NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: TBD, 2022

Region: Washington Regional Office
County: Craven
NC Facility ID: 2500019
Inspector's Name: Robert Bright
Date of Last Inspection: 12/21/2021
Compliance Code: B / Violation - emissions

Facility Data

Applicant (Facility's Name): Marine Corps Air Station - Cherry Point

Facility Address:
Marine Corps Air Station - Cherry Point
EAD, Building 4223
Cherry Point, NC 28533

SIC: 9711 / National Security
NAICS: 92811 / National Security

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 15A NCAC 02D .0503, .0516, 0521, .0524, and .1111
NSPS: 40 CFR Part 60, Subparts Dc and IIII
NESHAP: 40 CFR part 63, Subparts DDDDD and ZZZZZ
PSD: NA
PSD Avoidance: NA
NC Toxics: NA
112(r): NA
Other: NA

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Rich Weaver Air Quality Program Manager (252) 466-5917 EAD, Building 4223, Access Road Cherry Point, NC 28533+0006	Dale McFarland Air Quality Program Manager (252) 466-4598 EAD, Building 4223, Access Road Cherry Point, NC 28533+0006	Rich Weaver Air Quality Program Manager (252) 466-5917 EAD, Building 4223, Access Road Cherry Point, NC 28533+0006

Application Data

Application Number: 2500019.21A
Date Received: 10/27/2021
Application Type: Modification
Application Schedule: TV-Sign-501(b)(2) Part II

Existing Permit Data
Existing Permit Number: 04069/T41
Existing Permit Issue Date: 12/08/2021
Existing Permit Expiration Date: 07/31/2025

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2020	52.12	20.63	8.77	33.75	4.86	3.36	1.33 [Methylene chloride]
2019	85.44	21.76	13.08	33.33	6.45	4.28	1.24 [Toluene]
2018	459.38	74.82	17.68	26.99	11.07	6.95	1.17 [Toluene]
2017	564.37	172.40	11.82	16.14	28.48	12.44	3.99 [Chlorine]
2016	643.17	186.60	18.73	17.27	35.55	16.17	4.88 [Chlorine]

Review Engineer: Richard Simpson

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue: 04069T42
Permit Issue Date: TBD, 2022
Permit Expiration Date: 7/31/2025

I. Introduction and Purpose of Application

Marine Corps Air Station (MCAS) - Cherry Point currently holds Air Permit No. 04069T41 with an expiration date of July 31, 2025 for both the headquarters of the 2nd Marine Aircraft Wing and Marine Transport Squadron 1 in Craven County, North Carolina. The facility is a major source of both criteria pollutants and hazardous air pollutants (HAP). Marine Corps Air Station (MCAS) is responsible for maintaining active combat aircraft. To maintain the flight readiness of the aircraft and crews, the MCAS is responsible for the maintenance of station aircraft, ground support equipment and heating plants. The current air permit covers sources including boilers, generators, paint booths, washing and cleaning operations, and remediation systems. It is the largest Marine Corps air station in the world.

A. Permit application No. 2500019.21A was received on October 27, 2021 for a second step modification per NCAC 02Q .0501(b)(2). The first step modification was submitted on September 5, 2017 for converting four boilers fuel from coal and No. 2 fuel oil to natural gas as primary fuel with No. 2 fuel oil/used oil as a backup. That permit (04069T38) was issued on January 5, 2018. The applicant is filing this complete application within 12 months after commencing operation to modify the construction and operation permit to meet the requirements of 40 CFR Part 70. This application will go through a 30-day public comment period and a 45-day EPA review at this time. This permit action will address the following main changes associated with the first and second step modifications as outlined in the application:

- Convert existing Central Heating Plant Boilers (ID Nos. CP-152-BOIL-1 through 4) to natural gas as primary fuel with No. 2 fuel oil/used oil as back-up.
- Convert boiler (ID No. MASS1) fuel from No. 2 fuel oil to propane.
- Add, delete, and/or update numerous insignificant activities. See Section III, Table of Changes, for specific details and/or Appendix 1.

II. History/Background/Application Chronology

September 5, 2017 – Permit application 2500019.17A was received as a Part I of the NCAC 02Q .0501(b)(2) Title V modification.

January 5, 2018 – Permit 04069T38 was signed and issued.

November 4, 2019 – Permit 04069T39 was signed and issued.

August 18, 2020 – Permit 04069T40 was signed and issued.

October 27, 2021 – Permit application 2500019.21A was received as a Part II of the NCAC 02Q .0501(b)(2) Title V modification.

December 8, 2021 – Permit 04069T41 was signed and issued.

December 21, 2021 - The facility was inspected by Robert Bright from the Washington Regional Office. At the time of the inspection, the facility appeared to operate in compliance with all applicable regulations.

July 29-August 5, 2022 – The facility, Washington Regional Office, and Stationary Compliance Section were requested by the Permitting Section to comment on the modification. Comments were received and included in the permit and review from the facility and DAQ.

August 5, 2022 – Title V Equipment Editor (TVEE) changes were approved by Ms. Jenny Sheppard TVEE Coordinator.

TBD, 2022 – DRAFT permit sent to public notice and EPA for review prior to issuance. The 30-day public comment period ended **TBD, 2022** with the receipt of no comments. The 45-day EPA review period ended

TBD, 2022 with the receipt of no comments.

TBD, 2022 – Permit 04069T42 was signed and issued.

III. Permit Renewal/Modification/Changes

The following changes were made to Air Permit No. 04069T41*.

Page No.	Section	Description of Changes
Cover Letter	N/A	Updated cover letter with application number, permit numbers, and dates.
NA	Attachment	Added the "Notice Regarding the Right to Contest a Division of Air Quality Permit Decision".
Attachment	Insignificant Activities	Moved to Section 3.
Attachment	Insignificant Activities	Changed existing parts cleaner ID No. from ICP-157-PCLN-3 to ICP-160-PCLN-2.
Attachment	Insignificant Activities	Changed existing parts cleaner ID No. from ICP-4243-PCLN-3 to ICP-4652-PCLN-2.
Attachment	Insignificant Activities	Added parts cleaners (ID Nos. ICP, 4576-PCLN, and ICP-4813-PCLN-1).
Attachment	Insignificant Activities	Added parts stripping area (ID No. ICP-157-PSTR).
Attachment	Insignificant Activities	Deleted welding sources ID Nos. (ICP-121-WELD, ICP-160-WELD, ICP-1773-WELD, and ICP-82-WELD).
Attachment	Insignificant Activities	Added portable welding unit ID No. ICP-4067-WELDHD.
Attachment	Insignificant Activities	Deleted soil vapor extraction, remediation system ID No. (IBLDG-4472-SVE).
Attachment	Insignificant Activities	Added existing regulations NSPS IIII and MACT ZZZZ to emergency generators where applicable.
Attachment	Insignificant Activities	Added two diesel fuel-fired emergency generator (≤ 600 hp, 447 kW) with ID Nos. ICP-NSPS-GEN-9 and ICP-NSPS-GEN-10. Both sources are applicable to NSPS IIII and MACT ZZZZ.
2	Table of Contents	Updated the Table of Contents and moved the List of Acronyms from the end of the permit to this area of the permit.
3, 22	Section 1, Section 2.1 C.	Convert boiler (ID No. MASS1) fuel from No. 2 fuel oil to propane. Made source listings consistent with the permit shell.
13	Section 2.1 A.3.a.	Added CP-152-BOIL-3 and CP-152-BOIL-4 to sources for visible emissions.
27	Section 2.1 D, Section 2.1E.	Moved redundant storage tank ID No. CP-152-AST-3 from Section 2.1 D to Section 2.1 E with applicable regulation.
27, 56, 57	Sections 2.1 D and E, Sections 2.2 B, C, and D.	Moved Section 2.2 B, C, and D to Sections 2.1 D and E. Made source listings consistent with the permit shell.
37, 49	Sections 2.1 R, Section 2.1 S.	Made source listings consistent with the permit shell.
58, 65	Section 2.2 E, Section 2.2 F.	Updated Section 2.2 E to 2.2 B and Section 2.2 F to Section 2.2 C. Made source listings consistent with the permit shell.
66	Section 2.2 G.	Deleted redundant Section 2.2 G since it was in Section 2.1 C.
69	Section 3	Insignificant Activities List replaced General Conditions
NA	Section 4	The General Conditions were updated to the latest version of DAQ shell and moved to Section 4.

*This list is not intended to be a detailed record of every change made to the permit but a summary of those changes. There were changes made to the Title V Equipment Editor (TVEE) under this permit modification.

IV. Regulatory Review/Equipment Changes/Process Changes

MCAS is subject to the following regulations, in addition to the requirements in the General Conditions:

a. 15A NCAC 02D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers"
b. 15A NCAC 02D .0512 “Particulates from Miscellaneous Wood Products Finishing Plants”
c. 15A NCAC 02D .0515 “Particulates from Miscellaneous Industrial Processes”
d. 15A NCAC 02D .0516 "Sulfur Dioxide from Combustion Sources"
e. 15A NCAC 02D .0521 "Control of Visible Emissions"
f. 15A NCAC 02D .0928 “Gasoline Service Station Stage 1”
g. 15A NCAC 02D .0932 “Gasoline Tank Trucks and Vapor Collection Systems”
h. 15A NCAC 02D .0949 “Storage of Miscellaneous Volatile Organic Compounds”
i. 15A NCAC 02D .1100 “Control of Toxic Air Pollutants”
j. 15A NCAC 02D .1806 “Control and Prohibition of Odorous Emissions”
k. 15A NCAC 02D .0524 "New Source Performance Standards" (40 CFR Part 60 Subparts Dc)
l. 15A NCAC 02D .0524 "New Source Performance Standards" (40 CFR Part 60 Subparts IIII)
m. 15A NCAC 02D .1111 "Maximum Achievable Control Technology" (40 CFR Part 63 Subpart GG)
n. 15A NCAC 02D .1111 "Maximum Achievable Control Technology" (40 CFR Part 63 Subpart DDDDD)
o. 15A NCAC 02D .1111 "Maximum Achievable Control Technology" (40 CFR Part 63 Subpart ZZZZ)

An extensive review for each applicable regulation is not included in this document, as the facility’s status with respect to all of the regulations has not changed.

Compliance with these regulations will be determined during subsequent inspections, reviews of reports, and stack testing. For a discussion of NSPS, MACT, CAM, and 112(r) requirements, see Section VI. The permit will be updated to reflect the most current stipulations for all applicable regulations. Updates and details to the permit are noted in the Table of Changes above and in Appendix 1.

Below is the equipment change from Permit 04069T38 review for the Step 1 significant modification.
<u>The new emission sources that were added:</u>

A. <u>Central Heating Plant (CHP) Boiler Conversion</u> – The CHP operated two coal/No. 6/No. 2 fuel oil-fired boilers and two No. 2 fuel/off-spec JP 5/used oil-fired boilers. The CHP supplies steam for both comfort heat and process use. The project modified the boilers to four natural gas/No. 2 fuel oil-fired boilers. Burning liquid fuel is expected to be used for periodic testing, maintenance, or operator training and during periods of gas curtailment or interruptions. Back-up fuel and is estimated to be one percent (1%) of annual fuel usage.

   According to the application:

   modifications to Boiler 1 and 2 included: burner replacement; removal of existing stoker fuel distributors and grate drives; removal of the over-fire air fans and ductwork; installation of new flow sensors in the existing suction ductwork; replacement of forced draft (FD) and induced draft (ID) fans; installation of flue gas recirculation (FGR) fans to provide flue gas into the FD fan discharge at a rate up to 20% of the FD air flow; and replacement of economizers,

   modifications to Boilers 3 and 4 will include: burner replacement; replacement of FD fans; and installation of FGR fans.

B. Two temporary natural gas-fired boilers were installed but has since been removed from a prior permit before application 2500019.21A submittal.

Below is the significant source's updated equipment change from permit application 2500019.21A.
The emission source that was updated: Convert boiler (ID No. MASS1) fuel from No. 2 fuel oil to propane.

V. Regulatory Review – Specific Emission Source Limitations

A. 15A NCAC 02D .0503 "Particulates from Fuel Burning Indirect Heat Exchangers" – This regulation establishes an allowable emission rate for particulate matter at installations in which fuel is burned for producing heat or power by indirect heat transfer. The regulation applies to Total Suspended Particulate (TSP) or PM less than 100 micrometers (µm). The rule applies to all indirect heat exchangers at the facility including the temporary boilers. For sources with maximum heat inputs greater than 10 million Btu/hour, the following equation is used to determine the PM limit:

$$E = 1.090 \times Q^{-0.2594}$$

where, E = allowable emission rate (lb/million Btu)
Q = sum of maximum heat input of all fuel burning indirect heat exchangers at the plant site

The maximum heat input for the boilers is 99 million Btu/hour each. The PM limit is calculated to be 0.33 lb/million Btu. PM emissions from natural gas and No. 2 fuel oil combustion are not expected to exceed the limit. Therefore, compliance is indicated. No monitoring, recordkeeping, or reporting is required.

B. 15A NCAC 02D .0516 "Sulfur Dioxide Emissions from Combustion Sources" – Under this regulation, sulfur dioxide emissions from combustion sources cannot exceed 2.3 lb/million Btu heat input. No. 2 fuel oil is the worst-case fuel. Firing No. 2 fuel oil (0.5% sulfur b.w.) will not cause this limit to be exceeded. Therefore, compliance is indicated. No monitoring or recordkeeping is required.

C. 15A NCAC 02D .0521 "Control of Visible Emissions" – This regulation establishes a visible emission standard for sources based on the manufacture date. For sources manufactured after July 1, 1971, the standard is 20% opacity when averaged over a 6-minute period. Compliance is expected. No monitoring or recordkeeping is required.

D. 15A NCAC 02Q .0700 "Toxic Air Pollutant Procedures" – With the exceptions in Rule .0702 of this Section, no person shall cause or allow any toxic air pollutant named in 15A NCAC 02D .1104 to be emitted from any facility into the atmosphere at a rate that exceeds the applicable rate(s) in Rule .0711 of this Section without having received a permit to emit toxic air pollutants (TAP). MCAS was required to submit a TAP demonstration no later than June 13, 2012. The DAQ Air Quality Analysis Branch (AQAB) received the modeling demonstration in a timely manner. The modeling demonstration was based on emission units operating at potential to emit rates. Mr. Tom Anderson, Meteorologist, AQAB reviewed the modeling analysis and responded with a memo on July 26, 2012 stating, "The modeling adequately demonstrates compliance, on a source-by-source basis, for all toxics modeled. All toxics were below their respective AALs and emission rates were optimized to correspond to 99.9% of the AAL(s) for each toxic."

Modeled TAP emission rates were placed in the permit as limits with no operating limitations necessary to comply with the AALs. No changes have taken place since the modeling was approved.

Exemptions under 15A NCAC 0702 include a categorical exemption for sources subject to a requirement under 40 CFR Part 63. Facility-wide sources subject to a MACT standard meet the exemption. With the exemption, TAP limits can be removed from the permit provided there is no unacceptable health risk. TAP emissions will decrease as a result of the fuel switch to natural gas. Actual emissions of formaldehyde will decrease from 1.02E+02 lb/hr to 9.69E+01 lb/hr.

Because pre-modification modeled TAP emissions demonstrated compliance with AALs and the fuel switch to natural gas results in a decrease in TAP emissions, this modification will not result in an unacceptable health risk. The facility requests the removal of existing facility-wide limits for: acetic acid, pigments as chromium (VI), cadmium, chloroform, ethylene dibromide, and vinyl chloride (Section 2.2 C.).

VI. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

Listed below is a summary of the NSPS permit evaluation from the permit application 2500019.21A review.

NSPS

15A NCAC 02D .0524 "New Source Performance Standards (NSPS), Subpart IIII" – This regulation applies to owners or operators of compression ignition (CI) reciprocating internal combustion engines (RICE) manufactured after April 1, 2006 that are not fire pump engines, and fire pump engines manufactured after July 1, 2006. The two new diesel fuel-fired emergency generators ID Nos. ICP-NSPS-GEN-9 and ICP-NSPS-GEN-10 (≤ 600 hp, 447 kW) are subject to the requirements of this regulation.

15A NCAC 02D .0524 "New Source Performance Standards (NSPS 40 CFR Part 60, Subpart Dc)" – NSPS Subpart Dc applies to steam generating units with a heat input capacity greater than 10 million Btu/hour but less than 100 million Btu/hour for which construction or modification commenced after June 9, 1989.

Boilers (ID Nos. CP-152-BOIL-1 and 2) are not currently subject to Subpart Dc. These existing sources could become subject to Subpart Dc requirements upon modification or reconstruction. A modification under NSPS is defined as any physical or operational change that results in an increase in the emission rate of pollutant to which the standard applies. Reconstruction under NSPS is defined as the replacement of components of an existing source to such an extent that the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new source. The applicant has determined that the cost of the equipment conversion compared to the cost of replacement for the CHP is approximately 11% based on the cost estimate (prepared by Jacobs in July 2016). The applicant determined that the pollutants to which the NSPS standard applies decreased as a result of the fuel conversion. Therefore, Subpart Dc does not apply to Boilers 1 and 2.

Boilers (ID Nos. CP-152-BOIL-3 and 4) are currently subject to Subpart Dc and will remain so following the conversion. The boilers will be subject to a sulfur dioxide limit (sulfur content must be less than 0.5% by weight) and a Visible emissions standard (20% opacity). Pursuant to 40 CFR 60.48c(g), the facility must maintain the amount of each fuel combusted during each day and hours of operation. Compliance is expected.

NESHAPS/MACT

15A NCAC 02D .1111 "Generally Achievable Control Technology, Subpart ZZZZ" – 40 CFR Part 63 applies to RICE located at a major or area source of hazardous air pollutants (HAP). Pursuant to 40 CFR §63.6590(c) (amended January 30, 2013), a new stationary RICE located at a major source must meet the requirements of this part by meeting the requirements of 40 CFR Part 60 Subpart IIII for compression ignition engines. The two new diesel fuel-fired emergency generators ID Nos. ICP-NSPS-GEN-9 and ICP-NSPS-GEN-10 (≤ 600 hp, 447 kW) are subject to the requirements of this regulation. 40 CFR Part 63, Subpart ZZZZ compliance is ensured by meeting the requirements of 40 CFR Part 60, Subpart IIII. No further requirements apply to such engines under this part.

15A NCAC 02D .1111 "Maximum Achievable Control Technology" 40 CFR Part 63, Subpart DDDDD, National Emission Standards for Hazardous Air Pollutants: - This regulation applies to the converted boilers. Compliance is required upon start-up. Gas-fired boilers are only subject to work practice standards. Annual tune-ups are required with the first being conducted within 13 months of commencing operation. Initial notification must be submitted within 15 days of start-up. An energy assessment is not required. According to the application, the first compliance report will be submitted following completion of the tune-ups.

In order to be classified as Gas 1 units, burning of liquid fuel will be used for periodic testing, maintenance, or operator training; usage will not exceed a combined total of 48 hours during any calendar year (§63.7575). Liquid fuel is expected to primarily be used for periods of gas curtailment or supply interruptions. Notification of alternative fuel use must be submitted within 48 hours of the declaration of natural gas curtailment or supply interruption (§63.7545(f)). A new condition referencing the facility's requirements under Subpart DDDDD is included in the revised permit.

15A NCAC 02D .1111 "Maximum Achievable Control Technology" 40 CFR Part 63, Subpart GG, National Emission Standards for Hazardous Air Pollutants: Aerospace Manufacturing and Rework Facilities – MCAS is

subject to Subpart GG work practice standards. The existing permit includes a condition outlining the facility's requirements under the MACT (Section 2.2 F.). Paint booth (ID No. CP-4075-PBTH) was constructed to be in compliance with Subpart GG. The following standards apply:

1. comply with organic HAP and VOC content limits (dependent on coating type),
2. utilize a control system that reduces the operations organic HAP and VOC emissions to the atmosphere by 81% or greater,
3. utilize the appropriate spray application technique for coatings,
4. utilize a 3-stage dry particulate filter with greater than 90% efficiency during the use of products containing inorganic HAPs,
5. record the pressure drop across the filter once per shift,
6. follow proper housekeeping techniques such as minimizing spills and closed storage of solvent materials.

PSD

15A NCAC 02D .0530 "Prevention of Significant Deterioration

Below is the PSD analysis from permit 04069T38 review for the Step 1 significant modification.

This facility is an existing PSD major stationary source. Emissions increases from the project must be compared to the PSD significant emission rate (SER). Total emissions for the additional proposed sources are less than the SER. Therefore, no PSD review is triggered.

For new and existing units, emissions increases are defined as the difference between the potential-to-emit (PTE) following completion of the project and the baseline actual emissions (BAE) before the project (baseline actual-to-potential).

Baseline Actual Emissions (BAE)

For existing units BAE is defined as "the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner/operator within the five-year period immediately preceding the date that a complete application is received by the Division for a permit required under this Rule." For this project, the 24-month period beginning January 2015 and ending December 2016 was selected as the baseline period. Coal emission factors are taken from AP-42, Chapter 1.1 and stack testing completed in 1997. No. 2 fuel oil factors are taken from AP-42, Chapter 1.3 and stack testing completed in 1997.

Hours of operation are as follows:

2015 Operating Hours	
Boiler 1	6,957
Boiler 2	4,936
Boiler 3	1,172
Boiler 4	608

2016 Operating Hours	
Boiler 1	3,232
Boiler 2	8,036
Boiler 3	1,326
Boiler 4	1,452

Sample calculation 2016 NOx emissions:

Coal

NOx = (94 million Btu/hr) x (4.400E-07 lb/Btu) x [11,268 hrs/yr][1 t/2000 lb] = 233.02 tons per year

Fuel oil

NOx = (96 million Btu/hour) x (1.429E-07 lb/Btu) x [2,778 hrs/yr][1 t/2000 lb] = 19.05 tons per year

2016 NOx total = 252.07 tons per year

2015 NOx total = 258.15 tons per year

Average NOx = 255.11 tons per year

Potential to Emit (PTE)

PTE is calculated based on emission factors from AP-42 Chapter 1.4 and 8,760 hours of operation.

Sample calculation NOx emissions:

Natural gas

NOx = (4 units) x (99 million Btu/hour) x (3.12E-02 lb/million Btu)(8,760 hours/year)(2,000 lb/ton)
NOx = 54.1 tons per year

The following table taken from the application shows the difference between PTE and BAE for the proposed project is less than PSD SER for each pollutant.

PSD Evaluation

	NOx (tpy)	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	SO_2 (tpy)	VOC (tpy)	CO (tpy)	HF (tpy)	Pb (tpy)	H_2SO_4 (tpy)	CO_2e (tpy)
Baseline Actual 2016 and 2015 average (BAE)	255.11	129.94	64.53	16.60	949.41	1.35	112.76	3.27	0.06	0.41	130,704
Projected Potential Emissions (PTE)	54.1	12.85	12.85	12.85	1.01	9.30	142.00	0.00	0.00	0.00	203,102
Emission Increase (PTE – BAE)	-201.0	-117.1	-51.7	-3.8	-948.4	7.94	29.24	-3.3	-0.1	-0.4	72,398
PSD SER	40	25	15	10	40	40	100	3	0.6	7	75,000
PSD Review Required	No	No	No	No	No	No	No	No	No	No	No

112(r) – The facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the thresholds in the Rule.
Section 112(r) of the Clean Air Act Amendments requires EPA to publish regulations and guidance for chemical accident prevention at facilities that use certain hazardous substances. These regulations and guidance are contained in the Risk Management Plan (RMP) rule. EPA regulations for implementing Section 112(r) are promulgated at 40 CFR part 68 "Chemical Accident Prevention Provisions." 40 CFR part 68 was adopted by reference in the North Carolina Administrative Code at 15A NCAC 2D .2100. Stationary sources (facilities) that have more than a threshold quantity of a regulated substance in a single process must develop a risk management program that includes a hazard assessment, an accident prevention program and an emergency response program. This permit application does not affect this status.

CAM – 40 CFR 64 requires that a compliance assurance monitoring plan be developed for all equipment located at a major facility, that have pre-controlled emissions above the major source threshold, and use a control device to meet an applicable standard. CAM is not applicable for this minor permit modification. This permit application does not affect this status.

VII. Facility Emissions Review

Actual emissions from 2016 through 2020 are listed on Page 1. For 2500019.21A application only, the following table represents the changes in potential emissions. See Appendix 1 for calculations.

Pollutant(s)	Potential Emissions (tpy)
CO	2.9
NO_x	3.0
PM_{10}	0.2
PM2.5	0.2
SO_2	-7.5
VOC	0.4

VIII. Compliance Status

The most recent full compliance evaluation was performed on December 8, 2021 by Mr. Robert Bright of the WARO. According to the inspection report dated January 5, 2022, "Based on visual observations and records review, the facility appeared to operate in compliance with all applicable air quality regulations and permit conditions at the time of inspection."

The five-year compliance history is outlined in the inspection report as follows:

On August 26, 2016, a Notice of Deficiency was issued for not submitting the initial notification for emergency generator CP-159-GEN within the 120-day requirement.

On January 29, 2020, a Notice of Violation was issued for exceeding the 48-hour fuel oil combustion for all four CHP boilers for the July – December 2019 time-period.

There have been no other compliance issues within the past five years.

IX. Public Notice/EPA and Affected State(s) Review

A thirty-day public notice period and a forty-five-day EPA review period is required for both the TV renewal with significant modification. A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to the EPA. Also pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above.

EPA's 45 Day Review period
Michael Sparks (U.S. EPA, Region IV) was provided a PROPOSED permit for review on TBD, 2022. EPA 45-day review period ended on TBD, 2022. No comments were offered or received.

Public Notice
The 30-day public notice of the PROPOSED permit was posted on the NCDAQ website on TBD, 2022. No comments were offered or received.

X. Other Regulatory Considerations

- A P.E. seal was not required for the permit modification.
- The appropriate number of application copies was received by the DAQ.
- A zoning consistency determination is not required for this application
- An application fee of $1002 was required and received by check for the permit modification.
- In Craven County, PM10, NOx, and SO2 are triggered for PSD minor baseline dates. Any increment changes associated with the modification were addressed in the Part 1 permit application (No. 2500019.17A).

XI. Conclusions, Comments, and Recommendations

This modification (25000119.21A) for the second step of the two step process per NCAC 02Q .0501(b)(2) for Marine Corps Air Station - Cherry Point located in Cherry Point, Craven County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. The DAQ recommends the issuance of Air Permit No. 04069T42.

Attachment 1

3.0 SUMMARY OF MODIFICATIONS TO THE FACILITY

3.1 MASS1 Boiler Conversion

Boiler MASS1, located in Building 1799, has a capacity of 0.22 MMBtu/hr and combusts No. 2 fuel oil. MCAS Cherry Point is submitting this request to replace the unit with a 0.22 MMBtu/hr unit that combusts propane.

3.2 Internal Combustion Emergency Engine Additions

MCAS Cherry Point requests the addition of two (2) emergency generator placeholders for future installations. These placeholders are ICP-NSPS-GEN-9 and ICP-NSPS-GEN-10, each of which will be rated at ≤ 600 horsepower (hp). It is anticipated that these units will be new pieces of equipment and thus, subject to the requirements of 40 CFR Part 63, Subpart ZZZZ and 40 CFR Part 60, Subpart IIII. Emissions calculations for these units are presented in Appendix B. Potential annual emissions for each unit are less than five (5) tons for each criteria pollutant and less than one thousand (1,000) pounds of total HAPs. A summary of these units is provided in Table 3-1.

Table 3-1. Summary of Internal Combustion Emergency Engine Additions

Permit ID	Description
ICP-NSPS-GEN-9	Diesel fuel-fired emergency generator (≤ 600 hp, 447 kW)
ICP-NSPS-GEN-10	Diesel fuel-fired emergency generator (≤ 600 hp, 447 kW)

3.3 External Combustion Unit Additions

MCAS Cherry Point requests the addition of 10 boilers to the insignificant activities list under 15A NCAC 2Q .0503(8) (see Table 3-2). These units are exempt from permitting requirements because criteria pollutant emissions are less than 5 tons per year and total HAP emissions are less than 1,000 pounds per year as demonstrated in Appendix B, Emissions Calculations and Supporting Documentation. Eight (8) of the new units are replacing existing fuel oil-fired units with propane-fired units but are considered new/additions since each has a different rated heat capacity and/or fuel type than the replaced unit. The units at Buildings487 and 4210 are new units and not replacements. Accordingly, MCAS Cherry Point requests the addition of the following sources to the list of permitted insignificant activities. We request these boilers be grouped together under the existing insignificant boiler permit ID "ICP-BOIL."

Table 3-2. Summary of External Combustion Unit Additions

Permit ID	Building Name	Building Number	Boiler Number	Description
ICP-BOIL	BOQ-1	487[1]	86	No. 2 fuel oil-fired Boiler (0.52 MMBtu/hr), categorically exempt under Boiler MACT
ICP-BOIL	MAINTSHOP	3916[2]	96	Propane-fired Boiler (0.575 MMBtu/hr), categorically exempt under Boiler MACT
ICP-BOIL	MAINTFAC1	3919[2]	98	Propane-fired Boiler (0.808 MMBtu/hr), categorically exempt under Boiler MACT
ICP-BOIL	AIRTERMINAL	4210[1]	- -	Propane-fired Boiler (0.65 MMBtu/hr), categorically exempt under Boiler MACT
ICP-BOIL	27HEADQTRS	4344[2]	117	Propane-fired Boiler (0.39 MMBtu/hr), categorically exempt under Boiler MACT
ICP-BOIL	WAREHOUSE3	4465[2]	123	Propane-fired Boiler (0.536 MMBtu/hr), categorically exempt under Boiler MACT
ICP-BOIL	OPSBLDG	4563[2]	124	Propane-fired Boiler (0.36 MMBtu/hr), categorically exempt under Boiler MACT
ICP-BOIL	ENG/MAINT1	4571[2]	126	Propane-fired Boiler (0.36 MMBtu/hr), categorically exempt under Boiler MACT
ICP-BOIL	ENG/MAINT2	4571[2]	127	Propane-fired Boiler (0.36 MMBtu/hr), categorically exempt under Boiler MACT
ICP-BOIL	MOTORT	4576[2]	128	Propane-fired Boiler (0.24 MMBtu/hr), categorically exempt under Boiler MACT

1. These are new units, not replacements.
2. These existing units are being converted from fuel oil to propane.

3.4 Proposed Additions to the List of Insignificant Activities

Table 3-3 describes additional requested equipment changes to the current Title V permit, including changes to equipment capacity ratings and locations.

Table 3-3. Proposed Changes to the List of Insignificant Activities

Permit ID	Building	Description
ICP-157-PSTR	157	Paint stripping area
ICP-4067-WELDHD	4067	Portable welding unit
ICP-4576-PCLN	4576	Parts washer
ICP-4813-PCLN-1	4813	Parts washer
ICP-160-PCLN-2	160	Parts washer
ICP-4652-PCLN-2	4652	Parts cleaner (moved from Building 4243).

3.5 Administrative Amendments and Equipment Changes

Table 3-4 describes additional equipment changes and administrative amendments to update the current Title V permit, including changes to equipment capacity ratings and locations.

Table 3-4. Administrative Changes to the Title V Permit (No. 04069T40)

Permit ID	Building	Description
Administrative Changes		
ICP-157-PCLN-3	157	A parts washer located at Building 160 (ICP-160-PCLN-2) was moved to Building 157 in the previous permit application (2500019.20A); however, the unit was not moved. **Rename ID ICP-157-PCLN-3 to ICP-160-PCLN-2.**
ICP-4243-PCLN-3	4652	A parts washer located at Building 4652 (ICP-4652-PCLN-2) was moved to Building 4243 in the previous permit application (2500019.20A); however, the unit was not moved. **Rename ID ICP-4243-PCLN-3 to ICP-4652-PCLN-2.**
ICP-4067-WELDHD	4067	The portable welder located at Building 4067 was removed in the previous permit application (2500019.20A); however, the unit is still operational. **Add ID ICP-4067-WELDHD to the list of insignificant sources.**

3.6 Sources Removed

MCAS Cherry Point has removed one (1) insignificant soil vapor extraction system and four (4) insignificant welding units from the installation. These sources are listed on Form A2 of this application and below in Table 3-5. MCAS Cherry Point requests these sources be removed from the permit.

Table 3-5. Summary of Removed Sources

Permit ID	Description
IBLDG-4472-SVE	Soil vapor extraction system
ICP-82-WELD	Welding unit
ICP-121-WELD	Welding unit
ICP-160-WELD	Welding unit
ICP-1773-WELD	Welding unit

Marine Corps Air Station Cherry Point [B1]

Cherry Point, North Carolina

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Emissions Summary of Proposed Permit Additions

CAS #	Compound	TAP	HAP	Total Emissions ton/yr	[B1-3] BLR FO ton/yr	[B1-4] BLR LPG ton/yr	[B1-5] BLR Replace ton/yr	[B3-2] GEN SM ton/yr
Greenhouse Gas Pollutants								
CO_2	CARBON DIOXIDE			**779.19**	371.37	406.53	-341.12	342.41
CH_4	METHANE			**0.048**	0.015	0.02	0.00	0.01
N_2O	NITROUS OXIDE			**0.010**	0.003	0.004	0.00	0.003
Criteria Pollutants								
CO	CARBON MONOXIDE			**2.99**	0.08	0.26	0.93	1.72
NO_x	NITROGEN OXIDE			**2.95**	0.33	0.46	0.31	1.85
PM	PARTICULATE MATTER			**-0.08**	0.05	0.02	-0.26	0.10
PM_{10}	PARTICULATE MATTER (LESS THAN 10µ)			**0.16**	0.02	0.02	0.01	0.10
$PM_{2.5}$	PARTICULATE MATTER (LESS THAN 2.5µ)			**0.18**	0.01	0.02	0.05	0.10
SO_2	SULFUR DIOXIDE			**-7.48**	1.17	0.00	-8.66	0.004
VOC	VOLATILE ORGANIC COMPOUNDS			**0.34**	0.01	0.03	0.16	0.14
Organic Compounds		*TAP*	*HAP*	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr
106-99-0	1,3-BUTADIENE	Y	Y	**8.94E-02**	-	-	-	8.94E-02
75-07-0	ACETALDEHYDE	Y	Y	**1.75E+00**	-	-	-	1.75E+00
107-02-8	ACROLEIN	Y	Y	**2.11E-01**	-	-	-	2.11E-01
71-43-2	BENZENE	Y	Y	**1.55E+00**	0.09	-	-6.71E-01	2.13E+00
100-41-4	ETHYLBENZENE		Y	**-1.72E-01**	0.03	-	-1.99E-01	-
16984-48-8	FLUORIDES	Y		**-7.87E+00**	1.23	-	-9.10E+00	-
50-00-0	FORMALDEHYDE	Y	Y	**-7.43E+00**	1.58	-	-1.17E+01	2.70E+00
71-55-6	METHYL CHLOROFORM	Y	Y	**-4.98E-02**	0.01	-	-5.76E-02	-
91-20-3	NAPHTHALENE		Y	**1.24E-01**	1.10E-02	-	-8.13E-02	1.94E-01
POM	POLYCYCLIC ORGANIC MATTER (POM)		Y	**-5.06E-01**	0.11	-	-8.05E-01	1.90E-01
108-88-3	TOLUENE	Y	Y	**-1.59E+01**	2.63	-	-1.94E+01	9.36E-01
1330-20-7	XYLENE	Y	Y	**3.59E-01**	0.05	-	-3.42E-01	6.54E-01
Metals		*TAP*	*HAP*	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr
ASC	ARSENIC	Y	Y	**-1.01E-01**	1.85E-02	-	-1.37E-01	1.68E-02
BEC	BERYLLIUM	Y	Y	**-7.60E-02**	1.39E-02	-	-1.02E-01	1.26E-02
7440-43-9	CADMIUM	Y	Y	**-7.60E-02**	1.39E-02	-	-1.02E-01	1.26E-02
CRC	CHROMIUM		Y	**-7.60E-02**	1.39E-02	-	-1.02E-01	1.26E-02
PBC	LEAD		Y	**-2.28E-01**	4.16E-02	-	-3.07E-01	3.78E-02
MNC	MANGANESE	Y	Y	**-1.52E-01**	2.77E-02	-	-2.05E-01	2.52E-02
HGC	MERCURY	Y	Y	**-7.60E-02**	1.39E-02	-	-1.02E-01	1.26E-02
7440-02-0	NICKEL	Y	Y	**-7.60E-02**	1.39E-02	-	-1.02E-01	1.26E-02
SEC	SELENIUM		Y	**-3.80E-01**	6.93E-02	-	-5.12E-01	6.30E-02

Marine Corps Air Station Cherry Point [B2-1]

Cherry Point, North Carolina

Craven County

Boilers Requested for Addition to the Permit

Building No.[1]	Building Name	Fuel Type	Rating (MMBtu/hr)	Description
487	BOQ-1	No. 2 Fuel Oil	0.52	Exempt as water heater, 40 CFR 63, DDDDD
4210	AIRTERMINAL	LPG	0.65	Exempt as water heater, 40 CFR 63, DDDDD

Boiler Replacements from Current Permit

Building No.[1]	Building Name	Fuel Type	Rating (MMBtu/hr)	Description
1799	MASS1	LPG	0.215	Changing fuel from No. 2 Fuel Oil to Propane
3916	MAINTSHOP	LPG	0.575	Changing fuel from No. 2 Fuel Oil to Propane
3919	MAINTFAC1	LPG	0.808	Changing fuel from No. 2 Fuel Oil to Propane
4344	27HEADQTRS	LPG	0.390	Changing fuel from No. 2 Fuel Oil to Propane
4465	WAREHOUSE3	LPG	0.536	Changing fuel from No. 2 Fuel Oil to Propane
4563	OPSBLDG	LPG	0.360	Changing fuel from No. 2 Fuel Oil to Propane
4571	ENG/MAINT1	LPG	0.360	Changing fuel from No. 2 Fuel Oil to Propane
4571	ENG/MAINT2	LPG	0.360	Changing fuel from No. 2 Fuel Oil to Propane
4576	MOTORT	LPG	0.240	Changing fuel from No. 2 Fuel Oil to Propane

1. MCAS Cherry Point requests that, with the exception of MASS1, these boilers be grouped together under the existing insignificant boiler permit ID "ICP-BOIL."

Total for Group of LPG Boiler Replacements	3.84

Potential Emissions for New No. 2 Fuel Oil Boiler (BOQ-1)

Fuel:	*No. 2 Fuel Oil*	
Total Heat Rate:	0.52	MMBtu/hr
Sulfur Content:	0.50	%
Heat Content:	0.138	MMBtu/gal
Operating Hours:	8,760	hr/yr

CAS #	Compound			No. 2 Fuel Oil Emission Factors[1,2]		Emissions
Greenhouse Gas Pollutants				***(lb/Mgal)***	***(lb/MMBtu)***	***(ton/yr)***
CO_2	CARBON DIOXIDE			-	163	371.37
CH_4	METHANE			-	0.007	0.02
N_2O	NITROUS OXIDE			-	0.0013	0.003
Criteria Pollutants				***(lb/Mgal)***	***(lb/MMBtu)***	***(ton/yr)***
CO	CARBON MONOXIDE			5	0.036	0.08
NO_x	NITROGEN OXIDE			20	0.145	0.33
PM	PARTICULATE MATTER			3.30	0.024	0.05
PM_{10}	PARTICULATE MATTER (LESS THAN 10μ)			1.08	0.008	0.02
$PM_{2.5}$	PARTICULATE MATTER (LESS THAN 2.5μ)			0.83	0.006	0.01
SO_2	SULFUR DIOXIDE			71.00	0.514	1.17
VOC	VOLATILE ORGANIC COMPOUNDS			0.34	0.002	0.01
Organic Compounds		***TAP***	***HAP***	***(lb/Mgal)***	***(lb/MMBtu)***	***(lbs/yr)***
71-43-2	BENZENE	*Y*	*Y*	2.75E-03	1.99E-05	9.08E-02
100-41-4	ETHYLBENZENE		*Y*	8.17E-04	5.92E-06	2.70E-02
16984-48-8	FLUORIDES	*Y*		3.73E-02	2.70E-04	1.23E+00
50-00-0	FORMALDEHYDE	*Y*	*Y*	4.80E-02	3.48E-04	1.58E+00
71-55-6	METHYL CHLOROFORM	*Y*	*Y*	2.36E-04	1.71E-06	7.79E-03
91-20-3	NAPHTHALENE		*Y*	3.33E-04	2.41E-06	1.10E-02
POM	POLYCYCLIC ORGANIC MATTER (POM)		*Y*	3.30E-03	2.39E-05	1.09E-01
108-88-3	TOLUENE	*Y*	*Y*	7.97E-02	5.78E-04	2.63E+00
1330-20-7	XYLENE	*Y*	*Y*	1.40E-03	1.01E-05	4.62E-02
Metals		***TAP***	***HAP***	***(lb/Mgal)***	***(lb/MMBtu)***	***(lbs/yr)***
ASC	ARSENIC	*Y*	*Y*	5.60E-04	4.06E-06	1.85E-02
BEC	BERYLLIUM	*Y*	*Y*	4.20E-04	3.04E-06	1.39E-02
7440-43-9	CADMIUM	*Y*	*Y*	4.20E-04	3.04E-06	1.39E-02
CRC	CHROMIUM		*Y*	4.20E-04	3.04E-06	1.39E-02
PBC	LEAD		*Y*	1.26E-03	9.13E-06	4.16E-02
MNC	MANGANESE	*Y*	*Y*	8.40E-04	6.09E-06	2.77E-02
HGC	MERCURY	*Y*	*Y*	4.20E-04	3.04E-06	1.39E-02
7440-02-0	NICKEL	*Y*	*Y*	4.20E-04	3.04E-06	1.39E-02
SEC	SELENIUM		*Y*	2.10E-03	1.52E-05	6.93E-02

1. No. 2 fuel emissions emission factors taken from EPA's AP-42 Chapter 1.3.

2. GHG factors and fuel high heat value taken from 40 CFR Part 98, Subpart C, Table C-1 and C-2 for No. 2 fuel oil.

Marine Corps Air Station Cherry Point

[B2-3]

Cherry Point, North Carolina

Craven County

Potential Emissions for New LPG Boiler (AIRTERMINAL)

Fuel:	*LPG*	
Total Heat Rate:	0.65	MMBtu/hr
Heat Content:	0.092	MMBtu/gal
Operating Hours:	8,760	hr/yr

CAS #	Compound	LPG (Butane) Emission Factors[1,2]		Emissions
Greenhouse Gas Pollutants		*(lb/Mgal)*	*(lb/MMBtu)*	*(ton/yr)*
CO_2	CARBON DIOXIDE	-	143	406.53
CH_4	METHANE	-	0.007	0.02
N_2O	NITROUS OXIDE	-	0.0013	0.004
Criteria Pollutants		*(lb/Mgal)*	*(lb/MMBtu)*	*(ton/yr)*
CO	CARBON MONOXIDE	8.4	0.091	0.26
NO_x	NITROGEN OXIDE	15	0.163	0.46
PM	PARTICULATE MATTER	0.80	0.009	0.02
PM_{10}	PARTICULATE MATTER (LESS THAN 10μ)	0.80	0.009	0.02
$PM_{2.5}$	PARTICULATE MATTER (LESS THAN 2.5μ)	0.80	0.009	0.02
SO_2	SULFUR DIOXIDE	0.02	0.000	0.00
VOC	VOLATILE ORGANIC COMPOUNDS	1.10	0.012	0.03

1. LPG emissions emission factors taken from EPA's AP-42 Chapter 1.5.

2. GHG factors and fuel high heat value taken from 40 CFR Part 98, Subpart C, Table C-1 and C-2 for LPG (Butane).

Marine Corps Air Station Cherry Point [B2-4]

Cherry Point, North Carolina

Craven County

Potential Emissions for Boilers Changing from No. 2 Fuel Oil to LPG

	No. 2 Fuel Oil		LPG	
Fuel:	*No. 2 Fuel Oil*		*LPG*	
Total Heat Rate:	3.84	MMBtu/hr	3.84	MMBtu/hr
Sulfur Content:	0.50	%	-	-
Heat Content:	0.138	MMBtu/gal	0.092	MMBtu/gal
Operating Hours:	8,760	hr/yr	8,760	hr/yr

CAS #	Compound			No. 2 Fuel Oil Emission Factors[1,2]		Emissions	LPG (Butane) Emission Factors[3,4]		Emissions	Change in Emissions
Greenhouse Gas Pollutants				*(lb/Mgal)*	*(lb/MMBtu)*	*(ton/yr)*	*(lb/Mgal)*	*(lb/MMBtu)*	*(ton/yr)*	*(ton/yr)*
CO_2	CARBON DIOXIDE			-	163	2,745.26	-	143	2,404.15	-341.12
CH_4	METHANE			-	0.007	0.11	-	0.007	0.11	0.00
N_2O	NITROUS OXIDE			-	0.0013	0.022	-	0.0013	0.022	0.00
Criteria Pollutants				*(lb/Mgal)*	*(lb/MMBtu)*	*(ton/yr)*	*(lb/Mgal)*	*(lb/MMBtu)*	*(ton/yr)*	*(ton/yr)*
CO	CARBON MONOXIDE			5	0.036	0.61	8	0.091	1.54	0.93
NO_x	NITROGEN OXIDE			20	0.145	2.44	15	0.163	2.75	0.31
PM	PARTICULATE MATTER			3.30	0.024	0.40	0.80	0.009	0.15	-0.26
PM_{10}	PARTICULATE MATTER (LESS THAN 10μ)			1.08	0.008	0.13	0.80	0.009	0.15	0.01
$PM_{2.5}$	PARTICULATE MATTER (LESS THAN 2.5μ)			0.83	0.006	0.10	0.80	0.009	0.15	0.05
SO_2	SULFUR DIOXIDE			71.00	0.514	8.66	0.02	0.000	0.003	-8.66
VOC	VOLATILE ORGANIC COMPOUNDS			0.34	0.002	0.04	1.10	0.012	0.20	0.16
Organic Compounds		*TAP*	*HAP*	*(lb/Mgal)*	*(lb/MMBtu)*	*(lbs/yr)*	*(lb/Mgal)*	*(lb/MMBtu)*	*(lbs/yr)*	*(lbs/yr)*
71-43-2	BENZENE	Y	Y	2.75E-03	1.99E-05	6.71E-01	-	-	-	-6.71E-01
100-41-4	ETHYLBENZENE		Y	8.17E-04	5.92E-06	1.99E-01	-	-	-	-1.99E-01
16984-48-8	FLUORIDES	Y		3.73E-02	2.70E-04	9.10E+00	-	-	-	-9.10E+00
50-00-0	FORMALDEHYDE	Y	Y	4.80E-02	3.48E-04	1.17E+01	-	-	-	-1.17E+01
71-55-6	METHYL CHLOROFORM	Y	Y	2.36E-04	1.71E-06	5.76E-02	-	-	-	-5.76E-02
91-20-3	NAPHTHALENE		Y	3.33E-04	2.41E-06	8.13E-02	-	-	-	-8.13E-02
POM	POLYCYCLIC ORGANIC MATTER (POM)		Y	3.30E-03	2.39E-05	8.05E-01	-	-	-	-8.05E-01
108-88-3	TOLUENE	Y	Y	7.97E-02	5.78E-04	1.94E+01	-	-	-	-1.94E+01
1330-20-7	XYLENE	Y	Y	1.40E-03	1.01E-05	3.42E-01	-	-	-	-3.42E-01
Metals		*TAP*	*HAP*	*(lb/Mgal)*	*(lb/MMBtu)*	*(lbs/yr)*	*(lb/Mgal)*	*(lb/MMBtu)*	*(lbs/yr)*	*(lbs/yr)*
ASC	ARSENIC	Y	Y	5.60E-04	4.06E-06	1.37E-01	-	-	-	-1.37E-01
BEC	BERYLLIUM	Y	Y	4.20E-04	3.04E-06	1.02E-01	-	-	-	-1.02E-01
7440-43-9	CADMIUM	Y	Y	4.20E-04	3.04E-06	1.02E-01	-	-	-	-1.02E-01
CRC	CHROMIUM		Y	4.20E-04	3.04E-06	1.02E-01	-	-	-	-1.02E-01
PBC	LEAD		Y	1.26E-03	9.13E-06	3.07E-01	-	-	-	-3.07E-01
MNC	MANGANESE	Y	Y	8.40E-04	6.09E-06	2.05E-01	-	-	-	-2.05E-01
HGC	MERCURY	Y	Y	4.20E-04	3.04E-06	1.02E-01	-	-	-	-1.02E-01
7440-02-0	NICKEL	Y	Y	4.20E-04	3.04E-06	1.02E-01	-	-	-	-1.02E-01
SEC	SELENIUM		Y	2.10E-03	1.52E-05	5.12E-01	-	-	-	-5.12E-01

1. No. 2 fuel emissions emission factors taken from EPA's AP-42 Chapter 1.3.

2. GHG factors and fuel high heat value taken from 40 CFR Part 98, Subpart C, Table C-1 and C-2 for No. 2 fuel oil.

3. LPG emissions emission factors taken from EPA's AP-42 Chapter 1.5.

4. GHG factors and fuel high heat value taken from 40 CFR Part 98, Subpart C, Table C-1 and C-2 for LPG (Butane).

Marine Corps Air Station Cherry Point [B3-1]

Cherry Point, North Carolina

Craven County

Diesel Fired Emergency Generators Requested for Addition to the Permit

Building No.	Requested Permit ID	Fuel Type	Rating (kW)	Rating (hp)
Small Units (≤ 600 hp)				
Placeholder	ICP-NSPS-GEN-9	Diesel	447	600
Placeholder	ICP-NSPS-GEN-10	Diesel	447	600

Maximum Rating for the group of Small Units	447
Total kW for Group of Small Generators	895
Total hp for Group of Small Generators	1,200

kW converted to hp using conversion factor of 0.7457 kW/hp when manufacturer data was unavailable.
Placeholders assumed at maximum rating for small units for conservatism (600 hp).

Marine Corps Air Station Cherry Point [B3-2]
Cherry Point, North Carolina
Craven County

Potential Emissions for Placeholder Small Emergency Engines

Potential emissions for emergency use units are calculated assuming 500 hours of operation per year per unit.

Building Number: TBD (Placeholders)
Emission Source ID: ICP-NSPS-GEN-9 to 10

Fuel:	*Diesel*	
Rating:	447	kW each
	600	hp each
Operating Hours:	1,000	hr/yr total
Number of Units:	2	

CAS #	Compound	TAP	HAP	PAH	POM	Emission Factors (lb/MMBtu) [1] IC Engines (≤447 KW, 600 HP) Emission Factor (lb/MMBtu)	Emission Factor (lb/hp-hr) [3]	Emissions per Placeholder Unit (ton/yr)	Total Emissions (ton/yr)
Greenhouse Gas Pollutants [2]									
CO_2	CARBON DIOXIDE					1.63E+02	1.14E+00	171	342.410
CH_4	METHANE					6.61E-03	4.63E-05	0.01	0.014
N_2O	NITROUS OXIDE					1.32E-03	9.26E-06	0.001	0.003
Criteria Pollutants									
CO	CARBON MONOXIDE					7.09E-01	5.73E-03	0.86	1.72
NO_x	NITROGEN OXIDE					7.62E-01	6.16E-03	0.92	1.85
PM	PARTICULATE MATTER					4.09E-02	3.31E-04	0.05	0.10
PM_{10}	PARTICULATE MATTER (LESS THAN 10μ)					4.09E-02	3.31E-04	0.05	0.10
$PM_{2.5}$	PARTICULATE MATTER (LESS THAN 2.5μ)					4.09E-02	3.31E-04	0.05	0.10
SO_2	SULFUR DIOXIDE					1.55E-03	1.26E-05	0.00	0.00
VOC	VOLATILE ORGANIC COMPOUNDS					5.95E-02	4.81E-04	0.07	0.14
Organic Compounds		***TAP***	***HAP***	***PAH***	***POM***	(lb/MMBtu)	(lb/hp-hr)	lb/yr	(lb/yr)
106-99-0	1,3-BUTADIENE	Y	Y			1.84E-05	1.49E-07	0.04	0.09
75-07-0	ACETALDEHYDE	Y	Y			3.61E-04	2.92E-06	0.88	1.75
107-02-8	ACROLEIN	Y	Y			4.36E-05	3.52E-07	0.11	0.21
71-43-2	BENZENE	Y	Y			4.39E-04	3.55E-06	1.07	2.13
108-88-3	TOLUENE	Y	Y			1.93E-04	1.56E-06	0.47	0.94
1330-20-7	XYLENE (MIXED ISOMERS)	Y	Y			1.34E-04	1.09E-06	0.33	0.65
50-00-0	FORMALDEHYDE	Y	Y			5.56E-04	4.50E-06	1.35	2.70
Polycyclic Aromatic Hydrocarbons (PAH) & Polycyclic Organic Matter (POM)		***TAP***	***HAP***	***PAH***	***POM***	(lb/MMBtu)	(lb/hp-hr)	lb/yr	(lb/yr)
83-32-9	ACENAPHTHENE		Y		Y	6.69E-07	5.41E-09	1.62E-03	3.25E-03
208-96-8	ACENAPHTHYLENE		Y		Y	2.38E-06	1.93E-08	5.79E-03	1.16E-02
120-12-7	ANTHRACENE		Y		Y	8.81E-07	7.12E-09	2.14E-03	4.27E-03
56-55-3	BENZ(A)ANTHRACENE		Y	Y	Y	7.91E-07	6.40E-09	1.92E-03	3.84E-03
205-99-2	BENZO(B)FLUORANTHENE		Y	Y	Y	4.67E-08	3.78E-10	1.13E-04	2.27E-04
207-08-9	BENZO(K)FLUORANTHENE		Y	Y	Y	7.30E-08	5.90E-10	1.77E-04	3.54E-04
191-24-2	BENZO(G,H,I)PERYLENE		Y		Y	2.30E-07	1.86E-09	5.58E-04	1.12E-03
50-32-8	BENZO(A)PYRENE	Y	Y	Y	Y	8.85E-08	7.16E-10	2.15E-04	4.30E-04
218-01-9	BENZO(A)PHENANTHRENE (CHRYSENE)		Y	Y	Y	1.66E-07	1.34E-09	4.02E-04	8.04E-04
53-70-3	DIBENZO(A,H)ANTHRACENE		Y	Y	Y	2.75E-07	2.22E-09	6.66E-04	1.33E-03
206-44-0	BENZO(J,K)FLUORENE (FLUORANTHENE)		Y		Y	3.58E-06	2.90E-08	8.70E-03	1.74E-02
86-73-7	FLUORENE		Y		Y	1.38E-05	1.11E-07	3.33E-02	6.66E-02
193-39-5	INDENO(1,2,3-CD)PYRENE		Y	Y	Y	1.77E-07	1.43E-09	4.29E-04	8.58E-04
129-00-0	PYRENE		Y		Y	2.25E-06	1.82E-08	5.46E-03	1.09E-02
91-20-3	NAPHTHALENE		Y		Y	3.99E-05	3.23E-07	9.69E-02	1.94E-01
85-01-8	PHENANTHRENE		Y		Y	1.38E-05	1.12E-07	3.36E-02	6.72E-02
Metals		***TAP***	***HAP***	***PAH***	***POM***	(lb/MMBtu)	(lb/hp-hr)		(lb/yr)
ASC	ARSENIC	Y	Y			4.00E-06	2.80E-08	8.40E-03	1.68E-02
BEC	BERYLLIUM	Y	Y			3.00E-06	2.10E-08	6.30E-03	1.26E-02
7440-43-9	CADMIUM	Y	Y			3.00E-06	2.10E-08	6.30E-03	1.26E-02
CRC	CHROMIUM		Y			3.00E-06	2.10E-08	6.30E-03	1.26E-02
PBC	LEAD		Y			9.00E-06	6.30E-08	1.89E-02	3.78E-02
MNC	MANGANESE	Y	Y			6.00E-06	4.20E-08	1.26E-02	2.52E-02
HGC	MERCURY	Y	Y			3.00E-06	2.10E-08	6.30E-03	1.26E-02
7440-02-0	NICKEL	Y	Y			3.00E-06	2.10E-08	6.30E-03	1.26E-02
SEC	SELENIUM		Y			1.50E-05	1.05E-07	3.15E-02	6.30E-02

1. Values for diesel internal combustion taken from Table 3-4. Criteria Pollutant Emission Factors for Stationary Emergency Non-Fire Pump Compression Ignition ICOM Engines for displacement < 10, 175 ≤ hp < 600, NSPS-2007. Please note that $PM=PM_{10}=PM_{2.5}$ and HAP emissions are from Table 3-7. HAP Emission Factors for Stationary Compression Ignition ICOM Engines (Air Emissions Guide for Air Force Stationary Sources, AFCEC, June 2020).

2. GHG factors taken from 40 CFR Part 98, Subpart C, Table C-1 for Distillate Fuel No. 2 and from Table C-2 for Petroleum fuel types.

3. In accordance with EPA's AP-42 Chapter 3.3 (Table 3.3-1; Reference a), an average brake-specific fuel consumption (BSFC) of 7,000 Btu/hp-hr was used to convert from lb/MMBtu to lb/hp-hr, when necessary.

4. Metals emission factors are taken from EPA's AP-42 Chapter 1.3, Table 1.3-10. (May 2010).