

DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY DIVISION

FCE Summary Report

Facility : UNIVERSITY OF MICHIGAN	SRN : M0675
Location : 1239 KIPKE DR EHS / CSSB	District : Jackson
	County : WASHTENAW
City : ANN ARBOR State: MI Zip Code : 48109	Compliance Status : Compliance
Source Class : MAJOR	Staff : Diane Kavanaugh Vetort
FCE Begin Date : 3/25/23	FCE Completion Date : 3/25/2024
Comments : FCE major source; 3/19 and 3/25/2024 compliance inspections	

List of Partial Compliance Evaluations :

Activity Date	Activity Type	Compliance Status	Comments
03/25/2024	On-site Inspection	Compliance	Complete compliance inspection. FCE major source. 2nd day of inspection.
03/20/2024	Annual Emissions Report (or MAERS)	Compliance	MIENVIRO. Certification received. Received timely. Reviewed. Major Source. Support documents attached. Primarily combustion processes, many dual fuel nat. gas & distillate, boilers, turbines, generators. Crematory incinerator. Total facility CAP: 484.83 tons; CO 121 tons, NOx 280 tons, VOC 10 tons, Ammonia 24 tons. PM's 14 tons/5 tons/9 tons. 3/22 Email notice from Brandi report missing Fuel Usage for BLR3 & BLR6 NCRC. DKV had AER returned to me to make changes. Had to add Operations estimates (BC ok'd).
03/19/2024	On-site Inspection	Compliance	1 of 2 PCE of FCE. Compliance inspection of CPP/CHP power house. Report is also District observation of the annual RATA (Day 1 of 3/4). CPP Boiler 3 CEMs RATA was conducted today.
03/12/2024	MACT (Part 63)	Compliance	Email: Attached is a copy of the UM Annual Boiler MACT Report. The signed hard copy is being sent to you via USPS and it was also submitted electronically to the EPA via CEDRI. UM ROP MI-M6075-2021b, Subpart DDDDD required report. Covers all subject boilers (53 pgs).

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03/11/2024	Telephone Notes	Compliance	<p>Discuss/notified of recent deviations involving Crematory. Issue with required continuous temperature monitor being recorded in Building Automation System (BAS). Discovered 2/15 - 19 lost data. Set up alternative system to check db report early morning, before next day burn and if issue day prior, will not burn. There is no alarms for data loss (have alarm for temperature & Unit auto shut down). Brandi confirmed Crematory burns during this time period were at compliant temperature, can manually record. Propose manually record temp. every 30 min. if happens again. Report as deviations. Acceptable.</p>
02/09/2024	Stack Test	Compliance	<p>Results report for EUVARSITYDR SI-RICE emergency generator set 1035 HP test for NOx, CO, VOC, O2. Subject to 40 CFR 60 Subpart JJJJ. Impact Compliance & Testing, Tester. Conducted on 12/19/23. Report dated 1/17/24. Indicates Compliance. CO 366 ppm (limit 540); NOx 160 ppm (limit 79.2); VOC 5.08 ppm (limit 86). 10% of 600 kW required. Was 575kW throughout. 3/27 District rec'd/review/file TPU Report states review acceptable. EUVARSITY 550KW was also scheduled but did not complete testing due to repair required. (Pending has time in 3yr remaining). Brandi email 3/28 this Varsity gen is scheduled now for July 18, 2024.</p>

Activity Date	Activity Type	Compliance Status	Comments
02/06/2024	Other	Compliance	<p>Email from Brandi, various Generator test updates:</p> <p>1. South Quad generator has a repair plan, but unsure of schedule as of today. As I learn more, I will keep you updated. It is still only set to run in an emergency and all exercises have been halted till tested.</p> <p>2. Varsity Drive 550KW generator is still being repaired and looking to retest mid-April. I will keep you posted if it gets rescheduled. This unit isn't due till the Fall.</p> <p>Lastly, the 600KW test report will be submitted this week and wanted to let you know that when the test plan approval arrived just before the test date, it requested Cummins to collect the air-to-fuel ratio. This has never been requested for other units, but when Cummins investigated it during the test and it was determined there wasn't a way to collect the date, therefore it's not in the report, but is explained in the report. Not sure if this was added from another facility test plan approval letter. Please let me know if you foresee any concerns.</p>
02/02/2024	Excess Emissions (CEM)	Compliance	<p>(2) Reports received: CHP BOILER 5 NOx CEMS 4th QUARTER 2023 REPORT for EE and monitoring system performance. Submitted to TPU and district. ALSO CPP Boiler 6 CEMS 4th Quarter 2023 Report. Boiler 6 Report downtime 2.74%. 42 hours. No NOx EE reported. Monitor downtime other known monitor downtime causes. Boiler 5 Report downtime 0.42%. 8 hours. No NOx EE reported. Monitor downtime other known monitor downtime causes.</p>

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01/08/2024	Telephone Notes	Compliance	Call to notify CHP gas flow meter malfunctioned & stopped working sometime evening 1/6/24. Solar is in control of Unit and is scheduled to be onsite to replace tomorrow (1/9). UM plans to use pre-failure load, hours and other measures to estimate monitored continuous gas flow (ROP/PTI condition). They will assume worst case, report deviation, review MAP for necessary updates, and are considering installing a back up meter UM controls in emergencies/future. Acceptable.
12/26/2023	Stack Test	Compliance	Received Stack Test Results Report for EUCPP-CHPHRSG Annual Formaldehyde. Required by ROP -M0675--2021b and 40 CFR 63 Subpart YYYY. Test results indicate emissions less than limit of 91 ppb. Result <24 (< means compound was below the MDL of the analytical method.) Montrose Tester. Test high load range (90-110% load). Duct burners off. Controls operating: dry low NOx, SCR, and Oxidation catalyst.
12/20/2023	Other	Compliance	Notice regarding UM Research Center Gen testing 12/19-20. Brandi sent email: I wanted to let you know that the first engine tested yesterday (550KW) began having issues during Run 2 and had to be shut down. Repairs were made and the test continued today but unfortunately the engine began having issues again and the test was shut down. Repairs will be completed and UM will inform you when the test is rescheduled. However the 600KW unit passed with no issues. This will all be addressed in the test report.
12/19/2023	Stack Test Observation	Compliance	Conducted brief observation of Day 1 of 2 day testing. UM Research Museum Center Emergency Generators. Tester: Tyler, Impact Consulting. TPU Andrew Riley assigned; not able to obs. Brandi not on-site today, will be tomorrow.

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10/31/2023	Stack Test Observation	Compliance	UM Central Power Plant EUCPP-CHPHRSG formaldehyde emissions test. Was rescheduled for October 31, now that a catalyst has been installed, per Subpart YYYY, UM will be testing as required per Subpart YYYY and consider this as the annual test.
10/25/2023	Excess Emissions (CEM)	Compliance	CPP BOILER 6 NOx CEMS 3RD QUARTER 2023 REPORT for EE and monitoring system performance. Submitted to TPU and district. CPP Boiler 6. CEMS downtime Zero. No NOx EE reported. Monitor downtime 0%.
10/25/2023	Excess Emissions (CEM)	Compliance	CHP BOILER 5 NOx CEMS 3RD QUARTER 2023 REPORT for EE and monitoring system performance. Submitted to TPU and district. CHP Boiler 5 CEMS downtime 0.1%. 2 hours of downtime. No NOx EE reported. Monitor downtime (d.) other known monitor downtime causes.
10/10/2023	Reg. Applicability Determination		(Update to 6/20 & 8/17) UM may install catalyst this week. Testing pending week of October 30th. Less important now that catalyst is being installed as compliance with YYYY. Email w/Brandi, also states will submit R215(3) off permit change forms possibly next week. Will notify with actual testing dates.
09/08/2023	ROP Semi 1 Cert	Compliance	ROP 2023 1st Semi-annual Cert & Dev Report. Report one Deviation = CSSB ran under failed conditions 2x (3/15) 30 min & (4/19) 15 min automatic monthly test starts. Was shut down immediately. After repairs/delay CSSB was compliance tested on June 23, 2023. Cummins 800HP nat gas fired, SI RICE Subpart JJJJ. Test every 3 yrs. NOx, CO, VOC. Max routine op conditions (within 10% of 500 kW electricity output). Fuel 7,422 CFH. CO 154 ppm (limit 540); NOx 59.6 (limit 160); VOC 4.12 (limit 86). Compliant.

Activity Date	Activity Type	Compliance Status	Comments
09/07/2023	Stack Test	Compliance	<p>TPU online form submittal. EUGENSOUTHQUAD Notice of proposed testing. Last test 10/28/2020. Scheduled for 10/18/23. Impact Tester. NOx, CO, VOC/HAP NSPS JJJJ. DELAYED DUE TO MAINTENANCE ISSUES CUMMINS WORKING ON. 11/2 BRANDI EMAIL: It's unfortunate Cummins is still troubleshooting the South Quad Generator and will be continuing to work on it. They are scheduled to return Monday, November 6, and therefore the test will need to be rescheduled. ... tentatively rescheduled it for November 16-17. ON 11/9 EMAIL FROM BC: Cummins was on site this week to continue troubleshooting the South Quad generator and found the issue, but unfortunately they will not be able to repair by the rescheduled test date of November 17th. The test is now rescheduled for January 10, 2024 which is ICT's earliest available test date. 3/28 DKV note: this did not occur. Continue delays; Brandi email states now scheduled for July 16, 2024</p>
09/06/2023	Stack Test	Unknown	<p>Contact Brandi Email: "UM CPP was able to schedule another formaldehyde test at the end of September to try and test during colder temperatures (around 40 degrees). A test plan will be following shortly, but I wanted to keep you informed. We are hoping to allow this to be considered another annual test even though we just did it in April. The EPA was informed of the test as well." UPDATE 10-19 Catalyst was installed Subpart YYYY. Testing rescheduled to Oct 31st. THIS WILL BE REQ'D ANNUAL TEST.</p>

Activity Date	Activity Type	Compliance Status	Comments
08/17/2023	Reg. Applicability Determination		<p>(UPDATE to 6/20 entry) 8/14 Email rec'd UM submittal UM CPP Exemption Evaluation. "As previously discussed, the UM CPP is installing catalytic oxidation due to becoming subject to 40 CFR Part 63, Subpart YYYY. It is our understanding that this would be exempt from the Michigan Permit to Install requirements and therefore attached an exemption evaluation. Please let us know if you concur or if you would like to discuss further. The signed hard copy is being sent via USPS."</p> <p>8/17 Call w/Brandi. Appears acceptable. DKV clarified no reference to YYYY compliance in current ROP CHP Table. UM needs to submit ROP R215(3) off permit notice of intent to comply w/MACT YYYY. Upon renewal AQD will incorporate our existing Template Table YYYY. DKV sent copy. Brandi agreed to submit. Also, verified UM complies w/current limits and change results in some emission increases (CO2, CO2e) below SERs. Brandi said communicating w/EPA. Cat Ox may arrive end of September and quick to install. UM plan is to test again in hopefully colder weather at end of Sept to be ready for Winter operation if Cat Ox delayed. Current EPA approved temperature parameters w/o cat ox are not below @ 32 degrees F. Cat Ox removes operating temp requirement but still requires annual testing for formaldehyde. UM has 2 recent compliant tests w/Formaldehyde standard (well below) w/o control. AQD email today copy of template & stated req'd to submit Off-permit notice and keep informed of install & testing.</p>

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08/16/2023	MACT (Part 63)	Unknown	RECEIVED FORMAL SUBMITTAL: UM CPP is installing catalytic oxidation due to becoming subject to 40 CFR Part 63, Subpart YYYY. It is our understanding that this would be exempt from the Michigan Permit to Install requirements and therefore attached an exemption evaluation. Please let us know if you concur or if you would like to discuss further. The signed hard copy is being sent via USPS.
08/15/2023	Stack Test	Compliance	TEST RESULTS REPORT REC'D UM by email. Emergency generator test report. Report is for ISR which took place on June 20, 2023. Signed hard copy sent to TPU. IMPACT Tester. REVIEW: Cummins 700HP, nat gas fired, SI-RICE Subpart JJJJ. Test every 3 yrs. NOx, CO, VOC. Max routine op conditions (within 10% of 450 kW electricity output). Fuel use 5,832 CFH; CO 340 ppmvd (limit 540); NOx 58.6 (limit 160); VOC 36.3 (limit 86). Compliant
08/15/2023	Stack Test	Compliance	TEST RESULTS REPORT REC'D UM by email: Emergency generator test report. Report is for CSSB which took place on June 23, 2023 after it was repaired. Signed hard copy sent to TPU. IMPACT Tester. REVIEW: Cummins 800HP nat gas fired, SI RICE Subpart JJJJ. Test every 3 yrs. NOx, CO, VOC. Max routine op conditions (within 10% of 500 kW electricity output). Fuel 7,422 CFH. CO 154 ppm (limit 540); NOx 59.6 (limit 160); VOC 4.12 (limit 86). Compliant.
07/24/2023	Excess Emissions (CEM)	Compliance	CPP BOILER 6 NOx CEMS 2nd QUARTER 2023 REPORT for EE and monitoring system performance. Submitted to TPU and district. CPP Boiler 6. Appears CEMS downtime 13 hours (3.2%) total various reasons: process startup shutdown, maintenance & calibrations. No NOx EE reported. Monitor downtime 0.6%. LINEARITY = all PASS.

Activity Date	Activity Type	Compliance Status	Comments
07/24/2023	Excess Emissions (CEM)	Compliance	<p>CHP BOILER 5 NOx CEMS 1ST QUARTER 2023 REPORT for EE and monitoring system performance. Submitted to TPU and district. CHP BOILER 5. Appears was some CEMS downtime 2 hours (0.1%) total various reasons: scheduled preventative maintenance. No NOx EE reported. Monitor downtime 0.0%. LINEARITY = all PASS.</p>
06/20/2023	Telephone Notes	Compliance	<p>UM requested call to discuss installation of Catalytic oxidizer control on CPP -CHP MACT YYYY subject EU. Recent EPA approved petition to operate uncontrolled however was conditional based on UM test data. UM decided best to add on CatOx control. Lillian Wooley, FTCH consultant is working w/Brandi to submit exemption demonstration R278 / R285(e). Call to discuss their proposal. AQD requested address enforceability as well. Lillian said MAP now O&M as req'd by YYYY does address control. Reminded YYYY UAR is in ROP. Perhaps can modify to add specifics for cat/ox. I suggested they add to their submittal and they agreed. Brief discuss if permit req'd would want Waiver to start. In talks w/Rentech, Cat/ox manufacturer = close to purchase order. Only need to manuf/install - CHP has built in place for it. Plan for FALL install to be ready for Winter operation.</p>

Activity Date	Activity Type	Compliance Status	Comments
06/16/2023	ROP Other	Compliance	<p>Alternate Testing EU, CPP Boiler 3 and Boiler 4. Certification. Submittal for the 5-year oxides of nitrogen emissions testing data per FGB0260-03-04 SC V.4. Term is 2019 through present. Includes: Seven maximum steam loads from each boiler; Seven maximum emissions rates (lbs/MMBtu) from each boiler; All quarterly linearity tests as required per 40 CFR Part 75; Data submitted to the EGLE, AQD District Supervisor. REVIEW: All linearity passed. Last linearity: 4.20.23 BLR 4 and 4.26.23 BLR 3. Cover letter says 7 max steam loads & emission rates from each boiler but there are actually 8 readings provided for each. ACCEPTABLE.</p>
05/25/2023	Reg. Applicability Determination	Compliance	<p>Document communication UM and EPA regarding MACT YYYY. UM petition EPA, approval rec'd for conditional operation. UM requested broader operation. EPA refused without further petition/testing. UM stated will add on Ox catalyst; need time; possibly other tests in cold weather. EPA & UM to discuss next week.</p>

Activity Date	Activity Type	Compliance Status	Comments
05/08/2023	CEM RATA	Compliance	<p>Annual Central Power Plant Relative Accuracy Test Audit Results report. Test audit was conducted March 21-24, 2023. IMPACT TESTER. CPP Boiler Nos. 3, 4, 6 and CHP Unit. EUCPP-CHPHRSG NOx ppmvd at 15% O2 = 3 (allowable standard 10) and O2% = 0.1 (allowable standard 1.0); EUB0260-03 NOx =1.3% (7.5); EUB0260-04 NOx =2.5% (7.5); EUB0260-06 NOx =3.4% (7.5). O2% all well below 0.7 allowable standard for the Boilers. NOTE: Daniel Droste TPU & DKV observed portions of the testing. Operating data: CHP boiler 5 operated greater than 50% max load 122.9 MMBtu/hr = 119.6 kscfh x 1,028 Btu/scf /10 exp 3. Other Boilers have to operate at normal Part 75 load. Boiler 3 (97-150 klb/hr of steam output); Boiler 4 (same); Boiler 6 (115 and 178 klb/hr of steam output). All operated within range. All tests were (9) 21 minute runs.</p>
04/21/2023	Other	Compliance	<p>AQD approved a 60 day extension to conduct required NSPS JJJJ Generator testing at UM. CSSB is pending repair & is not operational. Per Brandi email update "Cummins just confirmed that the CSSB generator is scheduled to be repaired May 1, 2023. However after the repair, they have to perform a tuning but that can't be scheduled till after the repair. Unfortunately this will exceed the previous approved extension. UM will know more after the repair, but at this time, can UM request an additional 60 days in order to complete the emissions test. The weekly and monthly runs are still not being performed." Acceptable.</p>

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04/20/2023	Excess Emissions (CEM)	Compliance	CPP BOILER 6 NOx CEMS 1ST QUARTER 2023 REPORT for EE and monitoring system performance. Submitted to TPU and district. CPP Boiler 6. Appears CEMS downtime @ 9 hours total various reasons: process startup shutdown, maintenance & calibrations. No NOx EE reported. Monitor downtime 0.6%. LINEARITY = all PASS.
04/20/2023	Excess Emissions (CEM)	Compliance	CHP BOILER 5 NOx CEMS 1ST QUARTER 2023 REPORT for EE and monitoring system performance. Submitted to TPU and district. CHP BOILER 5. Appears was some CEMS downtime @ 1 hours total various reasons: scheduled preventative maintenance. No NOx EE reported. Monitor downtime 0.0%. LINEARITY = all PASS.
04/14/2023	Other Non ROP	Compliance	Notification within 30 days of completion of North Campus Research Complex Gas Turbine overhaul project. Previously approved (11/12/2009) routine maintenance; being part of UM's normal maintenance program. Exemption Rule 336.1285(2)(a) (vi). The project was completed on April 7, 2023.
04/13/2023	Stack Test Observation	Compliance	On-site observation of CPP-CHP formaldehyde testing to satisfy the EPA request regarding UM's Subpart YYYYY petition and the annual MACT YYYYY annual testing requirement contained in their ROP. Note TPU unable to observe testing this week 3 days of testing; this is the last day.
04/03/2023	ROP Annual Cert	Compliance	2022 Annual Cert & Dev report. 1 deviation 2nd semi and 2 deviations 1st semi. Acceptable.
04/03/2023	ROP SEMI 2 CERT	Compliance	2nd 2022 Semi-annual ROP Cert & Dev report. Report one deviation EUCPP-CHPHRSG IV.3 3rd quarter. Linearity was not performed. State stack test was performed 3rd Q & CEMS daily cal was performed with no issues. Linearity was performed in 4th Q. Added to PM schedule for quarterly.

Activity Date	Activity Type	Compliance Status	Comments
04/03/2023	Stack Test	Compliance	District/TPU rec'd UM CPP CHP Formaldehyde Protocol Plan for NESHAP (MACT) YYYY per EPA Region 5. UM petitioned EPA requesting use of the existing control system, including dry low NOx combustion system, to comply with YYYY. Initial formaldehyde testing and result was submitted w/petition, well below limit of 91 ppb. UM has since been in discussion w/R5 and EPA wants additional testing at cooler time of year (lower ambient temps). This test is planned for week of 4/10, and will be in two ranges 50-60% load and 90-110% load. Test also satisfies UM/ROP/YYYY annual testing requirement for 2023.

Name: *Alicia Kavanaugh-Vetort*

Date: 4/23/2023

Supervisor: 