

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date:

Region: Raleigh Regional Office
County: Johnston
NC Facility ID: 5100024
Inspector's Name: Yukiko Puram
Date of Last Inspection: 09/22/2010
Compliance Code: 3 / Compliance - inspection

Facility Data			Permit Applicability (this application only)
Applicant (Facility's Name): Raven NC, LLC Facility Address: Raven NC, LLC 1315 Industrial Park Drive Smithfield, NC 27577 SIC: 3679 / Electronic Components, Nec NAICS: 33422 / Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V			SIP: N/A NSPS: N/A NESHAP: N/A PSD: N/A PSD Avoidance: N/A NC Toxics: N/A 112(r): N/A Other: 15A NCAC 2D .1109 <i>[112(j) – Part 2 MACT Hammer for Boilers & Process Heaters]</i>
Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	Application Number: 5100024.09B Date Received: 09/14/2009 Application Type: 112(j) Part I Application Schedule: TV-Significant Existing Permit Data Existing Permit Number: 05529/T21 Existing Permit Issue Date: 10/15/2010 Existing Permit Expiration Date: 09/30/2015
Larry Haley Facility Manager (919) 989-1607 1315 Industrial Park Drive Smithfield, NC 27577	Doug May Operations Manager (919) 989-2292 1315 Industrial Park Drive Smithfield, NC 27577	Larry Haley Facility Manager (919) 989-1607 1315 Industrial Park Drive Smithfield, NC 27577	
Review Engineer: Judy Lee Review Engineer's Signature: _____ Date: _____		Comments / Recommendations: Issue 05529/T22 Permit Issue Date: Permit Expiration Date: September 30, 2012	

1. Purpose of Application

Raven NC, LLC, formerly **ASC Signal Corporation** (Andrew Corporation of N. C.) is located in Smithfield, Johnston County, North Carolina. Application number (No.) 5100024.09B, received on September 14, 2009, is a Part 2 MACT "Hammer" application for four (4) natural gas fired boilers, rated at less than 10 million British thermal units per hour (MMBtu/hr).

The Standard Industrial Classification (SIC) code is 4911.

2. Facility Description

Raven NC, LLC formerly ASC Signal Corporation manufactures rooftop and satellite television reception antennas, associated equipment and accessories.

The plant operations include injection molding, compression molding, and coating lines.

3. Application Chronology

Please see the attached Comprehensive Application Report for 5100024.09B and email correspondence for more details.

4. Permit Modifications/Changes and ESM Discussion

Changes to Raven NC, LLC current Title V permit (No. **05529T21**) for this modification (application number 5100024.09B) are summarized in the following table:

Old Page Number	New Page Number	Condition Number	Change
Cover Letter & Pages 1-36	Cover Letter & Pages 1-39	Entire permit, where applicable	Modified to reflect current permit number, issue and effective date, and associated application information Updated language with current shell guidance.
Attachment		Table of Changes	Updated for this permit modification
Attachment		Insignificant Activities	Remove affected boilers (ID Nos. IS-03140, IS-03240, IS-04550, IS-04450) from the insignificant activity list.
Page 3	Pages 3&4	Section 1 - Equipment Table	Added affected boilers (ID Nos. ES-03140, ES-03240, ES-04550, ES-04450) to the list of permitted sources.
--	Pages 10&11	Section 2 – Condition 2.1-C. (new section)	Add Section to include applicable requirements for the affected boilers (ID Nos. IS-03140, IS-03240, IS-04550, IS-04450)
Pages 27-36	Pages 30-39	Section 3 – General Conditions	Updated with most recent General Conditions (Version 3.2.2) & List of Acronyms

ESM was modified accordingly during the review process.

5. New Equipment/Change in Emissions and Regulatory Review

No new equipment or change in emissions are associated with this modification; however, the following four boilers were removed from the insignificant activities table and added to the permitted list of equipment due to new regulatory guidance:

- ✓ Two Natural gas fired boilers (ID Nos. ES-03140 & ES-03240; 8.4 million Btu per hour heat input capacity each)
- ✓ Two Natural gas fired boilers (ID Nos. ES-04450 & ES-04550; 2.4 million Btu per hour heat input capacity each)

Facility Emissions Review

As previously stated, there is no change in emissions for this modification. The following table represents the latest years' actual emissions from IBEAM, *Emissions Inventory: Annual Emissions Report* for inventory year 2006, as well as the emissions inventory (EI) data provided by Mr. Haley on July 2, 2008 via email, compared to the 2007 EI which has since been approved by RRO.

Pollutant(s)	2008 Actual Emissions (tpy) based on Fees Module Data	2007 Actual Emissions (tpy) based on EI received July 2, 2008 (Corrected per Fees Module)	2006 Actual Emissions (tpy) based on Fees Module Data	Potential Emissions (tpy) based on Fees Module Data	Potential Emissions (tpy) based on PSD Avoidance Limits
CO	0.9	1.57	2.69	4.49	--
NO _x	1.08	1.88	3.20	23.25	--
PM	0.19	0.17	0.29	1.49	--

Pollutant(s)	2008 Actual Emissions (tpy) based on Fees Module Data	2007 Actual Emissions (tpy) based on EI received July 2, 2008 (Corrected per Fees Module)	2006 Actual Emissions (tpy) based on Fees Module Data	Potential Emissions (tpy) based on Fees Module Data	Potential Emissions (tpy) based on PSD Avoidance Limits
PM ₁₀	0.19	0.17	0.29	1.01	--
SO ₂	NR	NR	0.01	0.72	--
VOC	24.14	69.59 (57.27)	94.16	527.9	<250 <250
Total TAP	12.29	14.9 (17.07)	19.46	26.74	--
Total HAP	12.52	15.21 (17.46)	20.60	376.28	--
Largest Single HAP/TAP (Styrene)	10.44	11.19 (13.95)	14.34	20.44	--

In addition to requirements provided in Section 3 – General Conditions, the facility will is subject to the following regulations:

- 15A NCAC 2D .0515, Particulates from Miscellaneous Industrial Processes
- 15A NCAC 2D .0516, Sulfur Dioxide Emissions from Combustion Sources
- 15A NCAC 2D .0521, Control of Visible Emissions
- 15A NCAC 2D .0530, PREVENTION OF SIGNIFICANT DETERIORATION (Avoidance)
- 15A NCAC 2D .0958, Work Practices for Sources of Volatile Organic Compounds
- 15A NCAC 2D .1100, Control of Toxics Air Pollutants
- 15A NCAC 2D .1111 “Maximum Achievable Control Technology (MACT) - 40 CFR 63, Subpart WWWW, MMMM & PPPP”
- 15A NCAC 2D .1806, Control and Prohibition of Odorous Emissions
- 15A NCAC 2Q .0317, Avoidance Conditions for 15A NCAC 2D .0530, PREVENTION OF SIGNIFICANT DETERIORATION (for VOC)
- 15A NCAC 2Q .0512, Permit Shield for Nonapplicable Requirements
- 15A NCAC 2Q .0705, Existing Facilities and SIC Calls
- 15A NCAC 2Q .0711, Emission Rates Requiring a Permit

Regulations added/updated/modified significantly as part of this modification are:

2D .0503 “Particulates from Fuel Burning Indirect Heat Exchangers”

Maximum heat input of all fuel burning indirect heat exchangers, $Q = [8.4 + 8.4 + 2.4 + 2.4 + 2.5 + 2.5 + 1.5 + 3.0 + 0.324] = 31.42$ million Btu per hour heat input capacity (this includes heat capacities from 5 insignificant activities as well as the four affected boilers), was used to determine the allowable emission limit, $E =$ pounds per million Btu heat input for the affected boilers, (ID Nos. ES-03140, ES-03240, ES-04550, and ES-04450). Using the following equation:

$$E = 1.09Q^{-0.2594} = 1.09(31.4)^{-0.2594} = 0.4457 \text{ lbs/million Btu} = 0.45 \text{ lbs/million Btu}$$

Where, E = allowable emission rate in pounds per million Btu, and
Q = maximum heat input in million Btu per hour

Worst-case total particulate matter emissions are estimated to be 0.00798 pounds per million Btu while firing natural gas (see calculation below). Based on EPA’s AP-42 Chapter 1 Introduction to External Combustion Sources, 1.4. Natural Gas Combustion, 1.4.1. General: The average gross heating value of natural gas is approximately 1,020 British thermal units per standard cubic foot (Btu/scf), usually varying from 950 to 1,050 Btu/scf. The Particulate

Matter (PM) Emission factor provided in Table 1.4-2. Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion, is 7.6 lb/10⁶ scf PM (Total):

$$\frac{\left(7.6 \frac{\text{lbPM}_{total}}{\text{mmscf}}\right)}{1,020 \frac{\text{MMBtu}}{\text{mmscf}}} = 0.007451 \frac{\text{lbPM}_{total}}{\text{mmBtu}} \text{ *Average Emission Rate for natural gas combustion*}$$

¹Appendix A of AP-42 has a typical heating value for natural gas of 1,050 Btu/scf

$$\frac{\left(7.6 \frac{\text{lbPM}_{total}}{\text{mmscf}}\right)}{1,050 \frac{\text{MMBtu}}{\text{mmscf}}} = 0.007238 \frac{\text{lbPM}_{total}}{\text{mmBtu}}$$

Because worst-case PM emission rates are estimated to be less than the allowable PM emission rate, no monitoring, recordkeeping, or reporting shall be required to demonstrate compliance with this limitation. Compliance is demonstrated with this regulation since estimated emissions are less than the allowable.

15A NCAC 2D .0516 “Sulfur Dioxide Emissions from Combustion Sources”

This regulation applies to sulfur dioxide (SO₂) emissions from any source of combustion that is discharged from any stack. Allowable emissions per this regulation are 2.3 pounds per million Btu heat input. However, a source subject to an emission standard for sulfur dioxide in Rules 2D .0524, .0527, .1110, .1111, .1205, .1206, or .1210 of this Subchapter shall meet the standard in that rule.

The affected boilers are subject to the 2.3 pounds per million Btu heat input allowable emissions standard under 2D .0516.

In addition, AP-42 Chapter 1 Introduction to External Combustion Sources, Table 1.4-2, EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION, the SO₂ Emission Factor (lb/10⁶ scf) = 0.6; thus, SO₂ emissions from natural gas are estimated to be less than 2.3 lb/MMBtu, as follows:

$$\frac{\left(0.6 \frac{\text{lbSO}_2}{\text{mmscf}}\right)}{1,020 \frac{\text{MMBtu}}{\text{mmscf}}} = 0.0006 \frac{\text{lbSO}_2}{\text{mmBtu}}$$

Because worst-case SO₂ emission rates are estimated to be less than the allowable SO₂ emission rate, no monitoring, recordkeeping, or reporting shall be required to demonstrate compliance with this limitation.

15A NCAC 2D .0521 - Control of Visible Emissions

(d) For sources manufactured after July 1, 1971, visible emissions shall not be more than 20 percent opacity when averaged over a six-minute period. However, except for sources which are required to install, operate, and maintain continuous opacity monitors, six-minute averaging periods may exceed 20 percent opacity if: (1) No six-minute period exceeds 87 percent opacity; (2) No more than one six-minute period exceeds 20 percent opacity in any hour; and (3) No more than four six-minute periods exceed 20 percent opacity in any 24-hour period.

This Rule shall apply to all fuel burning sources and to other processes that may have a visible emission. However, sources subject to a visible emission standard in Rules .0506, .0508, .0524, .0543, .0544, .1110, .1111, .1205, .1206, .1210, or .1211 of this Subchapter shall meet that standard instead of the standard contained in this Rule.

Because natural gas firing is associated with inherently low visible emissions, no monitoring, recordkeeping, or reporting shall be required to demonstrate compliance with this limitation.

15A NCAC 2D .1109 –Case-by-Case MACT – On July 20, 2007, the D.C. Circuit Court vacated the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters, which had been promulgated under 40 CFR 63, Subpart DDDDD. The North Carolina Attorney General’s office has determined that the NESHAP vacatur equates to the failure of the U.S. EPA to promulgate a standard as required under Section 112(d) of the Clean Air Act (CAA). As a result, the site-specific Maximum Achievable Control Technology (MACT) standards required under CAA §112(j), commonly referred to as the MACT “hammer” provisions, have been triggered. North Carolina regulations implementing the MACT hammer are found at 15A NCAC 2D .1109.

On September 14, 2009, the NC DAQ received a Part 2 MACT “Hammer” application from this facility asking that the NC DAQ establish 112(j) emissions limitations in accordance with NC DAQ’s recommendations.

No control technologies for the control of CO, metals, Hg, or HCl were identified for natural gas fired boilers in the state of North Carolina, nor were any such technologies identified in a North Carolina query using U.S. EPA’s Air Control Net software (v4.1). The NC DAQ has determined that MACT is the use of best work practice standards for natural gas combustion sources of this size, consistent with the provisions in CAA § 112(d)(2)(D). Best work practice standards in this case shall include the annual inspection and maintenance of the boiler as follows:

To assure compliance, the Permittee shall perform an annual boiler inspection and maintenance as recommended by the manufacturer, or as a minimum, the inspection and maintenance requirement shall include the following:

- i. Inspect the burner, and clean or replace any components of the burner as necessary;*
- ii. Inspect the flame pattern and make any adjustments to the burner necessary to optimize the flame pattern; and,*
- iii. Inspect the system controlling the air-to-fuel ratio, and ensure that it is correctly calibrated and functioning properly.*

The Permittee shall conduct at least one tune-up per calendar year to demonstrate compliance with this requirement. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .1109 if the affected boilers are not inspected and maintained as required above.

In addition, the Permittee will be required to record the results of the annual inspection in a logbook (written or electronic format), which shall be retained on-site and made available to an authorized representative upon request.

6. NSPS, NESHAPS, PSD, Attainment Status, 112(r), and CAM

NSPS

New Source Performance Standards (NSPS) do not apply to this facility.

NESHAP/MACT

Raven NC is a major Title V facility with potential facility-wide VOC emissions that exceed the Title V threshold for criteria pollutants of 100 tpy, as well as, a major source of HAP emissions because the PTE of any single HAP exceeds 10 tpy (styrene emissions based on EI are greater than 10 tpy – See discussion under Section 5 above). Hence, National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations or 15A NCAC 2D .1111 “Maximum Achievable Control Technology” do apply to this facility. During the renewal for this facility, the following MACT requirements for existing affected sources was added to their renewed permit: Subpart WWWW, PPPP, & MMMM.

During this modification we are addressing 2D .1109 –Case-by-Case MACT, as indicated in Section 5 above. All applicable requirements associated with emission standards, performance testing, monitoring, record keeping, and reporting will be included in the revised permit.

PSD/NAAQS

The facility is currently classified as a ***MAJOR*** stationary source for the purpose of the Prevention of Significant Deterioration (PSD) permitting program (see 15A NCAC 2D .0530). The facility's permit currently contains two PSD avoidance limits of less than 250 tons per year (tpy) each for volatile organic compounds (VOC) emissions.

The PSD minor source baseline dates for PSD increment tracking was triggered on October 28, 1981 in Johnston County for particulate matter (PM₁₀) and sulfur dioxide (SO₂) emissions. However, there are NO increases in emissions associated with this modification.

Attainment Status

VOC emissions - Based on the EPA's **Boundary Designations for the 1997 8-Hour Ozone Standard - EPA Region 4 (as of September 18, 2009)** Johnston County's "**Current/Proposed Classification**" is listed as "maintenance." EPA plans to designate geographic areas as attaining or not attaining the 2008 ground-level ozone standards by March 12, 2010. EPA has requested that states and tribes submit recommendations to EPA by March 12, 2009. Based on North Carolina's "Area Designations for the 2009 Revised Ozone National Ambient Air Quality Standards" memo dated March 12, 2009, North Carolina's recommendation for Johnston County is "nonattainment."

PM emissions – Based on NC DAQ's Planning and Attainment for PM_{2.5} Nonattainment Areas, the only counties designated as non attainment are Catawba, Davidson and Guilford.

112(r)

Per Form A3, **112(r) Applicability Information**, this facility is not subject to 40 CFR Part 68 "Prevention of Accidental Releases" - Section 112(r) of the Federal Clean Air Act (Act) requirements because it does not use any of the regulated substances in quantities above the thresholds in the Rule that require a Risk Management Plan (RMP).

CAM

A Compliance Assurance Monitoring (CAM) (40 CFR Part 64) determination is required during the renewal process because this facility is a Title V facility with potential emissions that exceed the Title V major source levels without considering controls; however, there are no sources subject to an emission limitation or standard that require controls in order to comply with the emission limitation; hence, CAM does ***not*** apply.

7. Facility Wide Air Toxics

Raven NC's current permit contains 2D .1100 emission limits based on recent styrene modeling performed earlier this year and approved on June 23, 2010, by Mr. Mark Yoder, Air Quality Analysis Branch.

This modification does not affect the current toxics limits found in Raven's permit.

8. Statement of Compliance

Mr. Brian Bland, Raleigh Regional Office (RRO), last inspected the facility on July 9 2009.

[Insert from inspection report]

INSPECTION SUMMARY: *On July 9 2009, I met with Pete Harkins, Group Leader, (his contact number is 989-2293) as Larry Haley was out of the office to conduct a compliance inspection. The facility had been recently had an ownership change and has been renamed Raven NC, LLC. The application for ownership change was received by RCO on June 22, 2009. The facility has about 100 to 150 employees.*

FIVE YEAR ENFORCEMENT HISTORY: *According to the RRO compliance databases, the facility was issued a Notice of Violation (NOV) dated November 6, 2006 for the late submittal of the 3Q 2006 report.*

CONCLUSIONS/RECOMMENDATIONS: *Based on observations made during the inspection, the facility appeared to be operating in compliance with all permit requirements. The facility should be inspected again in one year.*

9. Stipulation Review

Raleigh Regional Office (RRO) had the following comments:

- *Insert comments here*

Based on email response from Mr. Charles McEachern, RRO on XXXX.

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

Pursuant to 15A NCAC 2Q .0521, a notice of the DRAFT Title V Permit shall be placed in a newspaper of general circulation in the area where the facility is located. 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 2Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA. Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above.

Ms. Katy Forney and Ms. Gracy DeNois (U.S. EPA, Region IV) were provided a draft permit for review on October XX, 2010.

Public Notice to the EPA and Affected States of the DRAFT Title V Permit began on XXXX, 2010 and ended on XXXX, 2010.

Comments Received on the Draft Permit –

Public Notice of the DRAFT Title V Permit ran from XXXX, 2010 to XXXX, 2010.

Comments Received on the Draft Permit –

11. Conclusions, Comments, and Recommendations

- ✓ A professional engineer's seal was not required for this modification
- ✓ A consistency determination was not required for this modification.
- ✓ RRO recommends issuance of the permit and DOES request a DRAFT permit prior to issuance as specified under Section 9 above. All of RRO's recommends have been addressed at this time.
- ✓ RCO concurs with RRO's recommendation to issue the revised air permit No. 05529T22.

A draft permit and review were emailed to Mr. McEachern, RRO on October XX, 2010 for review.

A draft permit was emailed to Raven on October XX, 2010 for review and comments.

Recommendations

This permit modification application for Raven NC located in Smithfield, Johnston County, North Carolina has been reviewed by NC DAQ to determine compliance with all procedures and requirements. NC DAQ has determined that this facility appears to be complying with all applicable requirements.

Issue Permit No. 05529T22