

NJWEA 2024

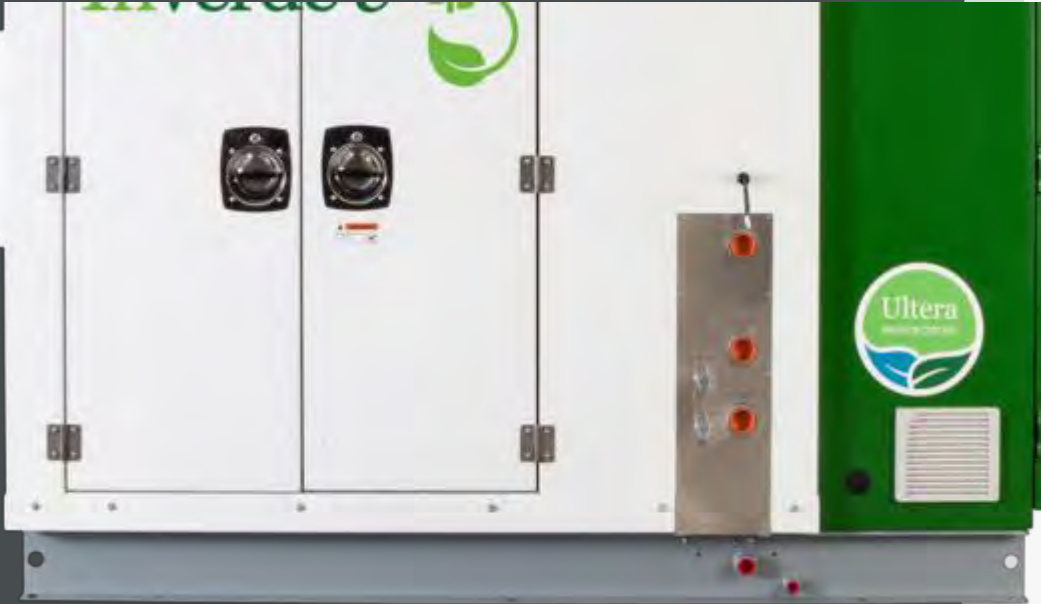
AIR POLLUTION – GREENHOUSE GAS PRESENTATIONS



TODAY

- Micro CoGens: A Compliance Perspective
 - Sneaky! HAP Reporting Limits
 - Permit Review Times
 - New Permit Submittal Requirements
- NJDEP GP-019A Mobile Equipment (Tub grinders, Rock Crushers, etc.)
- Tips & Tricks: GPS Mapping & Periodic Stack Testing

Small Scale CHP



Who: 3 different clients installing new engines at their site. Both for emergency/prime power and process/space heating.

What: Multiple small natural gas fired engines are installed on site. Sizes ranges from 50kW to 125kW

Why: Can dramatically reduce energy costs, increase site energy independence and provide “free” heat/hot water for on-site processes.

So how does NJDEP treat this in New Jersey?

Small Scale CHP



“CHP”

- is a technology that produces electricity and thermal energy at high efficiencies using a range of technologies and fuels.
- With on-site power production, losses are minimized and heat that would otherwise be wasted is applied to facility loads in the form of process heating, steam, hot water, or even chilled water.

Micro CHPs



How does the emissions spec sheet look?

Post-Cat Stationary Emissions Chart Data									
				g/kW-hr			%		
				NMHC	CO	NOx	NMHC	CO	NOx
Test Sample B - 2600 rpm				0.00	0.20	0.02	0.0%	7.3%	1.5%
Test Sample B - 800 rpm				0.00	0.16	0.01	0.0%	6.0%	0.8%
Stationary NG Emissions Standards (g/kW-hr):				0.94	2.68	1.34			

Exemptions for air permits from NJDEP:
N.J.A.C 7:27-8.2(f)


Any piece of electric generating equipment, other than a fuel cell system or a microturbine, with less than 500 kilowatts generating capacity and that has been verified according to the requirements in (f)2 below to emit less than:

- (1) 0.40 pounds of NOx per megawatt hour;
- (2) 0.25 pounds of CO per megawatt hour;
- (3) 0.10 pounds of PM per megawatt hour; and
- (4) 0.01 pounds of SO2 per megawatt hour;

Micro CHPs

Certified by EPA & Exemption letter from NJDEP




State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR QUALITY
PO Box 420 Madison 401-02
TRENTON, NJ 08625
609. 984. 1484

BOB MARTIN
Commissioner

November 18, 2011

Melinda M. Furse
Product Certification Project Manager
Tecogen Inc.
45 First Ave.
Waltham, MA 02451

RE: Establishing CM-75, CM-100, and CM-60 cogeneration modules as non significant sources of emissions pursuant to N.J.A.C. 7:27-8.2(f)1.ii.

Dear Ms. Furse:


The New Jersey Corporation for Advanced Technology (NJCAT) submitted a verification report to the New Jersey Department of Environmental Protection (NJDEP) supporting a performance claim that the CM-75 cogeneration module rated at 75 kW capacity and developed by Tecogen, Inc., is not a significant source of emissions pursuant to N.J.A.C. 7:27-8.2(f)1.ii. The CM-75 module consists of a natural gas fired GM 7.4L naturally-aspirated V8 engine driving an induction generator at approximately 1800 rpm. Low emissions values are achieved through an advanced two-stage exhaust gas treatment technology that uses an upstream Süd-Chemie three-way catalyst assembly to perform the bulk of all criteria pollutant reductions, followed by air injection into the exhaust stream to serve a second-stage oxidation catalyst assembly to further reduce carbon monoxide and hydrocarbons.

According to the NJCAT verification report, "the Tecogen CM-75 Cogeneration Module fired with natural gas when operated at 100% load has demonstrated by source emission testing that it emits less than 1) 0.40 pounds of NO_x per megawatt hour, 2) 0.25 pounds of CO per megawatt hour, 3) 0.10 pounds of PM per megawatt hour; and 4) 0.01 pounds of SO₂ per megawatt hour and, therefore, it is not a significant source of emissions in accordance with N.J.A.C. 7:27-8.2(f)1.ii." The testing was conducted in California by Almega Environmental & Technical Services according to acceptable EPA and South Coast Air Quality Management District (SCAQMD) analytical methods; referenced in the verification report along with the results of the tests.

Also, as described in the NJCAT's verification report, other Tecogen 7.4L naturally-aspirated V8 engine driven cogeneration models, namely the CM-60 (60 kW capacity) and INV-100 (100 kW capacity), all benefit from the same closed-loop air/fuel ratio control provided by the advanced two-stage exhaust gas treatment technology. Exhaust catalysts are sized according to the maximum exhaust gas flow rate for the respective models, which inherently compensates for variable engine speeds. Furthermore, the performance of models CM-60 and INV-100 is better than the CM-75 model as the respective space velocities (time exhaust gases are in contact with catalytic material) are of lower values.

Based on the verification report, the Tecogen's CM-75 cogeneration module consisting of the natural gas fired GM 7.4L naturally-aspirated V8 engine driving an induction generator at approximately 1800 rpm as a non significant source of emissions. Similarly, models CM-60 and INV-100 are also non significant sources. Therefore, this equipment does not need air pollution preconstruction permits or operating certificates, provided emissions are maintained below the levels specified at N.J.A.C. 7:27-8.2(f), which are referenced above.

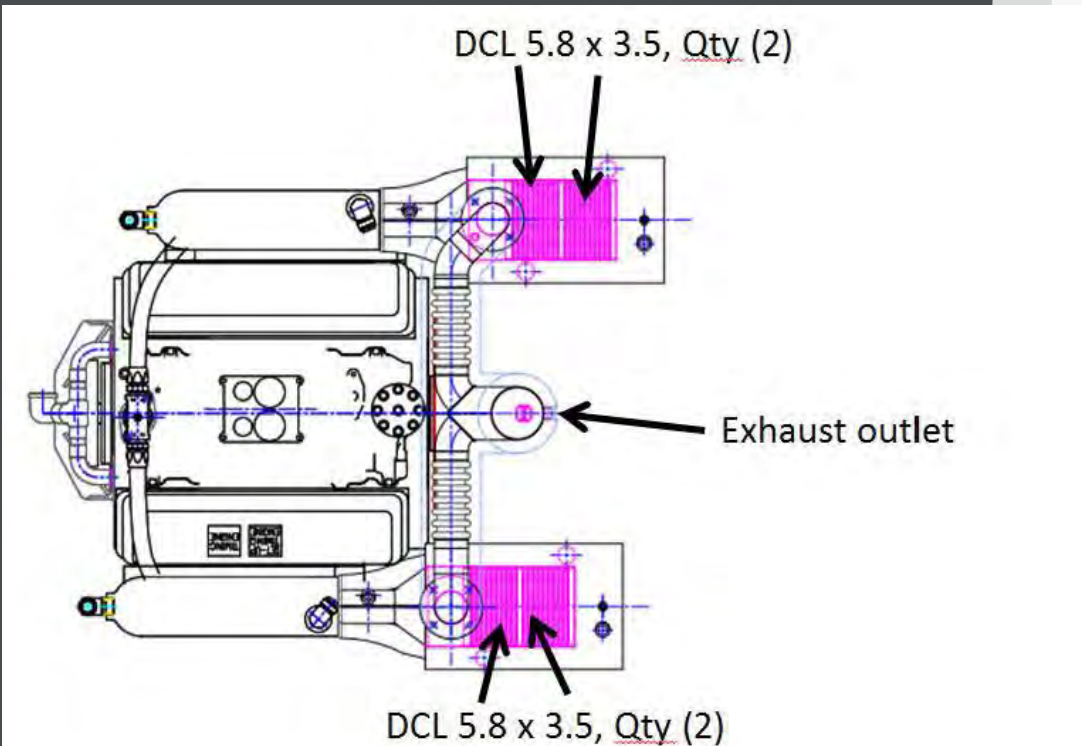
If you have any questions regarding this determination please contact Mr. Robert Kettig of my staff at (609) 633-3858. I appreciate the efforts of your company and NJCAT to verify the low emissions from these engine configurations.

Respectfully,

William O'Sullivan, P.E.
Director
Division of Air Quality

Ed Choromanski, Director, Air & Hazardous Waste Enforcement
John Preczewski, Asst. Director, Air Quality Permitting, DAQ
Robert Kettig, Section Chief, Air Quality Permitting, DAQ
Ravi Patraju, Research Scientist, Economic Growth and Green Energy
Dr. Richard Magee, Technical Director, NJCAT

HAPs

Emission Rates



What happened?

- HAPs
- Natural byproduct of natural gas combustion
- NJDEP Revised HAP Rule and significantly lowered limits.
- All of the normal emissions (NO_x, CO, VOC, etc.) are all below the reporting thresholds levels in the regulations.
- This is likely why these small units were considered insignificant sources and didn't require a permit previously.
- However two Hazardous Pollutants
 - Acrolein (1.0 lb/yr) and
 - Formaldehyde (3.5 lb/yr)
 - Were above reporting thresholds.
- The NJDEP significantly lowered these thresholds a few years ago.

Micro CHPs



So what's required?

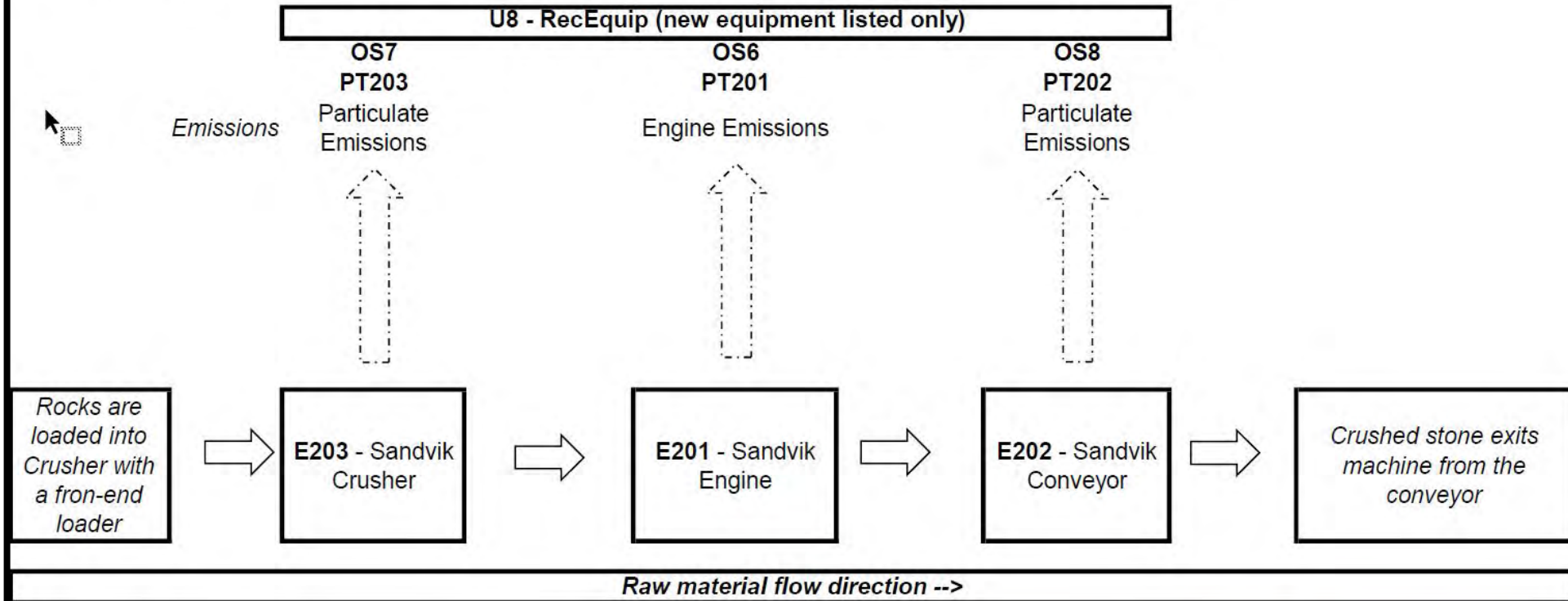
- Preconstruction Permit
 - NJDEP Averaging more than 6 months for permit review
 - Level 1 risk screening analysis
 - Expanded Site Plan
 - Process Flow Diagram
 - Potential to Emit Calculations
- Environmental Justice Review

RISK TABLE

NJDEP DIVISION OF AIR QUALITY RISK SCREENING WORKSHEET																
For Long-Term Carcinogenic and Noncarcinogenic Effects and Short-Term Effects																
April 2023																
Read the Instructions tab carefully before completing this spreadsheet.																
Date	1/8/2024															
Facility ID No.	78341															
Activity ID No.																
Facility name	Medical Center of Ocean County															
Facility location	425 Jack Martin Blvd., Brick, NJ															
File name (.xls)																
Emission Unit/Batch Process ID No.	U1	Stack height ¹	100.0 ft													
Emission Point ID No.	PT1	Distance to property line	273 ft													
Equipment ID No(s).	E1	Annual air impact value, C'	1.69204 (ug/m ³)/(ton/yr)													
Operating Scenario(s)	OS1	1-hour air impact value, C' _{st}	167.4307 (ug/m ³)/(lb/hr)													
KEY:	Long-Term Effects							Short-Term Effects								
	<p>Q = Annual emission rate (in tons per year) contributed from the source</p> <p>C = C' x Q = Annual average ambient air concentration</p> <p>URF = Unit risk factor (for carcinogenic risk)</p> <p>IR = C x URF = Incremental risk (for carcinogen)</p> <p>RfC = Reference concentration (for noncarcinogenic effects)</p> <p>HQ = C/RfC = Hazard quotient (for noncarcinogenic risk)</p> <p>Rslt = The result of comparing the IR or HQ to the negligible threshold (FER if > threshold, Negl. if <= threshold)</p> <p>FER = Further Evaluation Required (See Notes for thresholds)</p> <p>Negl. = Negligible (See Notes for thresholds)</p>							<p>Q_h = Hourly emission rate (in pounds per hour)</p> <p>C_{st} = C' x Q_h = Short-term average ambient air concentration</p> <p>RfC_{st} = Short-term reference concentration (for noncarcinogenic effects)</p> <p>HQ_{st} = C_{st}/RfC_{st} = Hazard quotient for short-term noncarcinogenic effects</p> <p>Rslt = The result of comparing the HQ_{st} to the negligible threshold (FER if > threshold, Negl. if <= threshold)</p> <p>FER = Further Evaluation Required (See Notes for thresholds)</p> <p>Negl. = Negligible (See Notes for thresholds)</p>								
	<p>¹ When evaluating risk for diesel engines, use the equivalent stack height consistent with the memo dated June 10, 2009. Click here to view the "Stack Height Equivalents for Use in First Level Screening Analyses for Diesel Engines" memo.</p>															
				LONG-TERM EFFECTS							SHORT-TERM EFFECTS					
	H A P	CAS No.	Air Toxic	Q (ton/yr)	C (ug/m ³)	URF [(ug/m ³) ⁻¹]	IR	Rslt	RfC (ug/m ³)	HQ	Rslt	Q _h (lb/hr)	C _{st} (ug/m ³)	RfC _{st} (ug/m ³)	HQ _{st}	Rslt
1	*	75070	Acetaldehyde			2.2E-06			9					470		
2	*	60355	Acetamide			2.0E-05										
3		67641	Acetone						31000					62000		
4		75865	Acetone cyanohydrin						2							
5	*	75058	Acetonitrile						60							
6	*	98862	Acetophenone						0.02							
7	*	53963	Acetylamino fluorene (2-)			1.3E-03										
8	*	107028	Acrolein	8.7E-05	1.5E-04				0.02	7.4E-03	Negl.	2.0E-05	0.003315	2.5	1.3E-03	Negl.
9	*	79061	Acrylamide			1.0E-04			6							
10	*	79107	Acrylic acid						1					6000		
11	*	107131	Acrylonitrile			6.8E-05			2							
12		309002	Aldrin			4.9E-03										
13	*	107051	Allyl chloride			6.0E-06			1							
14		117793	Aminoanthraquinone (2-)			9.4E-06										
15	*	92671	Aminobiphenyl (4-)			6.0E-03										
16		7664417	Ammonia						100					3200		
17	*	62533	Aniline			1.6E-06			1					3000		
18	*	90040	Anisidine (o-)			4.0E-05										
19	**	1309644	Antimony trioxide						0.2							
20		140578	Aramite			7.1E-06										
21	*		Arsenic (inorganic)			4.3E-03			0.015					0.2		
22	**	7784421	Arsine						0.05							
23	*	122221	Asbestos			7.3E-02										

PROCESS FLOW

Process Flow Diagram



E201, E202, E203
 Manufacturer SANDVIK
 Model QJ341
 Type of Equipment Concrete crushing machine
 Horsepower 375 HP
 Rating 280 kW
 Gross Heat Input 2.8 Mmbtu
 Run Hours 1000 Hours
 Est Fuel Usage (annual) 19,718 Gallons
 Capacity 450 Tons Per Hour
 Annual Production Rate 450,000 Tons crushed per year



SITE PLAN

Site Plan

Core Business of the Company

Class B materials include wood, brush, stumps, tree parts, and concrete. The wood products are ground down into either wood chips, or mulch with some topsoil being recovered in the processing as well. Concrete is pulverized into a crushed concrete product. Wood is run through Grinders and sifted through screeners to make different mulch products. Concrete is crushed and then screened into different sizes.

Map Location	OS: U8 - RecEquip	E NJID	Facility's Designation	Equipment Description	PT NJID	Material Processed
#1	OS4	E402	ScalprScreen	Scalper Screener Screen	PT402	Class B Recycling Materials
	OS5	E403	ScalprConvey	Scalper Screener Conveyor	PT403	
	OS8	E5	McClosScreen	McCloskey Trommel Screen	PT5	
#2	OS9	E6	McClosConvey	McCloskey Trommel Screen Conveyors	PT6	
	OS10	E4	McClosEngine	McCloskey Trommel Screen Engine	PT4	
#3	OS11	E8	RtChopGrinde	Rotochopper Grinder	PT8	
	OS12	E9	RtchopConvey	Rotochopper Conveyors	PT9	
	OS13	E7	RtchopEngine	Rotochopper Engine	PT7	
#4	OS14	E500	PtsonEngine	Peterson 4700 CAT Engine	PT500	
	OS15	E501	PtsonGrind	Peterson 4700 Grinder	PT501	
	OS16	E502	PtsonConvey	Peterson 4700 Conveyors	PT502	
#5	OS17	E201	Sandvik	Crusher	PT201	
	OS18	E202	Sandvik	Conveyor	PT202	

Environmental Justice (EJ)

1. Is the facility located in an overburdened community?
2. Is the facility type covered by the EJ Law?
3. Is the authorization sought covered by the EJ Law?
 - The authorization must be an individual permit.
 - The statutes governing the covered permits are enumerated by the EJ Law.

If the answer to all three questions above is “yes,” then AO 2021-25 applies.

Overburdened Communities (OBC)

Under the Environmental Justice Law

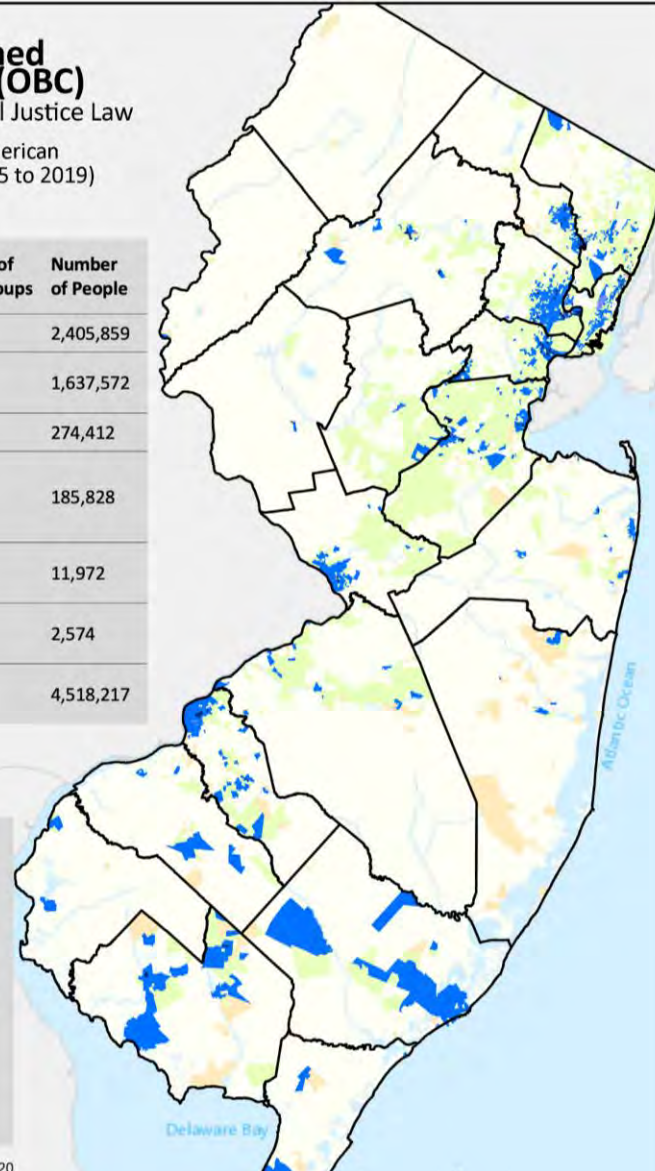
Data from 5 Year American Community Survey (2015 to 2019)

Category of OBCs*	Number of Block Groups	Number of People
Minority	1,670	2,405,859
Low Income & Minority	1,165	1,637,572
Low Income	197	274,412
Low Income, Minority, & Limited English	122	185,828
Minority & Limited English	12	11,972
Low Income & Limited English	2	2,574
TOTAL	3,168	4,518,217

□ Counties

*The Environmental Justice law defines OBCs as block groups with:

- (1) At least 35 percent low-income households; or
- (2) At least 40 percent of the residents identify as minority or as members of a State recognized tribal community; or
- (3) At least 40 percent of the households have limited English proficiency



OVERBURDENED COMMUNITIES

<https://www.nj.gov/dep/ej/>

QUESTIONS

Mobile Equipment



General Permit (GP-019A) For Temporary Equipment

1. A single temporary diesel engine 2014 model year and later used solely for mechanical work, that is directly or indirectly connected to another functional equipment, including but not limited to:
 - Cutter, Compressor, Pump, Tub grinder, Rock crusher, Elevator, Conveyor, Screener
2. This general permit is **only valid for one year** and cannot be renewed.
3. The one-year clock starts with this general permit's approval date; and operation of the temporary equipment is limited to the fuel consumption entered by the Permittee in the registration form.

OR

Preconstruction Permit (PCP)

Mobile Equipment

5 Year to 1 Year



General Permit (GP-019A) For Temporary Equipment

1. Approved April 2020
- 2. Why mention it now?**
- 3. Important because the old general permits (GP-19) are all now starting to expire.**
- 4. This permit is much shorter and more restrictive.**

Mobile Equipment Exclusions



GP-019A
04/06/2020

This general permit is only valid for one year and **cannot** be renewed. The one-year clock starts with this general permit's approval date; and operation of the temporary equipment is limited to the maximum fuel consumption entered by the Permittee in the registration form.

IV. EXCLUSIONS

This general permit cannot be used to register the following equipment:

1. Any equipment not meeting the Applicability Section (Section III) of this general permit;
2. Temporary equipment attached to a foundation;
3. Temporary equipment at the same facility staying for more than 12 months;
4. Temporary equipment used for short-term activities at the facility that will reoccur on an annual basis (cannot be re-permitted using this general permit, GP-019A);
5. Engines burning other than diesel fuel;
6. Electric power generation equipment or Gensets;
7. Emergency Generators as defined in N.J.A.C. 7:27-19.1;
8. Co-generation equipment;
9. Equipment used in the processing or recycling of food waste materials or sewage sludge;
10. Equipment used in the processing of any contaminated soil and/or contaminated construction wastes above the New Jersey allowed residential site cleanup standards pursuant to N.J.A.C. 7:26D-Last Revised 5/12/1999 or as supplemented or amended;
11. All types of cranes; and
12. Any fumigation activity.

Mobile Equipment

Stack Height & Setback

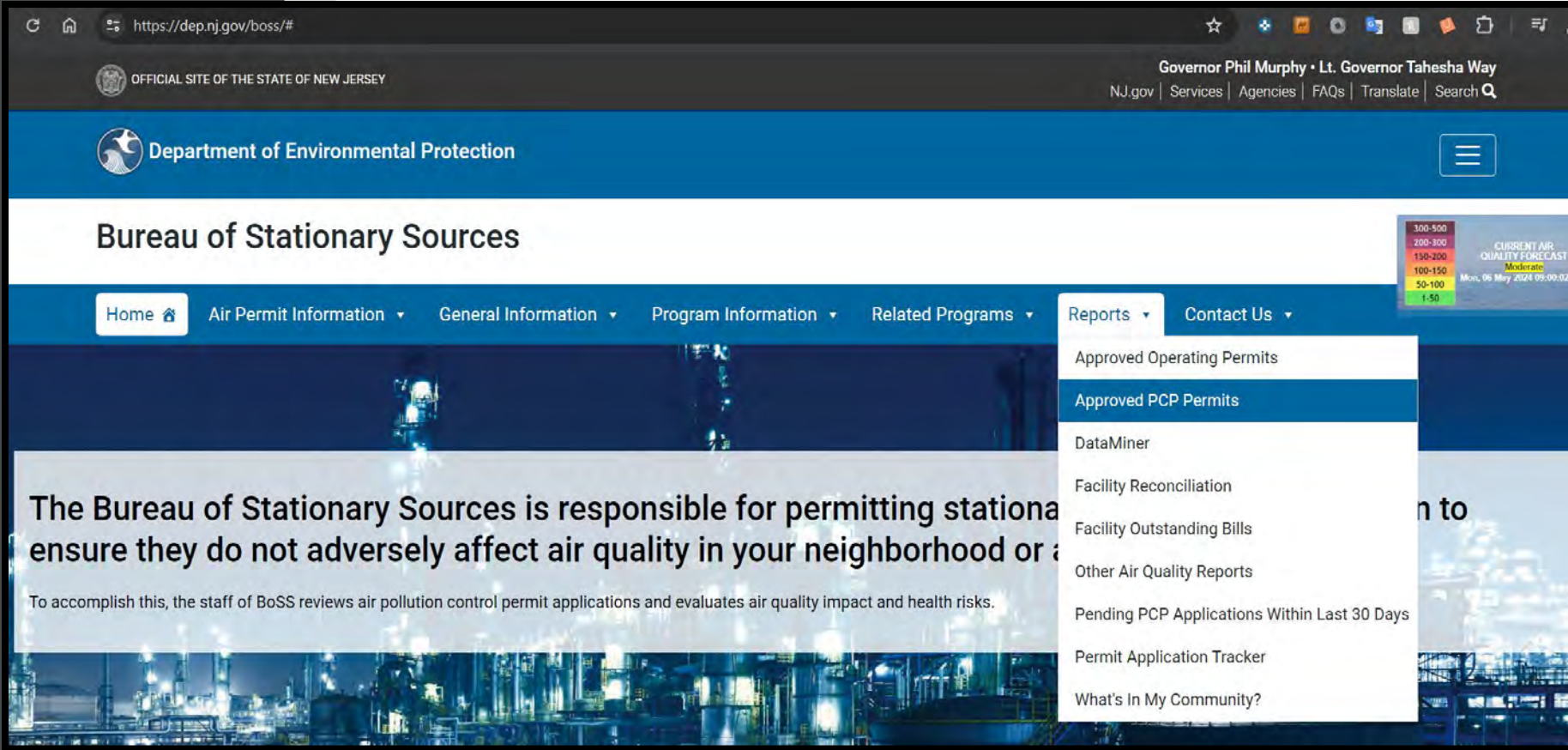


8	Stack Height should be equal to or greater than ($= >$) 10 feet; and Distance to Property Line equal to or greater than ($= >$) 50 feet. [N.J.A.C 7:27-8]	1
---	--	---

10	<p>Compliance with the annual emission limit for each criteria air contaminant; and each HAP contaminant emitted above the reporting threshold listed in Subchapter 17 shall be based on the maximum annual fuel consumption. Permittee shall comply with the fuel limit entered in the registration form.</p> <p>[N.J.A.C. 7:27-8.13(h)]</p>	<p>Monitored by fuel flow firing rate instrument continuously, based on a consecutive 12-month period (rolling 1-month basis). The Permittee shall install and operate fuel totalizer(s) to monitor the total amount of fuel burned.</p> <p>[N.J.A.C. 7:27-8.13(d)]</p>	<p>Recordkeeping by manual logging of parameter or storing data in a computer data system each month during operation. The Permittee shall record:</p> <ol style="list-style-type: none"> 1. Current reading from the fuel totalizer(s). 2. Monthly fuel usage. 3. Sum and record the current monthly fuel usage with the previous eleven (11) month fuel usage totals to determine the consecutive twelve (12) month total. <p>All records shall be maintained on site and made readily accessible to the Department upon request.</p> <p>[N.J.A.C 7:27-8.13(d)]</p>
----	---	---	--

Mobile Equipment

Where can I find my list of air permits?



Mobile Equipment

Where can I find my list of air permits?

Expiration Dates
Original Applications
Permit Details

<https://dep.nj.gov/boss/#>

Preconstruction Permit Report

05/06/24 10:03 AM

PI Number [REDACTED]
Facility Name [REDACTED]
Street Address [REDACTED]
City [REDACTED]
Street / Zip [REDACTED]

Activity Number	Status	Document Status Date	Permit Type	General Description of Application or Permit Type	Download PDF
GEN 220001	Approved	3/28/2022	(GP-016A) Manufacturing and Materials Handling Equipment	This is a General Permit, a pre-approved preconstruction permit which applies to a specific class of air pollution emission sources. By issuing a General Permit, the DEP indicates that it approves the activities authorized by the General Permit, provided that the owner or operator of the source registers with the Department and meets the requirements of the General Permit. The types of emission sources that are eligible to obtain a General Permit are listed at New Jersey regulation, N.J.A.C. 7:27-8.8. Additional general information about air permitting is available at http://www.nj.gov/dep/aqpp/ . For specific information about this permit, use the contact information below.	PDF Document
PCP 140001	Renewed	5/24/2022	Amendment	This is a request for a permit from DEP to construct equipment and emit air contaminants from specific emission sources. The types of emission sources required to obtain this preconstruction permit are defined in New Jersey regulation, N.J.A.C. 7:27-8.2. Additional general information about air permitting is available at http://www.nj.gov/dep/aqpp/ . For specific information about this permit, use the contact information below.	PDF Document
PCP 170001	Renewed	3/28/2022	Modification	This is a request for a permit from DEP to construct equipment and emit air contaminants from specific emission sources. The types of emission sources required to obtain this preconstruction permit are defined in New Jersey regulation, N.J.A.C. 7:27-8.2. Additional general information about air permitting is available at http://www.nj.gov/dep/aqpp/ . For specific information about this permit, use the contact information below.	PDF Document
PCP 220001	Pending	11/21/2022	Modification	This is a request for a permit from DEP to construct equipment and emit air contaminants from specific emission sources. The types of emission sources required to obtain this preconstruction permit are defined in New Jersey regulation, N.J.A.C. 7:27-8.2. Additional general information about air permitting is available at http://www.nj.gov/dep/aqpp/ . For specific information about this permit, use the contact information below.	PDF Document

Mobile Equipment

Where can I find my certificates?

<https://dep.nj.gov/online/>

MY WORKSPACE

Service Selection

Note: Access to this electronic service selection and submittal area is granted by selecting facilities using the [user profile](#). Some services are accessible without selecting facilities as shown below.

Environmental Justice
[E1 Submissions](#)

Division of Water Resources Management
[WQMP - Wastewater Management Plan](#)

Pesticide Operations
[Apply For Aquatic Pesticide Permit](#)

Solid and Hazardous Waste
[Solid and Hazardous Waste Reporting Services](#)
[eWaste Collection Plan](#)
[eWaste Renewal Registration](#)
[Vehicle Registration Add-on/Modification](#)
[Vehicle Registration Renewal](#)
[Recycled Content Manufacturer Registration](#)

Division of Water Quality
[NJDES Monitoring Reports \(DMRs, WCRs, RTRs\)](#)
[Dental Waste Certifications](#)
[Dental Waste Registration - New](#)
[Dental Waste Registration - Renewal](#)
[Stormwater Construction General Authorization](#)
[MSRP Annual Report](#)
[Stormwater Document Submittal](#)

Office of Dispute Resolution
[Request Alternative Dispute Resolution](#)

Site Remediation
[CERCLA / RCRA / DOD / DOE / EPA / Chrome Submission](#)
[LSRP-Related Services](#)
[ISRA General Information Notice \(GIN\)](#)
[Confirmed Discharge Notification \(CDN\)](#)

Toxic Catastrophe Prevention Act (TCPA)
[eNJRMP Submit](#)

Air Program
[RADIUS File Submission](#)
[General Permits \(for minor source facilities only\)](#)
[General Operating Permits \(for Title V major source facilities only\)](#)
[Registrations](#)
[NOx RACT Combustion Adjustment](#)
[Permit/Certificate Folder](#)
[Excess Emission Monitoring Performance Reports \(EMPR\)](#)
[Periodic Compliance Certification](#)
[Diesel Retrofit Program](#)
[GHG Monitoring & Reporting Rule](#)
[RGGI Submittals](#)
[GHG Pipeline Modernization Report](#)

[My Workspace](#) | [User Profile](#) | [Certifications](#) | [Payments](#) | [Documents and Forms](#) | [Permit Folder](#) | [NJDEP Online FAQs](#)




Version: 14.0.15
 Currently logged in: Matthew Mee (MATTHEWMEE)
 Server: Server_1

30448
 WANAQUE VALLEY RGNL SEWERAGE AUTH WWTP

[Help](#) | [Logout](#)

PERMIT/CERTIFICATE FOLDER

The Permit/Certificate Folder screen contains a list of all permits (General and Preconstruction) at the facility and the equipment included in those permits. Please click on the certificate icon to view the complete permit/certificate.

Permit Class	Activity Number	Permit Type	NJID#	Facility Designation	Expiration Date	Document Status	Certificate Icon
General Permit	150001	(GP-005A) Emergency Generators Burning Distillate Fuels	E-3	Aux. Gen.	12/03/2025	Renewed	
Preconstruction Permit	960002	Construction of New Source	E-201	DBA-AddEquip	12/31/2026	Renewed	
Preconstruction Permit	960003	Construction of New Source	E-301	DBA-AddEquip	12/31/2026	Renewed	

Clicking a column title will sort the table by that column.

* The renewal fee has been paid for this permit; however, the permit is pending review.
 ** Permit Certificates are not officially renewed until 12:01 am of the day of the original expiration date.

QUESTIONS

Tips & Tricks

Sewer Mapping



Tips & Tricks: Sewer Mapping



Consider adding GPS Mapping during your next round of sewer manhole inspections.

Arrow 100 – GPS Unit

- Affordable
- Accurate (Sub Meter)
- iOS & Android Compatible
- <https://eos-gnss.com/>



Arc-GIS Survey

- Easy Drag & Drop Form Creation
- Live Updates
- Export to any format
- <https://survey123.arcgis.com/>

Tips & Tricks: Sewer Mapping

ESRI Survey123

The screenshot displays the ESRI Survey123 interface. At the top, there are navigation and utility icons, a date range of 10/27/21 - 5/6/24, and options for Filter, Report, Export, and Open in Map Viewer. The main map area shows an aerial view of a residential area with several red circular markers indicating manhole locations. The markers are clustered along roads like Doty Rd and Lakeside Ave. A table below the map lists inspection data for these manholes.

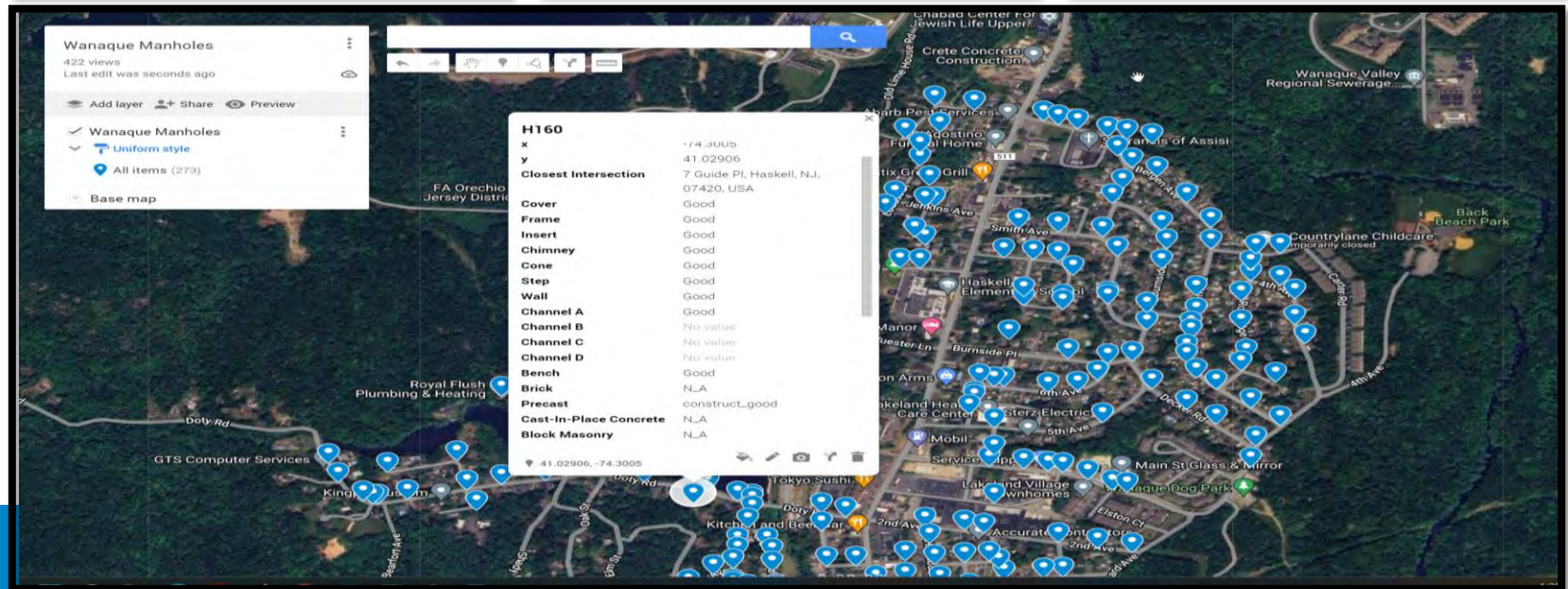
EditDate	Manhole #	Closest Intersection	Date & Time of Inspe...	Inspector Initials	Rain in the past 72 h...	Manhole Di...
6/6/2023, 11:03 AM	M473 - Update	Grist Mill Rd & Meadow Br...	12/14/2021, 10:00 AM	Gs	N/A	25
9/8/2022, 11:59 AM	M713	12 Stafford Dr, Wanaque, ...	9/8/2022, 11:56 AM	Mm	24 hours	26
9/8/2022, 11:59 AM	M712	17 Stafford Dr, Wanaque, ...	9/8/2022, 11:50 AM	Mm	24 hours	26
9/8/2022, 11:59 AM	M711	22 Stafford Dr, Wanaque, ...	9/8/2022, 11:45 AM	Mm	24 hours	26
9/8/2022, 10:51 AM	M710	3 Conrad Ct, Wanaque, N...	9/8/2022, 10:41 AM	Mm	24 hours	26
9/8/2022, 10:51 AM	M709	6 Glen Ct, Wanaque, NJ, 0...	9/8/2022, 10:35 AM	Mm	24 hours	26
9/8/2022, 10:51 AM	M708	13 Lovell Dr, Wanaque, NJ...	9/8/2022, 10:23 AM	Mm	24 hours	26
9/8/2022, 10:51 AM	M707	17 Lovell Dr, Wanaque, NJ...	9/8/2022, 10:19 AM	Mm	24 hours	26
9/8/2022, 10:18 AM	M706	21 Lovell Dr, Wanaque, NJ...	9/8/2022, 10:13 AM	Mm	24 hours	26

On the right side of the interface, there are navigation arrows, a home button, and a thumbnail of the current map. Below that, a sidebar shows the 'Closest Intersection' as 'Doty & oak' and includes two photo thumbnails: 'Photo #1 (Surface grade)' and 'Photo #2 (Inside Manhole)'.

GPS Manhole Mapping

Combine Operator Inspections of Sewers, with direct reading of inverts while building a GPS database.

Export to Google Maps



Tips & Tricks: Engine Sampling

Challenge

NJDEP continues to add periodic stack emission testing for engines.

Testing companies increasing costs 30% each year.

PCP140001

New Jersey Department of Environmental Protection Facility Specific Requirements

Emission Unit: U8 (6) Recycling Processing Equipment
OS14 Peterson 4700 Grinder Engine Operation

Operating Scenario:

Ref.#	Applicable Requirement	Monitoring Requirement	Recordkeeping Requirement
1	VOC (Total) \leq 0.09 lb/hr. [N.J.A.C. 7:27- 8.13(h)]	None.	None.
2	PM-10 (Total) \leq 0.14 lb/hr. [N.J.A.C. 7:27- 4]	None.	None.
3	SO ₂ \leq 1.53 lb/hr. [N.J.A.C. 7:27- 8.13(h)]	None.	None.
4	CO \leq 0.74 lb/hr. [N.J.A.C. 7:27- 8.13(h)]	CO: Monitored by periodic emission monitoring semiannually: once every six months; six month cycle shall begin on January 1 and July 1 of each year The permittee shall conduct periodic emissions monitoring semiannually in accordance with Technical Manual 1005. Periodic emission monitoring for CO shall be concurrent with NO _x and O ₂ periodic monitoring. [N.J.A.C. 7:27- 8.13(d)1]	CO: Recordkeeping by manual logging of parameter or storing data in a computer data system semiannually: once every six months; six month cycle shall begin on January 1 and July 1 of each year Results of the periodic emissions monitoring and calculations shall be recorded in a permanently bound logbook or by an electronic method that is easily accessible on site and at the time of inspection. [N.J.A.C. 7:27- 8.13(d)3]
5	NO _x (Total) \leq 10.2 lb/hr. [N.J.A.C. 7:27- 8.13(h)]	NO _x (Total): Monitored by periodic emission monitoring semiannually: once every six months; six month cycle shall begin on January 1 and July 1 of each year The permittee shall conduct periodic emissions monitoring semiannually in accordance with Technical Manual 1005. Periodic emission monitoring for NO _x shall be concurrent with CO and O ₂ periodic monitoring. [N.J.A.C. 7:27- 8.13(d)1]	NO _x (Total): Recordkeeping by manual logging of parameter or storing data in a computer data system semiannually: once every six months; six month cycle shall begin on January 1 and July 1 of each year Results of the periodic emissions monitoring and calculations shall be recorded in a permanently bound logbook or by an electronic method that is easily accessible on site and at the time of inspection. [N.J.A.C. 7:27- 8.13(d)3]

Tips & Tricks: Engine Sampling

Sampling Equipment

The testo 350 Portable Emission Analyzer

The Standard for Emission Testing and Combustion Analysis

Whether you are testing for compliance or troubleshooting and tuning your combustion process, the testo 350 has everything you need. The ultra-rugged construction, coupled with a simple intuitive operation, and innovative measurement technology, sets the standard in emission testing and combustion analysis.

The testo 350's exclusive sensor design, patented gas paths, active sample conditioning, intelligent automatic data logging, and testing programs, work together seamlessly providing a lightweight and simple-to-use emission monitoring solution.

The 350's housing, bump protection, and industrial connectors enable it to stand up to any field condition. Simply click on the application icon and the analyzer automatically begins its setup process. The proper parameters, correct calculations, and real diagnostics are displayed in HD color.

Control Unit

Docked or remote operation via Bluetooth (up to 300 feet) or wired (up to 3,000 feet).



The testo 350 is built with rugged cam-lock connections and a simple USB interface.

Analyzer Box

Superior rugged construction.



Rental Rate

Description	Quantity	Daily	Weekly	Monthly
Testo 350 Emissions Analyzer	1	\$220	\$850	\$2000
2 day minimum on testo rental				

Tips & Tricks: Engine Sampling

Test Method: EPA CTM-034



ICAC Test Method For Periodic Monitoring

Test Method - Determination of Oxygen, Carbon Monoxide and
Oxides of Nitrogen from Stationary Sources
For Periodic Monitoring
(Portable Electrochemical Analyzer Procedure)

1. APPLICABILITY AND PRINCIPLE

1.1 Applicability. This method is applicable to the determination of nitrogen oxides (NO and NO₂), carbon monoxide (CO) and oxygen (O₂) concentrations in controlled and uncontrolled emissions from combustion sources using fuels such as natural gas, propane, butane, and fuel oils. This method is designed to provide a reasonable assurance of compliance using periodic monitoring or testing. This method is not intended for use where an EPA reference test method is required. Due to inherent cross sensitivities of electrochemical (EC) cells, this method should not be applied to other pollutants or emission sources without a complete investigation of possible analytical interferences and a comparative evaluation with other EPA test methods.

1.2 Principle. A gas sample is extracted from a stack and is conveyed to a portable EC analyzer for determination of NO, NO₂, CO and O₂ gas concentrations. Analyzer performance specifications and test procedures are provided to ensure reliable data. Additions to, or modifications of, vendor supplied analyzers (e. g. heated sample lines, thermocouples, flow meters, etc.) may be required to meet the design specifications of this test method. Changes that diminish the analyzer from the as-verified (see Definitions, Section 3.15) configuration are not permitted.

Tips & Tricks: Engine Sampling

Test Method: EPA CTM-034



Figure 3 - Periodic Monitoring Report

Facility Name & Address Phone		Emission Point				
Analyzer make & model:			Serial #			
Calibration Gas Verification Information						
Calibration Gas Info. (manufacturer, expiration, etc.)	Gas type	O ₂ %	CO ppm	NO ppm	NO ₂ ppm	
	Concent.					
MEASUREMENT CYCLE (circle measurement task below)						
Pre-Test Verification <i>(zero, span, interference)</i>		Repeatability <i>(once per five days)</i>		Source Test <i>(_____)</i>	Post-Test Verification <i>(zero, span Interference)</i>	
Three Phases	Date:	Analyzer Response			Cell Temp	Flow Rate
	Start time: AM /	O ₂ %	CO ppm	NO ppm	NO ₂ ppm	
RAMP- UP Phase	t ₁					
	t ₂					
	t ₃					
	t ₄					
	t ₅					
TEST DATA Phase	t _{5:15}					
	t _{5:30}					
Phase	t _{5:45}					
	t _{6:00}					
	t _{6:15}					
	t _{6:30}					
	t _{6:45}					
	t _{7:00}					
Mean Average Concentration <i>(sum of t_{5:15} through t_{7:00} = 8)</i>						
Maximum Deviation <i>(no single reading exceeds ± 2% of mean average)</i>						
Acceptable "Test Data Phase"		Yes or No	Yes or No	Yes or No	Yes or No	
RE- FRES Phase	t ₇					
	t ₈					
	t ₉					
	t ₁₀					
	t ₁₁					
	t ₁₂					
	t ₁₃					
	t ₁₄					
	t ₁₅					
	Stop Time AM / PM					
Cell Temperature (± 10°F for each run, Not to exceed 20° F for test day) and Sample Flow Rate are within specifications (± 10% or as verified)					Yes or No	Yes or No

QUESTIONS



Licensed Operators
Scientists
LSRPs
Consultants
Since 1989

Matthew Mee
Principal Scientist
mmee@chapmanes.com
201-341-6285