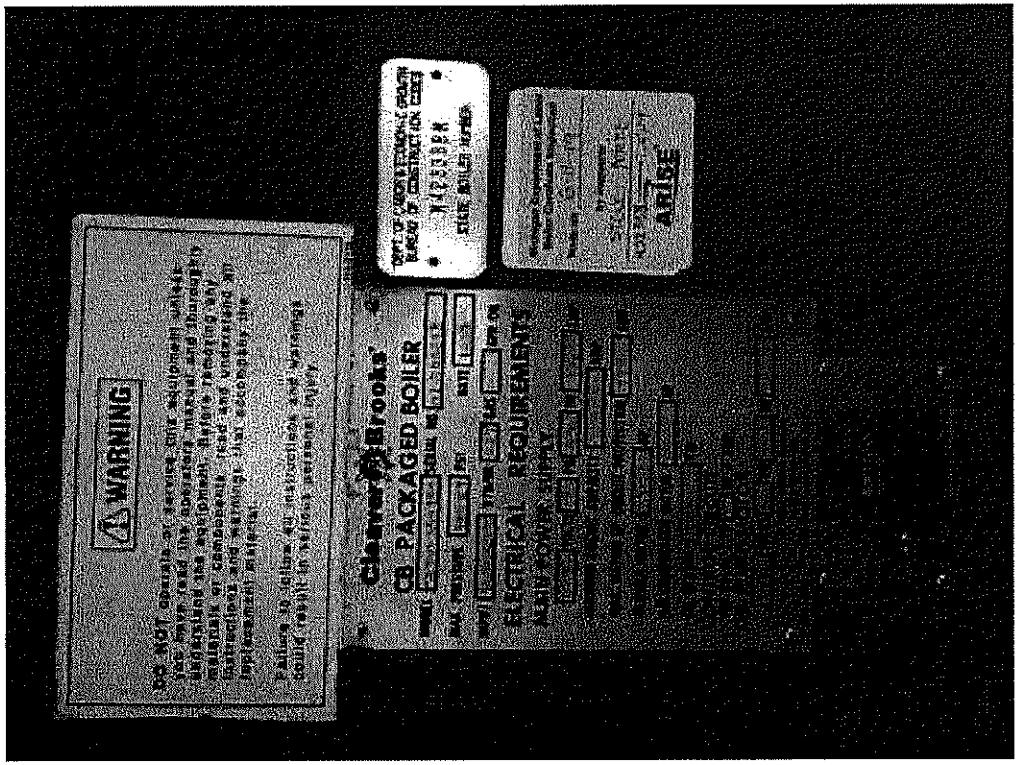

Image 1(4) : HU-802 Boiler. (Photo provided by Nicole of ADC)

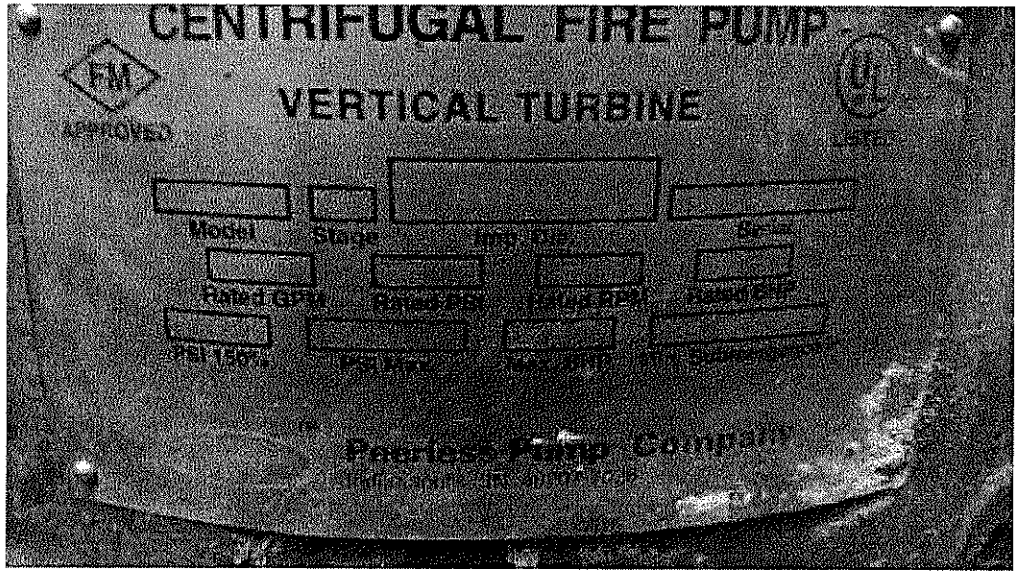

Image 2(1) : Diesel fire pump. (Photo provided by Nicole of ADC)

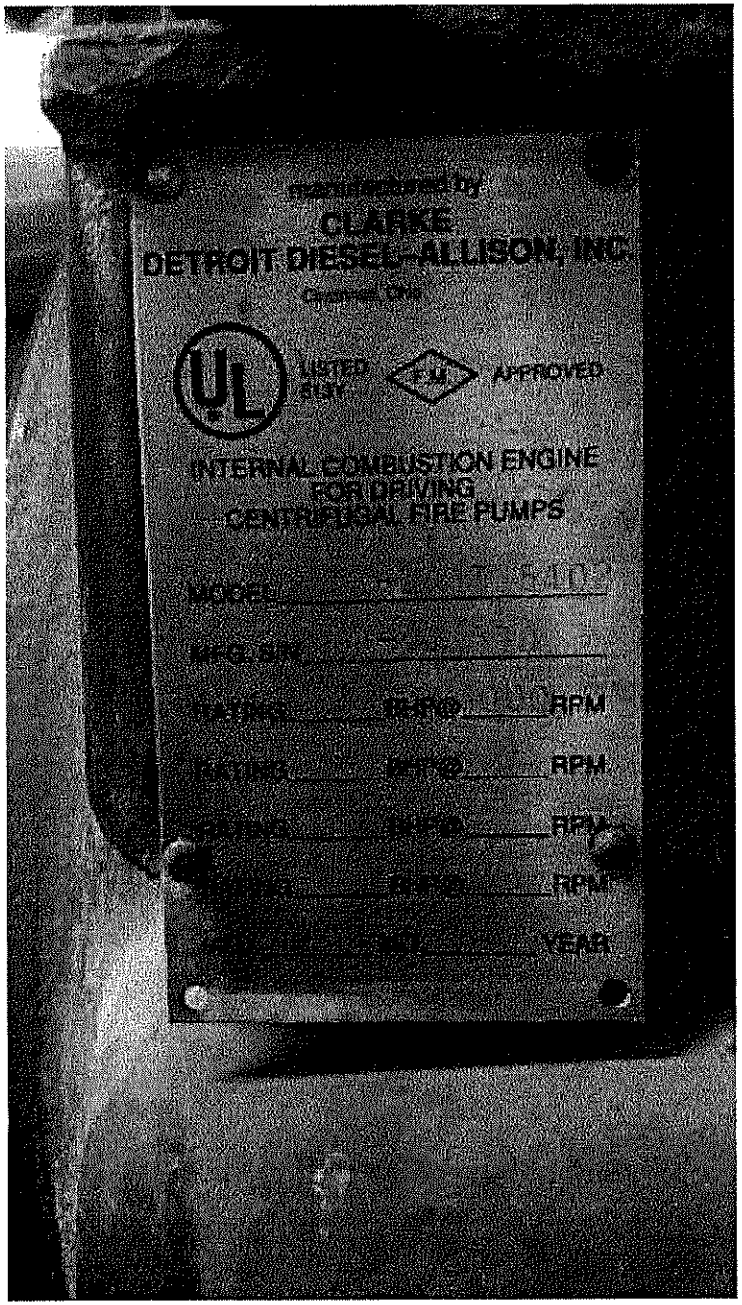
manufactured by
CLARKE
DETROIT DIESEL-ALLISON, INC.
LISTED
APPROVED
INTERNAL COMBUSTION ENGINE
FOR DRIVING
CENTRIFUGAL FIRE PUMPS
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Image 3(2) : Diesel fire pump 2 (Photo provided by Nicole of ADC)

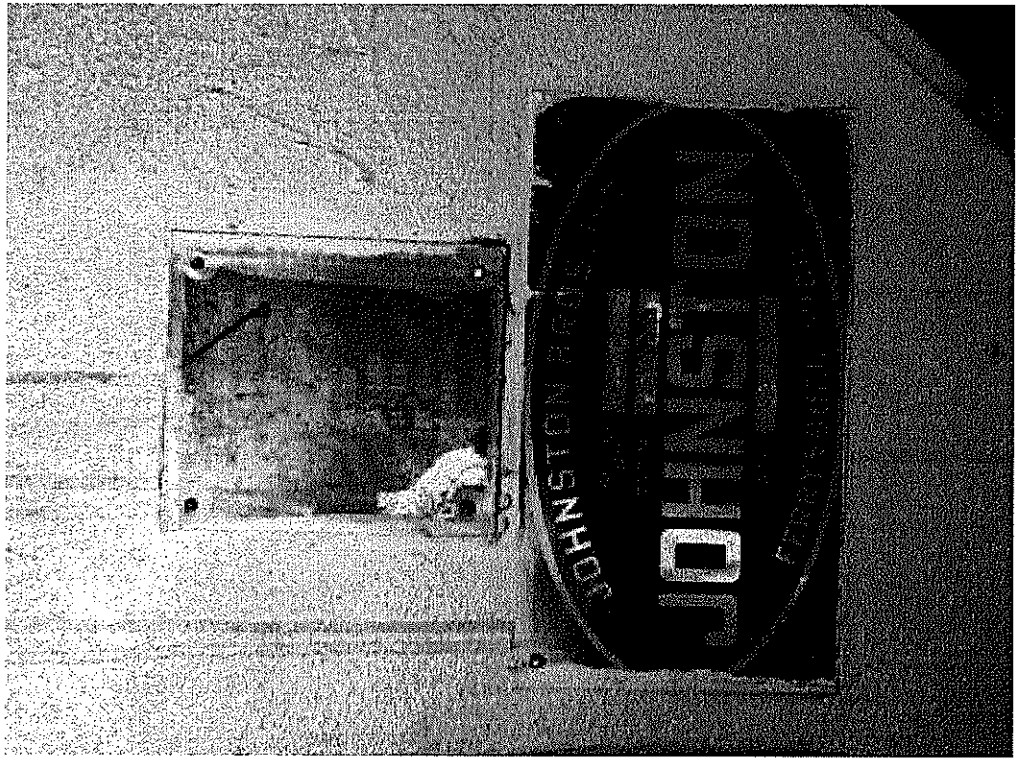

Image 4(3) : HU-801 Boiler (Photo provided by Nicole of ADC)

NAME Steph Weems DATE 8-15-19 SUPERVISOR