

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

N792747321

FACILITY: W2Fuel LLC		SRN / ID: N7927
LOCATION: 1571 W BEECHER RD, ADRIAN		DISTRICT: Jackson
CITY: ADRIAN		COUNTY: LENAWEE
CONTACT: Adam Gibson , EHS Manager		ACTIVITY DATE: 12/17/2018
STAFF: Mike Kovalchick	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Unannounced inspection/FCE of W2Fuel LLC.		
RESOLVED COMPLAINTS:		

**Opt-Out source for HAPS: Full Compliance Evaluation (FCE)****Facility Contact**

Adam Gibson (AG) Environmental, Health & Safety Manager

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**Purpose**

On December 17, 2018, I conducted an unannounced compliance inspection of W2Fuel LLC (Company) located in Adrian, Michigan. The purpose of the inspection was to determine the facility's compliance status with the applicable federal and state air pollution regulations, particularly Michigan Act 451, Part 55, Air Pollution Control Act and administrative rules and Permit to Install (PTI) 89-17A.

**Facility Location**

The facility is located on a 25-acre property just inside the city limits of Adrian. There is an industrial plant just to the East of it and a residential area 600 feet NE of the plant across Beecher Road.

**Facility Background**

Refer to MACES Activity Report dated 1/12/2017 for extensive background information on this facility. Also refer to Attachment (1) for background discussion from recently issued PTI 89-17A.

The facility was last inspected on 1/12/2017 and found to be out of compliance with a number of state and federal regulations. Most importantly, the facility was operating without a PTI as they failed to maintain their Rule 290 exemption status.

The Company submitted a PTI application to address the numerous compliance issues and PTI 89-17A was issued on July 2, 2018. Subsequent to this PTI, a new PTI application was submitted on October 17, 2018 to modify the biodiesel production operation by the addition of the following equipment:

- 1) Degumming process for incoming raw oils
- 2) Two new methanol distillation columns for recovery and reuse of methanol
- 3) A new glycerin skid that will enhance methanol recovery from glycerin
- 4) An additional (third) 6.1 million Btu per hour natural gas fired boiler.

**Regulatory Applicability**

Active Permits: PTI 89-17A for biodiesel production process.

- (2) Five million BTU natural gas fired boilers exempt per Rule 282(b)(I).

NSPS 40 CFR Part 60 Subpart VVa-Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry (SOCMI) for which Construction, Reconstruction, or Modification Commenced After November 7, 2006.

(This NSPS applicability makes the facility a CAT II Fee source.)

### **Arrival & Facility Contact**

Visible emissions or odors were not observed upon my approach to the Company's facility. I arrived at approximately 9:30 AM, proceeded to the facility office to request access for an inspection, provided my identification, and met with Adam Gibson (AG) who is the Environmental, Health & Safety Manager. I informed AG of my intent to conduct a facility inspection and to review the various records as necessary. AG extended his full cooperation during the inspection, accompanied me during the full duration of the inspection, and fully addressed my questions.

### **Pre-Inspection Meeting**

AG outlined that the Company is currently operating (2) 12 hours shift per day, 7 days a week, 350 days a year. They have 34 employees.

AG indicated that the enzymatic process along with its two batch reactors ceased to operate in April, 2018 and there are no current plans to restart this process. It appears more likely that they will eventually repurpose the equipment.

The main transesterification process continues to operate using soy oil exclusively as feedstock. A new modular transesterification process has been operating since July 2018. The new tanks associated with PTI 89-17A have yet to be installed but are onsite.

We discussed the absorber which is the main piece of control equipment for the facility. Daily pressure drop readings are being taken/recorded. The proper operating range of the magnehelic was found to be less than 0.25". AG indicated that the absorber is operating (with feedstock entering it to absorb the methanol) whenever any flashing of methanol is occurring anywhere in the main transesterification process or modular transesterification process.

AG discussed the new PTI application. AG indicated that they already have been recycling the wet methanol back into the process as the water content is very low. They want to be able to sell the glycerin by-product of the biodiesel process. It currently contains too much methanol (20%) to make it a sellable product. It is currently being sent to a company in Ohio who take the glycerin and return the methanol. The installation of the distillation columns will allow them both to sell the glycerin and recycle the methanol back into the process.

### **Onsite Inspection**

Overall, the facility appeared to be well maintained. No methanol odors were detected anywhere in the facility. Moderate vegetable oil odors were noted much of it likely coming from small oil spills on the floor. A roof inspection was not conducted but most of the facility was inspected including the control room where print-outs of process-flow diagrams were obtained.

**EUTRANSESTER:** See attached photos. Observed the absorption tower. No methanol was entering the tower as the transesterification process was being shutdown per operator in the control room. All methanol flashing had already ceased, and the vacuum pump was off. Feedstock was entering the absorption tower but then stopped when a pump kicked off. The pressure gauge showed a reading of 0.02" while it was still operating.

**EUBATCH:** See attached photos. Not operating. AG noted that a conservation vent had been installed on one of two reactors (triggers at 3 psi?) that vent out the roof in attempt to minimize methanol emissions. A second conservation vent had been purchased but not installed. As previously noted, the process has not been active since April 2018 and there are no plans to restart it.

**EUMODULAR:** See attached photos. Not operating. The whole process was contained in a small area on several skids.

**EUPURIFICATION:** Not operating. Note that all the methanol condensers at the facility are operated using chilled water/glycol at around 46 to 52 deg F.

**EUINTANKS:** See attached photos. The tanks along with the rest of the process equipment appeared to be properly labeled with an identification sticker.

EUOUTTANKS: See attached photos. Some new uninstalled tanks were seen outside adjacent to the existing installed tanks.

EULOADOUT: See attached photos. Load out was observed. No odors noted.

EUWWTMS: See attached photos. Most of the wastewater is coming from the biodiesel washing process and minor contributions from flooring washing etc. Almost all the oil is biodiesel and is a sellable product. The wastewater itself must be shipped offsite for disposal as it does not meet the local sanitary sewer requirements for discharge due acidity, phosphate content etc.

EUBOILERS: See attached photos. The 2 150 HP boilers appeared to be the same boilers noted during the previous inspection. The new 3<sup>rd</sup> boiler will go in directly adjacent to the two existing boilers and will be used for the new distillation columns.

## RECORDKEEPING REVIEW

All the biodiesel production process emission units are grouped into FGBIODIESEL. All the NSPS VVa requirements are found in FGNSPSVVA. HAP Opt-out conditions are found in FGFACILITY.

FGBIODIESEL: **Compliance.** The Company appears to be in compliance with all emission limit conditions, process/operational restrictions, design/equipment parameters, testing/sampling, monitoring/recordkeeping, reporting, stack/vent restrictions and other requirements.

Attachment (2) are calculated methanol and VOC emission records for September, October and November 2018. Methanol emissions are averaging about 250 pounds per month so well under all emission limits. The records reflect the lack of emissions from the enzymatic reactors which would otherwise be a significant source of methanol emissions.

Attachment (3) are process flow diagrams for all the major processes at the facility besides the enzymatic process which is no longer active. The "West Trans" diagram is the modular esterification process while the "East Trans" diagram is the main esterification process. The process readings most reflect that processes were either not operating or were in the process of being shut-down during the inspection.

Attachment (4) is detailed production information for November 2018. About 9000 pounds of methanol are "consumed" per day.

Attachment (5) shows records/chart of magnehelic pressure readings for the month of November 2018. It shows all the readings below 0.25" which the Company has determined to represent proper operation. Readings for several days were blank which represented days when there was no production. Previous months that were reviewed at the facility showed a similar pattern.

FGNSPSVVA: **Non-compliance.** No records available. The Company has yet to implement a program to address the requirements of this NSPS subpart.

FGFACILITY: **Compliance.** The Company's methanol emissions are well under the 9.5 TPY rolling average.

Attachment (6) shows emission records through November 2018 that the current 12 month rolling average is 2451 pounds of methanol emissions.

## Post-Inspection Meeting

I held a brief post-inspection meeting with AG and other facility personnel. I indicated that the only compliance concern I had was related to NSPS VVa. The facility has been out of compliance with this requirement since the facility began operation in 2007 and has yet to achieve compliance.

(Note: This standard is applicable to the biodiesel process because glycerin production capacity is more than 1020 tons per years. As an affected facility, those components of the process in VOC service require inspection and maintenance/repair for VOC leaks. Note that the NESHAP for Equipment Leads found 40 CFR subpart V requires maintenance inspection and repair from leaking piping and equipment containing more than 10% methanol. The performance requirements of the applicable sections are overlapping with 40 CFR 60 Subpart VVa and therefore compliance with Subpart VVa is believed to compliance with 40 CFR Part 61, Subpart V elements.)

AG indicated that a consultant company (Team Inc.) that operates out of Texas has been contracted to start the process identifying and testing all equipment that falls under Subpart VVa. They will be testing an estimated 300 different potential emission points. Testing will be done every quarter going forward and monthly if reportable leaks are detected.

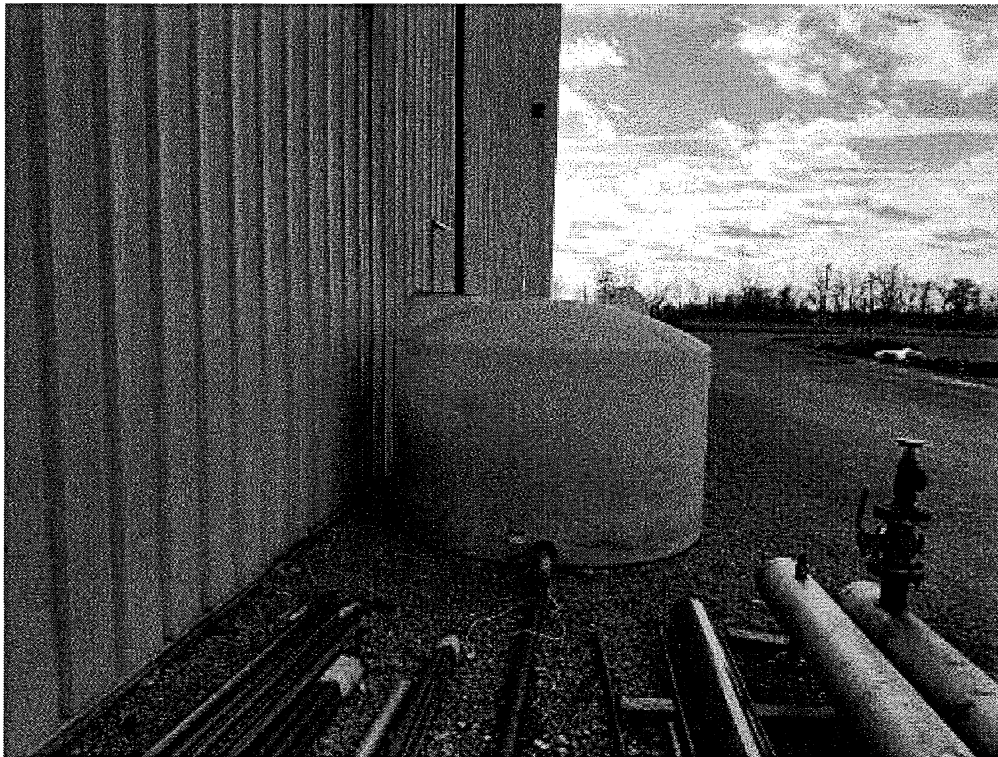
I indicated that LDAR style leaking testing requirements were only part of the NSPS requirements that would need to be satisfied. I noted that performance testing and required semi-annual NSPS reports were also needed.

I thanked AG for his time and cooperation, and I departed the facility at approximately 11:45 AM.

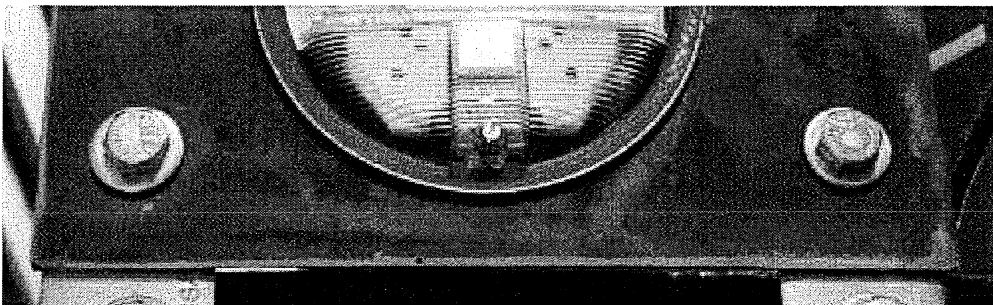
### **Compliance Summary**

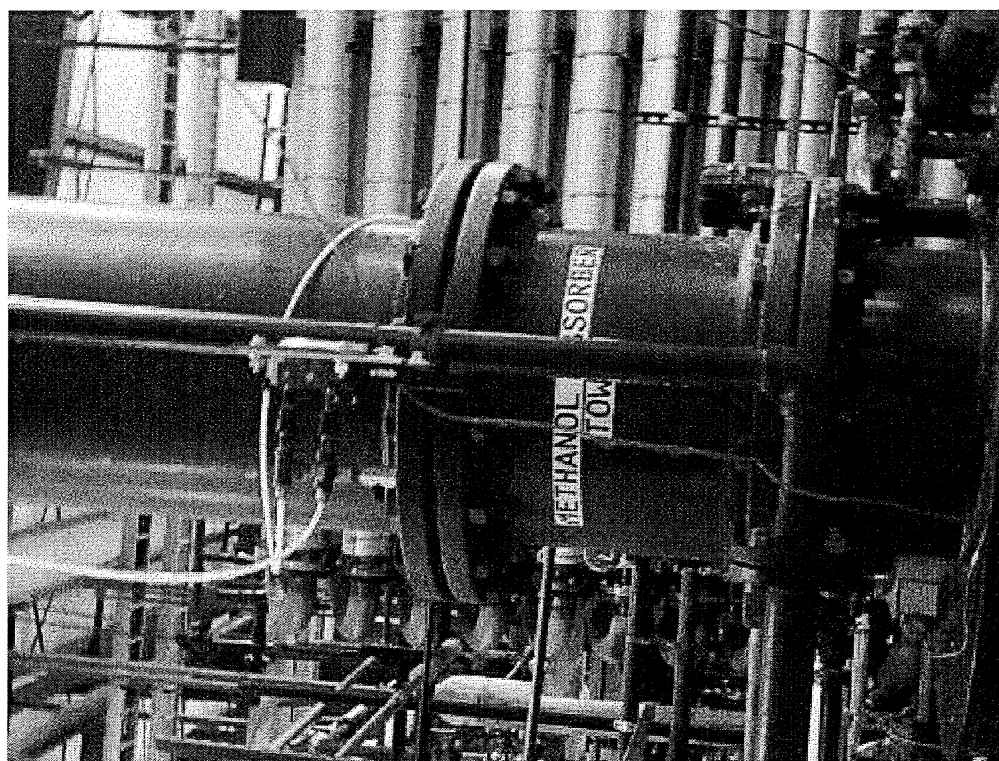
Based upon the facility inspection, review of the records, and review of applicable requirements, the Company is out of compliance with PTI 89-17A FGNSPS VVA. None of the conditions for this emission unit in the PTI are being met.

**The Company will be given 21 days to make a written response to the compliance allegations.**



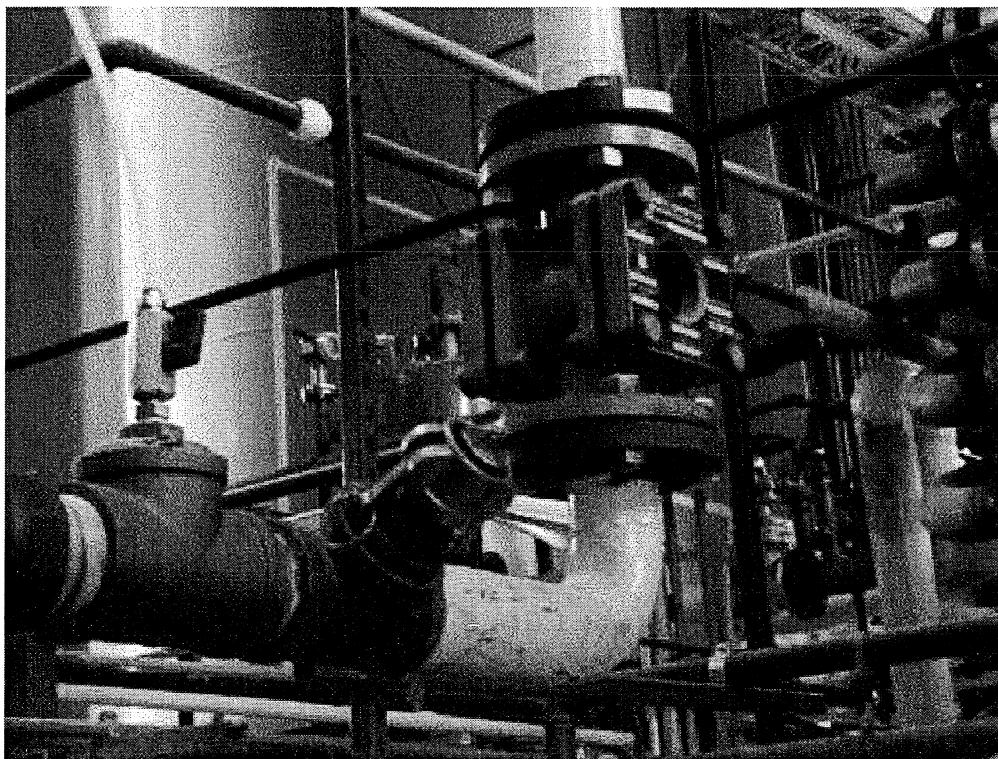
**Image 1(Dryer Exhaust) :** Feedstock dryer exhaust being directed into water tote. Only emissions expected to be water vapor.





**Image 3(Absorber tower) :** Absorber tower

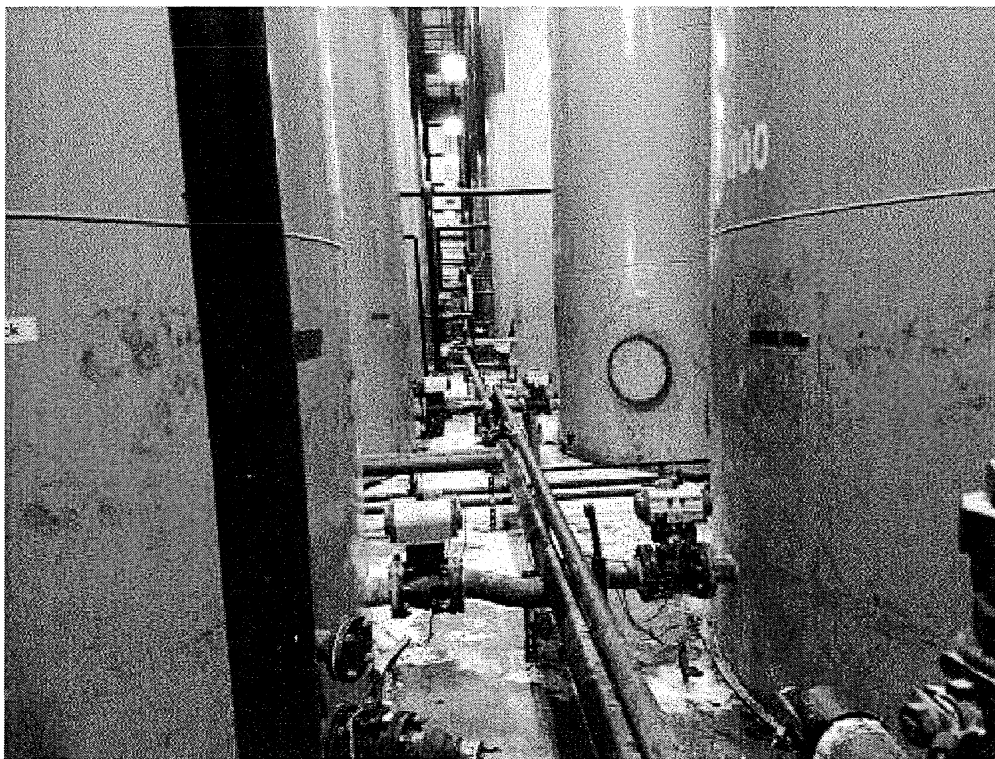




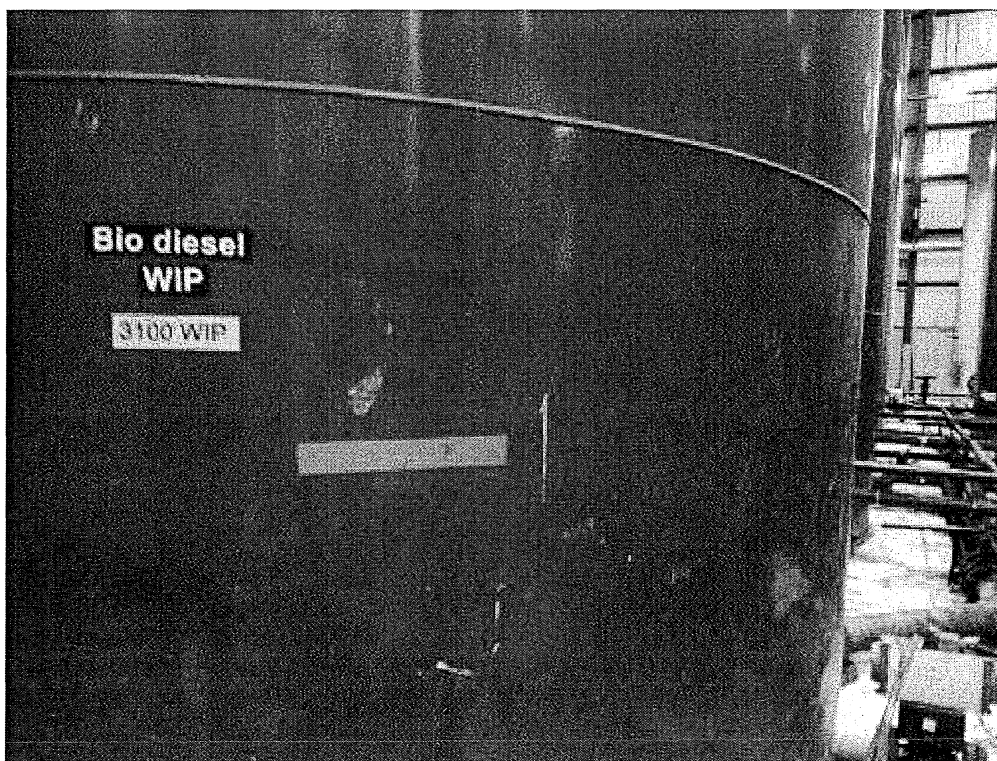
**Image 4(Absorber)** : Methanol pipe(yellow) going into absorber. Visual gauge showed no methanol flow.



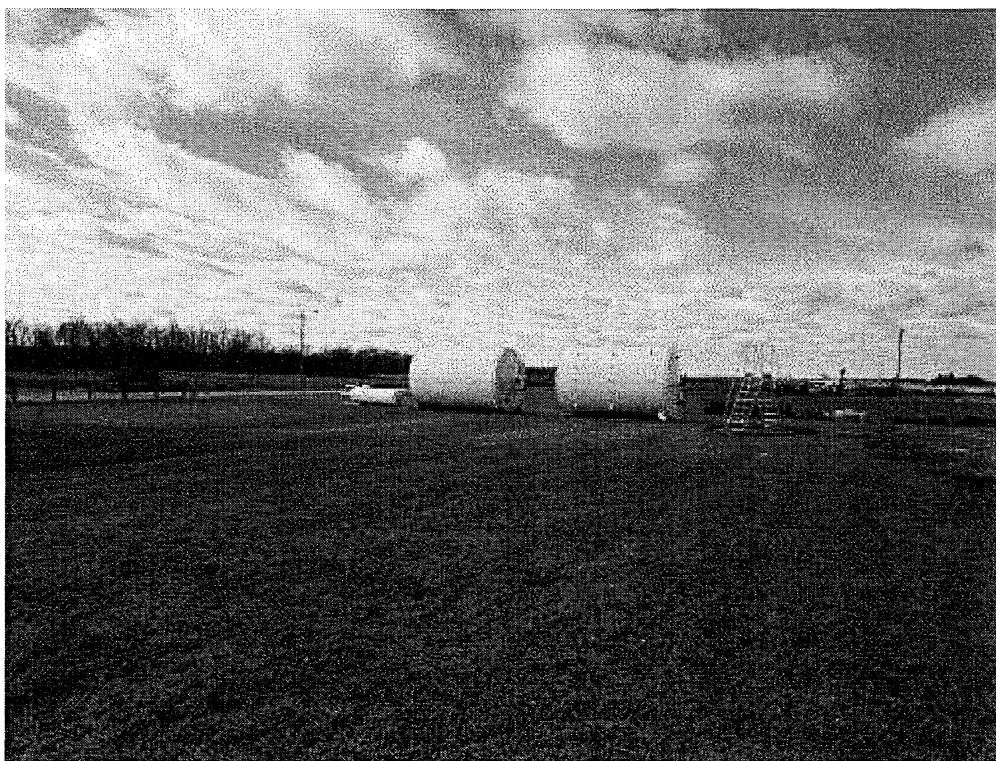
**Image 5(Reactor vessel)** : One of the Enzymatic reactor vessels



**Image 6(Feedstock storage)** : Feedstock storage tanks.



**Image 7(Indoor Bio diesel)** : Indoor biodiesel storage tanks.



**Image 8(Outdoor new storage)** : Outdoor new storage tanks not yet installed.





Image 9(Existing tanks) : Existing outdoor storage tanks

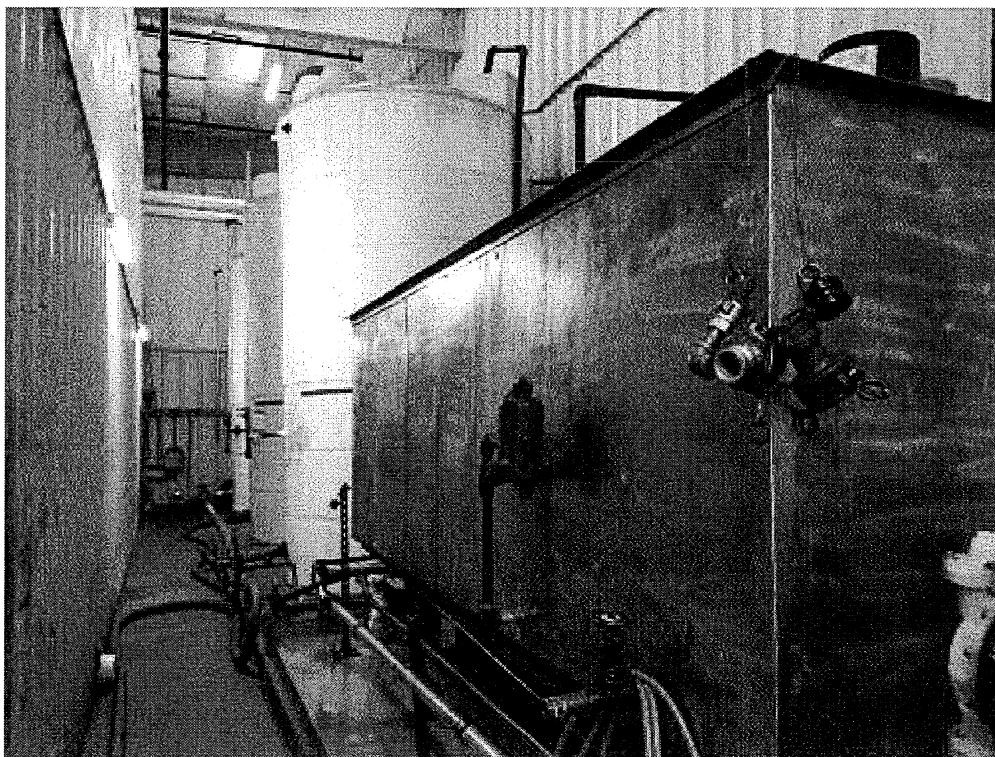


Image 10(Oil separator) : Oil separator in wastewater treatment section

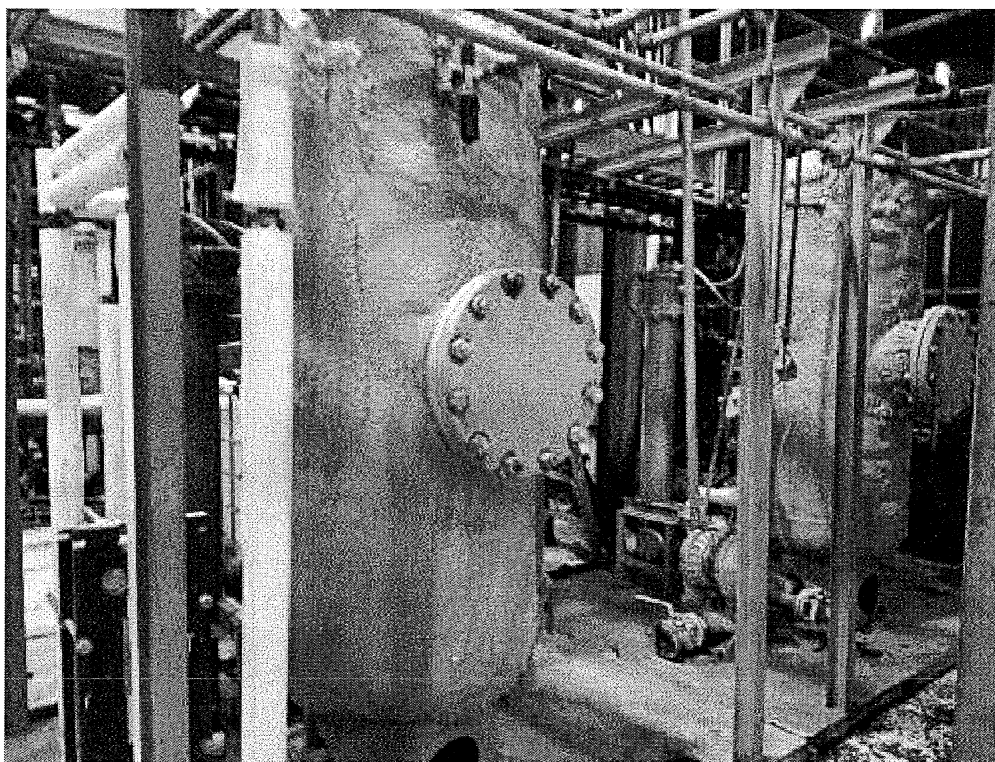


Image 11(Modular reactors) : Modular reactors

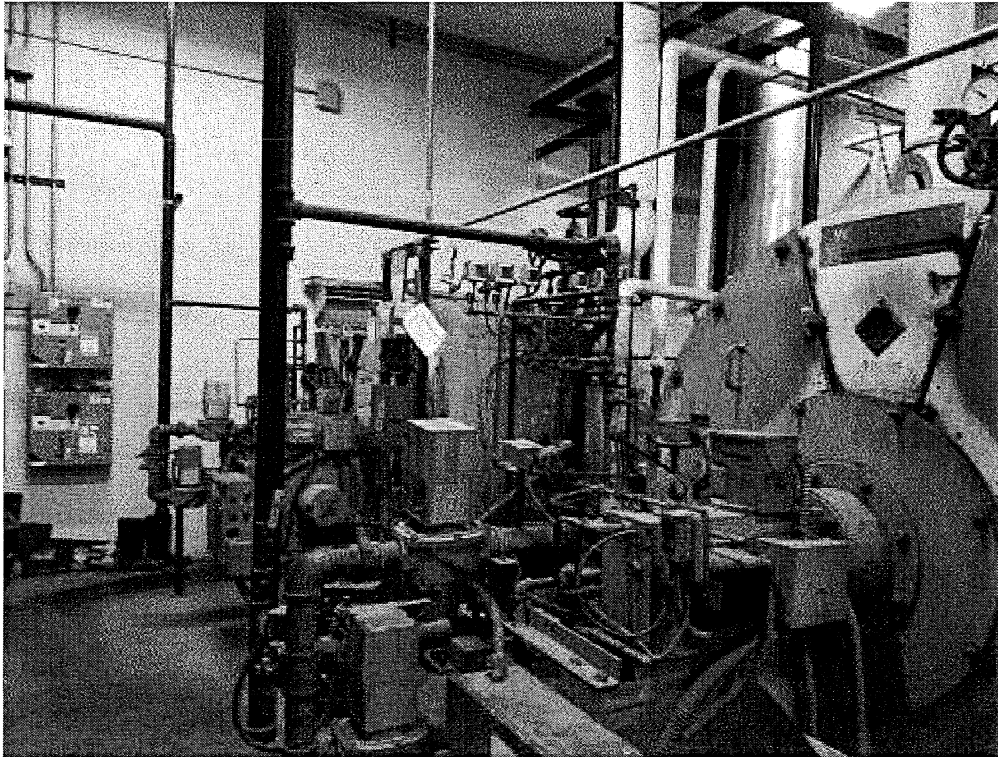


Image 12(Boilers) : Boilers





NAME m. Kovalchuk

DATE 12/18/2018

SUPERVISOR [Signature]