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

FACILITY: US Ecology Michigan (d.b.a. Dynecol)		SRN / ID: M4008
LOCATION: 6520 GEORGIA, DETROIT		DISTRICT: Detroit
CITY: DETROIT		COUNTY: WAYNE
CONTACT: Terry Howes, Environmental Compliance Manager		ACTIVITY DATE: 08/28/2015
STAFF: Jonathan Lamb	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Compliance inspect	ion, FY 2015	
RESOLVED COMPLAINTS:		

INSPECTED BY: Jonathan Lamb, MDEQ-AQD PERSONNEL PRESENT: Terry Howes, Environmental Compliance Manager; Scott Binder, Director of Operations; Jim Conn, CWT Program Manager FACILITY PHONE NUMBER: (313) 571-7141 FACILITY FAX NUMBER: (313) 571-7190 CONTACT EMAIL: Terry.Howes@usecology.com FACILITY WEBSITE: www.usecology.com

FACILITY BACKGROUND:

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US Ecology Detroit (North), d.b.a. Dynecol, is a hazardous and non-hazardous waste storage and treatment facility. The facility performs treatment of liquid industrial waste through wastewater treatment/filtration and solidification. The facility was previously owned by PVS Chemicals and operated as Dynecol until being purchased by US Ecology in June 2012. US Ecology, Inc. is a waste management company based in Boise, Idaho which has facilities throughout North America. The company recently expanded into Michigan by purchasing Dynecol in Detroit in 2012 before purchasing three EQ-owned sites in Detroit, Belleville, and Romulus in 2014.

The treatment plant operates 24 hours/day Monday through Friday, and occasional Saturdays. The solidification operation operates Monday through Friday, usually from 4 a.m. to 6 p.m. Approximately 30 people are employed at the facility. Wastes are accepted anytime during hours of operation, but most wastes are delivered between noon and 6 p.m.

COMPLAINT/COMPLIANCE HISTORY:

There have been no complaints lodged against the company since the last inspection in April 2013. There are currently no outstanding violations or Consent Orders.

OTHER PERMITS:

The facility has applied for a renewal of its Hazardous Waste Management Facility Operating License, which includes an expansion of operations. Currently, Building 4 is licensed under Part 115 only (Solid Waste Management) and can only process non-hazardous waste, but the company is seeking approval to have Building 4 licensed under Part 111 (Hazardous Waste Management) to allow for the processing of hazardous wastes. This would require the facility to modify the pits in Building 4 to meet 40 CFR Part 264 Subpart J standards for hazardous waste tanks to allow the facility to treat hazardous wastes in the pits. This would require adding a new lining in each tank plus additional monitoring. In this renewal, US Ecology also plans on converting some existing tanks to hazardous waste storage. These tanks were originally permitted for hazardous waste storage and already meet the requirements of Subpart J. The application also requests an increase in allowable processing rates and approval for the construction of two additional buildings (Building 5A and 5B) to be used for bulking, consolidation, and storage of hazardous waste.

The facility submitted its Part 111 license renewal application in March 2013, and the application is currently in public comment. Public hearings were held on August 17 and August 31, 2015, for this permit renewal/expansion.

PROCESS/EQUIPMENT DESCRIPTION:

US Ecology uses two separate processes to treat waste: wastewater treatment (Building 2) and waste stabilization/solidification (Building 4).

Treatment Plant (Building 2):

The Treatment Plant is currently permitted under Part 111, allowing for the treatment of hazardous waste. Dynecol accepts both non-hazardous and hazardous wastes, including listed and characteristic wastes, but only treats inorganic acids and bases on-site. The majority of the wastes come from various steel industries (including platers, metal finishers, and picklers), auto manufacturing, utilities, and chemical processing. The facility also handled much of the waste collected during the Embridge oil spill in 2010. Wastes are received either in bulk from tankers or in 55-gallon drums and go through a fingerprint analysis before being accepted for treatment. Non-bulk wastes that can be treated on-site are pumped from drums to tankers in the "bulking area" of the Container Management Facility (CMF), which is also used for drum storage. The bulking area consists of a drum unloading hood, vapor recovery exhaust, and drum wash station. Emissions from the CMF are vented first through a regenerative carbon adsorber to remove VOCs, then through a 201 stack. The carbon adsorber is equipped with a saturation indicator (Flame Ionization Detector) and a control system to automatically switch the process emissions to a standby carbon bed prior to breakthrough. A small natural gas-fired boiler (Iron Fireman Whirlpower Space Conditioner; Model 2803; 70 horsepower output) is used to steam-strip the carbon beds after saturation for reuse.

Bulked wastes are transferred from the tankers (using pressure) to either one of four 20,000-gallon primary treatment tanks (Tanks 1 through 4), or to bulk storage tanks for later processing. The empty tankers and drums are then sent to the Wash-Out Bay, where they are rinsed until they are considered empty per RCRA standards. Wastewater from the Wash-Out Bay is sent through the treatment process. The emptied drums are crushed and disposed of as non-hazardous waste.

While in primary treatment, the waste has a pH around 5-6 and undergoes neutralization, absorption, and chemical red-ox. The waste is then moved to one of four 20,000-gallon secondary treatment tanks (Tanks 18 through 21), where the pH is raised to 9-10, causing the solids to coagulate. During secondary treatment, the waste goes through precipitation, flocculation, detoxification, sedimentation, and clarification. The primary and secondary treatment tanks are cleaned after each batch of waste is treated.

There are also several tanks used to store materials used in the treatment process: Tanks 9 and 15 hold caustic; Tanks 14 and 23 hold lime slurry; Tank 24 holds caustic for the scrubbers; Tanks 12, 13, 16, and 17 are 25,800 gallons each and store acid; and Tanks 7 and 10 have a total capacity of 22,000 gallons and hold hazardous waste for future processing. Emissions from the primary and secondary treatment tanks, acid storage tanks, and hazardous waste storage tanks are vented through caustic Scrubber-1 (Heil Model 734-XL; 5000 CFM) to remove HCI. Scrubber-1 operates continuously and exhausts through a 70' stack. Two dry lime silos (#'s 1 and 2) are outside and are controlled by a 1000-cfm fabric filter dust collector.

After undergoing secondary treatment, the waste is sent through one of two filter presses, which separate the solid and liquid waste. The liquid waste is pumped to one of four 30,000-gallon effluent "Pre-Tertiary Treatment" tanks, where it is held until it can undergo tertiary treatment in the Dissolved Air Floatation (DAF) unit. The DAF unit was installed in 2004 to allow the liquid waste to meet the more stringent municipal wastewater discharge requirements that are now in place. The DAF unit uses flocculants (alum, sodium hydroxide) to further remove dissolved metals from the wastewater. The solids float to the top and are scraped off the surface, and then sent to a solids holding tank before being sent back through the filter press again. The liquid waste is then sent to one of two 14,000-gallon post-treatment effluent holding tanks, where it is tested and, if meeting the regulatory limits, is discharged to the City of Detroit Sanitary Sewer System in accordance with US Ecology's Wastewater Discharge Permit. Liquid waste not meeting discharge limits is sent back through the entire process, starting at primary treatment.

After the wastewater is sent through the filter press, the solid waste (sludge) is manually scraped off filter plates into a roll-off box, where it is tested using the Toxicity Characteristic Leaching Procedure (TCLP) and shipped off for land disposal. Waste that passes the TCLP test is disposed of as non-hazardous solid waste. Treated waste that does not meet specifications is put through the process again, starting with primary treatment, until it no longer meets the definition of characteristic hazardous waste and can be disposed of as non-hazardous waste.

Listed hazardous wastes, however, are always disposed of as hazardous waste. About 90% of the treated solid waste is disposed of as non-hazardous while the remaining 10% is considered hazardous waste. Currently, non-hazardous waste is sent to either Sauk Trails or Woodland Meadows landfills while hazardous waste is sent to EQ-Belleville's hazardous waste landfill. The facility disposes of three or four roll-off boxes per day, on average. Non-bulk wastes that cannot be treated on-site (including organics) are stored in drums in segregated areas (in accordance with its hazardous waste permit), bulked, and then shipped out at a later date to another facility for processing. The bulking of wastes for off-site treatment is done only a couple times per year.

The DAF Unit has been determined by AQD to be exempt from permitting requirements under Rule 285(m).

A diesel fuel tank is located next to the silos and is exempt under Rule 284(d).

The boiler is exempt per R.282(b)(i) because it has a heat input capacity below 50 MMBtu/hr. Calculation using AP-42 conversion factor: (70 BPH)(50 x 10^3 Btu/hr) = 3.5 MMBu/hr input capacity.

Waste Stabilization (Building 4/EUSTABILIZE):

Building 4 is permitted under Part 115 but the company has applied for licensing under Part 111 in the Part 111 renewal. Building 4 contains three 30,000 gallon "pits" in which stabilization/solidification of non-hazardous liquid wastes is performed (no hazardous wastes are treated in this process). Wastes include clean-out water from neutralization tanks, water slurries, oil and paint sludge, and industrial wastes. These wastes generally have a low VOC content. No oxidizers or flammables are processed due to risk of fire and explosion.

A normal production day begins with the load out of the stabilized waste from the previous day. The stabilized waste is loaded into trucks and hauled to landfill for disposal; currently, this waste is being sent to Sauk Trails and Woodland Meadows landfills. Once a pit is cleared, untreated wastes are dumped into the pit either straight from the trucks or from drums while a solidification agent (a mix of fly ash and cement kiln dust) is mixed in via a screw conveyor/tube system. The fly ash/cement kiln dust mix is stored in a 100-ton silo outside of Building 4. After mixing with the solidification agent, the waste is then cured in the pit at least overnight, or until it is ready for disposal.

The pits are enclosed by a plastic curtain to keep the dust contained within the pit area. Around the top edges of the pits are intake vents which collect the particulate emissions and send them to two 40,000 cfm baghouses. The building is maintained under negative pressure.

STACK TESTING:

Emission testing in the treatment building and CMF was last performed on July 10-12, 2002. Testing for particulate and VOC emissions from the solidification process, along with a negative pressure demonstration of Building 4, was performed on June 25, 2008.

APPLICABLE RULES/PERMIT CONDITIONS:

Wayne County Permit Nos. C-10626 through C-10632, issued on January 8, 1997, covers operations for the wastewater treatment process. This permit set limits on HAP emissions below major source thresholds, allowing the facility to opt out of Title V permitting requirements.

PTI No. 302-07A, issued on March 17, 2014, covers the waste stabilization process. This permit was a modification of PTI No. 302-07, allowing the facility to process hazardous waste in the waste stabilization process and changing the limits on hours of operation to limit in material processing.

In determining compliance for this inspection, process and emission records from August 2013 through August 2015 were reviewed. The facility is currently in the process of updating its recordkeeping database to conform with other US Ecology facilities and to assure that the records and calculations are maintained in a format acceptable to AQD; however, the records maintained and submitted during this inspection were sufficient to demonstrate compliance with the permit conditions. These records can be found on the orange facility file.

Permit Nos. C-10626 through C-10632, Special Conditions:

17. IN COMPLIANCE. Per Jeanette Noechel, DEQ/OWMRP-Hazardous Waste/Transportation, US Ecology

Detroit (North) is currently in compliance with its Part 111 (Hazardous Waste) permit. The status of the Wastewater Discharge Permit (issued by the Detroit Water and Sewage Department) is not known, but AQD does not have regulatory authority over this permit.

IN COMPLIANCE. The facility was in compliance with the throughput limit of 144,000 gallons of hazardous waste treated per day. The highest daily total hazardous waste processed was 65,399 gallons on August 28, 2015. Facility was in compliance with the permit limit of 44,928,000 gallons of hazardous waste treated per year. The facility processed 7,924,857 gallons of hazardous waste in 2014 and 5,574,160 gallons in 2015 through

August. 19. IN COMPLIANCE. Facility does not accept wastes not approved in its Hazardous Waste Facility Operating License.

20. IN COMPLIANCE. Facility only processes wastes approved by its Hazardous Waste Facility Operating License in the primary treatment tanks.

21. IN COMPLIANCE. Facility only stores and bulks wastes approved in its Hazardous Waste Facility Operating License.

22. IN COMPLIANCE. Facility only stores wastes approved in its Hazardous Waste Facility Operating License.23. IN COMPLIANCE. Facility follows procedures for dealing with ignitable, reactive, and incompatible wastes in accordance with its Hazardous Waste Facility Operating License.

24. IN COMPLIANCE. Compatibility testing is performed prior to bulking wastes to determine there are no adverse reactions.

25. IN COMPLIANCE. Cyanide wastes are segregated from acid wastes in the CMF Building, and bays are labeled, as required.

26. IN COMPLIANCE. Facility does not bulk wastes with a reactive cyanide content greater than 250 ppm.27. IN COMPLIANCE. Facility does not accept F006 and F019 waste codes with a reactive cyanide content greater than 20 ppm in the primary or secondary treatment tanks.

28. NOT EVALUATED. Facility does not treat organic waste materials with TCLP concentrations greater than 30 ppm for volatiles and 30,000 ppm for semi-volatiles in the wastewater treatment process.

29. NOT EVAULATED. Scrubber-3 is installed, but is not used. Scrubber-3 is only required to be used when treating organic waste materials with TCLP concentrations greater than 30 ppm for volatiles or 30,000 ppm for semi-volatiles in Primary Treatment Tank #3, but the facility does not treat wastes above those limits in the wastewater treatment process.

30. IN COMPLIANCE. Primary Treatment Tanks #1-4 are vented through Scrubber-1. Scrubber-1 appeared to be operating properly at the time of inspection.

31. IN COMPLIANCE. Organic exhaust gases from the drum wash station are vented through the carbon adsorber.

32. IN COMPLIANCE. Inorganic exhaust gases from the drum wash station are vented through the carbon adsorber.

33. IN COMPLIANCE. Exhaust gases from the carbon adsorber are discharged through Scrubber-2.

34. IN COMPLIANCE. Vapor Recovery Exhaust and Drum Unloading Hood are vented through the carbon adsorber/Scrubber-2 system.

35. IN COMPLIANCE. Bungs immediately replaced on drums after emptying.

36. IN COMPLIANCE. Tanks No. 7, 10, 12, 13, 16, 17, 18, 19, 20, and 21 are exhausted through Scrubber-1.

37. IN COMPLIANCE. Scrubber-1 is installed and operating properly. (pH was at 10.6 at the time of inspection)

38. IN COMPLIANCE. Scrubber-2 is installed and operating properly. (pH was at 9.9 at the time of inspection) 39. IN COMPLIANCE. Lime silos fabric filter collectors are installed and operational. Company usually uses a lime slurry rather than dry lime; however, more dry lime is being used than in previous years.

40. IN COMPLIANCE. Facility reported 84.23 lbs. (0.04 tons) of particulate emissions from the lime silos in its 2014 MAERS submittal, which is below the permit limit of 0.15 tons per year. Particulate emission rates from the lime silos has not been determined; however, the condition is assumed to be in compliance since the fabric filter collectors are operating properly and no visible emissions were observed.

41. IN COMPLIANCE. Reported VOC emissions are minimal. Total VOC emissions from Scrubber-2 are below the permitted limits of 12.60 pounds per hour and 18.5 tons per year. VOC emissions from Scrubber-2 are below 3.0 lbs/month. The 12-month rolling total VOC emissions from Scrubber-2 at the time of inspection was 25 lbs.

42. IN COMPLIANCE. Reported VOC emissions are minimal. Total VOC emissions from Scrubber-1 and Scrubber-2 are below permitted limit of 21.5 tons per year. Total VOC emissions from Scrubber-1 and Scrubber-2 were under 200 lbs. from the 12-month rolling time period from September 2014 through August 2015.
43. IN COMPLIANCE. Hydrochloric acid emission rate from Scrubber-1 is below permitted limits of 0.016 grams

per second and 0.12 pounds per hour. Based on emission testing performed on July 9, 2002, test results show HCI emission rates of < 0.0002 grams per second and < 0.0018 pounds per hour. 44. IN COMPLIANCE. Sulfuric Acid emission rate from Scrubber-1 is below the permitted limits of 0.149 grams per second and 1.18 pounds per hour. Based on emissions testing performed on July 11, 2002, test results show sulfuric acid emission rates of < 0.000003 grams per second and < 0.000002 pounds per hour.</p>
45. IN COMPLIANCE. Hydrogen Cyanide emission rate from Scrubber-1 is below the permitted limits of 0.02 grams per second and 0.18 pounds per hour. Based on emissions testing performed on July 10, 2002, test results show hydrogen cyanide emission rates of < 0.0001 grams per second and < 0.0005 pounds per hour.</p>
46. IN COMPLIANCE. Total HAPs emitted are below the 10 ton individual HAP and 25 ton aggregate HAP limits for the entire facility. Testing performed on July 10, 2002, showed a total HAP emission rate of 0.02 lb/hour from the wastewater treatment process. Assuming a maximum of 8760 hours per year, total HAP emissions would be around 175 lbs. per year (0.09 tons per year) for the wastewater treatment process. Specific HAP emission records are not maintained for the waste stabilization process, but the highest 12-month rolling total VOC emission rate for that process was 6.8 tons, so even if all VOCs emitted were HAPs, the facility would

be below the 10 ton individual HAP/25 ton aggregate HAP limits. 47-49. IN COMPLIANCE. No visible emissions were observed from any part of the wastewater treatment

process during the inspection.

50. IN COMPLIANCE. Facility follows a fugitive dust control plan.

51. IN COMPLIANCE. Facility uses a sweeper for fugitive dust control. No issues with fugitive dust from the lot were observed during the inspection.

52. IN COMPLIANCE. Scrubber-1 pH was 10.6 at time of inspection, above the permit minimum pH limit of >10.0.

53. IN COMPLIANCE. Scrubber-1 is inspected daily and operates according to manufacturer's specifications. 54. NOT EVALUATED. Scrubber-3 is installed, but has yet to be put into use.

55. IN COMPLIANCE. Carbon adsorber is operated according to manufacturer's specifications. Breakthrough is monitored by an automatic FID.

56. IN COMPLIANCE. Lime silo filter is installed as required.

57. NOT EVAULATED. Scrubber-3 is installed, but has yet to be put into use.

58. IN COMPLIANCE. Scrubber-2 is designed to permit specifications.

59. IN COMPLIANCE. Fabric filter collector is designed to specifications.

60. IN COMPLIANCE. Scrubber-1 stack appears to meet permit specifications.

61. IN COMPLIANCE. Scrubber-2 stack appears to meet permit specifications.

62. IN COMPLIANCE. Records of wastes processed are maintained, as required.

63. NOT EVALUATED. AQD has not requested odor testing at this facility.

64. IN COMPLIANCE. Testing for VOC, HCL, sulfuric acid, and hydrogen cyanide, and HAP emission rates was performed on July 10-12, 2002, by Derenzo and Associates, Inc. Results showed all emission rates in compliance with permit limits.

65: IN COMPLIANCE. Facility has not been a source of odor complaints, so there has not been a need to propose a Plan of Action for odor abatement.

Several older Wayne County permits, issued to a former owner, Waste Acid Services, were in the file for equipment which is currently permitted by Wayne County Permit Nos. C-10626 through C-10632. As a result, the following permits will be voided: C-6917 (issued November 10, 1986, for a caustic scrubber), C-6977 (issued December 8, 1986, for Tank #12), C-6978 (issued December 8, 1986, for Tank #17), C-6979 (issued December 6, 1986, for Tank #16), and C-6980 (issued December 8, 1986, for Tank #13).

PTI No. 302-07A; Special Conditions:

<u>EUSTABILIZE</u>: Liquid waste stabilization process consisting of three 30,000-gallon processing pits in a building controlled by two dust collectors.

Pollutant	Limit	Actual	Compliance Status
1. PM	0.002 gr/dscf ¹	0.0014 gr/dscf	IN COMPLIANCE
2. PM	0.69 pph ¹	0.15 pph	IN COMPLIANCE
3. VOC	14.6 tons/12-month rolling	6.8 tons/12-month (Sept. '14)	IN COMPLIANCE
4. Naptha	3.5 pph	Not evaluated*	NOT EVALUATED*

I. Emission Limits

¹Results based on testing performed on June 25, 2008, by Derenzo and Associates, Inc. *Testing to determine naptha emission rate has not yet been performed. However, materials with waste code D001, which would include naptha, do not appear to be commonly processed in Building 4. Testing to determine the naptha emission rate may be required at a later date.

II. Material Limits

1. IN COMPLIANCE. The facility only treats non-hazardous wastes with a total VOC content below 5.0%, minus SVOCs, in EUSTABILIZE.

2. IN COMPLIANCE. The facility has yet to treat hazardous waste in EUSTABILIZE.

3. NOT EVALUATED. Facility provided records on a monthly basis, not daily, so I could not evaluate compliance with this condition. However, using monthly totals and the typical operating schedule of 5 days per week, the highest average daily waste processed based on a monthly average was 186 tons/day in Augsut 2015, below the permit 600 tons of waste treated on a daily basis. Daily records of waste processing will be reviewed during the next compliance evaluation.

4. IN COMPLIANCE. Facility did not exceed the permit limit of 156,000 tons of waste treated per 12-month rolling time period. The highest 12-month rolling total was 32,688 tons in August 2015.

5. IN COMPLIANCE. Facility follows the equation in Appendix A to calculate VOC emissions on a 12-month rolling time period at the end of each calendar month.

6. IN COMPLIANCE. Facility does not process any wastes containing components listed in 6a. through 6t. with concentrations greater than the maximums allowed for each, per this condition.

7. IN COMPLIANCE. Hazardous wastes are not currently being treated in EUSTABILIZE. Facility does not yet have approval to treat hazardous waste in EUSTABILIZE under its Part 111 license.

III. Process/Operational Restrictions

1. IN COMPLIANCE. Facility implements and maintains an approved fugitive dust plan.

2. NOT IN COMPLIANCE. EUSTABILIZE building had three bay doors open during the inspection.

3. NOT IN COMPLIANCE. EUSTABILIZE was not under negative pressure at the time of inspection. Pressure gauge on the building was registering any negative pressure, and visual observations could not confirm any draw into the building.

4. NOT IN COMPLIANCE. Facility maintains an approved preventative maintenance plan and malfunction abatement plan for the baghouses for EUSTABILIZE; however, the baghouse fans were not demonstrating any sufficient draw at the time of inspection. Baghouse is not equipped with a gauge to measure pressure drop.

IV. Design/Equipment Parameters

1. NOT IN COMPLIANCE. Baghouses did not appear to be operating properly at the time of inspection. Fans did not appear to have sufficient draw to collect dust and maintain negative pressure in the EUSTABILIZE building. Baghouses are not equipped with a gauge to measure pressure drop.

V. Testing/Sampling

1. IN COMPLIANCE. Verification of negative pressure in the EUSTABILIZE building is performed annually using smoke tubes. The most recent test was June 24, 2015, which showed the building being under negative pressure at that time.

VI. Monitoring/Recordkeeping

1. IN COMPLIANCE. Calculations and records are maintained, as required.

2. IN COMPLIANCE. VOC and SVOC analyses for the liquid wastes received in EUSTABILIZE are maintained, as required.

3. IN COMPLIANCE. Facility maintains daily, monthly, and 12-month rolling time period records of the amount of waste received for treatment in EUSTABILIZE.

4. IN COMPLIANCE. Facility maintains daily and monthly records of the type (by waste code) and amount of waste treated in EUSTABILIZE.

5. IN COMPLIANCE. Facility calculates the VOC emission rate from EUSTABILIZE on a monthly and 12-month rolling time period in accordance with Appendix A.

6. IN COMPLIANCE. Records of verification of negative pressure determinations (smoke tests) are maintained, as required.

7. IN COMPLIANCE. Facility performs the required calculations to determine VOC content of wastes received on a monthly and 12-month rolling basis, per the formula in S.C. II.5.

8. IN COMPLIANCE. Facility maintains records of the composition of each waste stream received for treatment in EUSTABILIZE, as required.

VIII. Stack/Vent Restrictions

1 and 2. IN COMPLIANCE. Baghouse stacks appear to meet permit specifications.

FINAL COMPLIANCE DETERMINATION:

At the time of inspection, US Ecology Detroit (North) was not in compliance with PTI No. 302-07A. Specifically, the facility was not in compliance with Special Conditions III.2, III.3., III.4, and IV.1, for failure to maintain negative pressure in EUSTABILIZE building and not maintaining proper operation of the baghouses for EUSTABILIZE. As a result, the facility will be issued a Violation Notice. The facility was in compliance with the conditions of Permit Nos. C-10626 through C-10632 and other applicable State and federal air regulations.

NAME

DATE 10-2-15 SUPERVISOR

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