

**NORTH CAROLINA DIVISION OF  
AIR QUALITY**

**Application Review**

**Issue Date:**

**Region:** Wilmington Regional Office  
**County:** New Hanover  
**NC Facility ID:** 6500055  
**Inspector's Name:** Linda Willis  
**Date of Last Inspection:** 10/18/2022  
**Compliance Code:** 3 / Compliance - inspection

<b>Facility Data</b>	<b>Permit Applicability (this application only)</b>
<p><b>Applicant (Facility's Name):</b> American Chrome and Chemicals</p> <p><b>Facility Address:</b>                  American Chrome and Chemicals                  5408 Holly Shelter Road                  Castle Hayne, NC 28429</p> <p><b>SIC:</b> 2819 / Industrial Inorganic Chemicals  <b>NAICS:</b> 325188 / All Other Basic Inorganic Chemical Manufacturing</p> <p><b>Facility Classification: Before:</b> Title V <b>After:</b> Title V  <b>Fee Classification: Before:</b> Title V <b>After:</b> Title V</p>	<p><b>SIP:</b> 02D .0503, .0515, .0516, .0521, .0524, .0614  <b>NSPS:</b> Subpart Y  <b>NESHAP:</b> Subparts JJJJJ, NNNNNN  <b>PSD:</b> NO<sub>x</sub>, SO<sub>2</sub>, PM/PM<sub>10</sub>  <b>PSD Avoidance:</b> 02D .0530(u)  <b>NC Toxics:</b> 02Q .0317 (02Q .0700 Avoidance)  <b>112(r):</b> 02Q .0508(h)  <b>Other:</b> NA</p>

<b>Contact Data</b>			<b>Application Data</b>
<b>Facility Contact</b>	<b>Authorized Contact</b>	<b>Technical Contact</b>	<p><b>Application Number:</b> 6500055.22A, 6500055.23A  <b>Date Received:</b> 08/09/2022, 04/18/23  <b>Application Type:</b> Renewal/Ownership Change  <b>Application Schedule:</b> TV-Renewal/Ownership Change</p> <p style="text-align: center;"><b>Existing Permit Data</b></p> <p><b>Existing Permit Number:</b> 02937/T40  <b>Existing Permit Issue Date:</b> 08/28/2018  <b>Existing Permit Expiration Date:</b> 01/31/2023</p>
Matt Hamburg Plant Manager (910) 675-7224 5408 Holly Shelter Road Castle Hayne, NC 28429	Matt Hamburg Plant Manager (910) 675-7224 5408 Holly Shelter Road Castle Hayne, NC 28429	Matt Hamburg Plant Manager (910) 675-7224 5408 Holly Shelter Road Castle Hayne, NC 28429	

<b>Total Actual emissions in TONS/YEAR:</b>							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2021	0.0400	154.03	45.68	94.95	65.02	4.36	2.20 [Chromium - All/Total (includes)]
2020	0.0800	154.03	43.58	80.96	62.13	4.14	2.10 [Chromium - All/Total (includes)]
2019	0.0800	154.93	47.06	94.46	67.28	4.50	2.28 [Chromium - All/Total (includes)]
2018	0.0900	154.07	50.16	92.43	71.52	4.78	2.43 [Chromium - All/Total (includes)]
2017	0.1100	156.29	52.06	93.49	72.46	4.85	2.46 [Chromium - All/Total (includes)]

<p><b>Review Engineer:</b> Eric L. Crump, P.E.</p> <p><b>Review Engineer's Signature:</b>                      <b>Date:</b></p>	<p><b>Comments / Recommendations:</b></p> <p><b>Issue</b> 02937/T41</p> <p><b>Permit Issue Date:</b></p> <p><b>Permit Expiration Date:</b></p>
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## 1. Purpose of Application

American Chrome and Chemicals (hereinafter referred to as ACC) is a chromium plant located in Castle Hayne, New Hanover County, North Carolina. The facility currently operates under Title V Permit No. 02937T40 with an expiration date of January 31, 2023. ACC has applied for renewal of their Title V air quality permit. The renewal application was received on August 4, 2022, which is less than six months prior to the expiration date as required by General Condition 3.K of the current permit. Therefore, the existing permit will expire January 31, 2023, unless the renewal permit is issued prior to the expiration date. ACC has accepted a Special Order by Consent (SOC) issued by the Environmental Management Commission (EMC), in which they agree to comply with the conditions in the expired air permit until a new permit is issued. The SOC expires upon issuance of a renewed permit, or on December 31, 2023, whichever comes first.

ACC did not report any additions, removals, or modifications of any sources at the facility in permit renewal application No. 6500055.22A.

The ACC facility was previously permitted as Elementis Chromium. On April 11, 2023, the Division of Air Quality (DAQ) received an application from Elementis Chromium (application No. 6500055.23A) for a name and ownership change, which changed the name of the facility to American Chrome and Chemicals. This name/ownership change application will be consolidated into this permit renewal.

## 2. Facility Description

ACC processes chromite ore into chromic acid ( $H_2CrO_4$ ), sodium dichromate ( $Na_2Cr_2O_7 \cdot 2H_2O$ ) and sodium sulfate ( $Na_2SO_4$ ). The chromite ore originates primarily from South Africa and contains about 45% chromic oxide. In the dry end the ore is dried, crushed, combined with soda ash, lime, and recycled residue, and then roasted in one of three kilns. The material exiting the kilns enters a quench tank, producing a mixture of sodium chromate solution and solid ore residue. Using hydrocyclones<sup>1</sup>, unconverted ore residue is removed from the sodium chromate solution, dried, and stored for reuse in the kilns.

The sodium chromate solution is mixed with sulfuric acid, and more residue is filtered out. The solution is then sent through a calcium precipitator, filter, and acidifier where sulfuric acid and soda ash are added to convert the solution to sodium dichromate, which is then evaporated and filtered. ACC can then process the liquid sodium dichromate for several end uses:

- It can be sold in solution at different concentrations or crystallized into a solid product.
- It can be reacted with sulfuric acid to produce a chromic acid solution, which is filtered, melted, and rolled to produce chromic acid in flake form. The melting and filtering processes are controlled with scrubbers.
- It can be evaporated and centrifuged to separate sodium sulfate or “yellow cake” from the solution. The yellow cake is sent next door to the old US Filter site, where it is purified into “white cake” (purified anhydrous sodium sulfate) and sold. This purification involves the reduction of hexavalent chromium back to trivalent chromium.

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<sup>1</sup> A hydrocyclone is a type of cyclonic separator that separates solids or different phase fluids from a bulk fluid mainly on basis of differences in gravity.

### 3. Application Chronology

February 23, 2018	Division of Air Quality (DAQ) issues Permit No. 02937T39 to ACC as a Title V renewal.
August 1, 2019	DAQ receives application from ACC requesting an administrative amendment to correct manufacturer recommended pressure ranges for fabric filters specified in the permit.
August 28, 2018	DAQ issues Permit No. 02937T40 to ACC as an administrative amendment.
August 4, 2022	DAQ receives permit renewal application from ACC, less than six months prior to the expiration date as required by the current permit. As a result, the existing permit will expire January 31, 2023, unless the renewal permit is issued prior to the expiration date.
December 28, 2022	ACC signs SOC issued by the EMC, agreeing to comply with expired Air Permit No. 02937T40 until a new permit is issued, and to pay the required civil penalty as stipulated in the SOC. The SOC expires upon issuance of a renewed permit, or on December 31, 2023, whichever comes first.
January 10, 2023	Draft permit sent to Stationary Source Compliance Branch (SSCB) for review and comment.
January 12, 2023	DAQ receives email from Sean Coury of Coury Science and Engineering (on behalf of ACC) requesting change to compliance assurance monitoring (CAM) plan submitted in original renewal application. The proposed change is referred to SSCB for review.
January 12, 2023	Comments received on draft permit and revised CAM plan from SSCB.
January 13, 2023	Draft permit and review sent for DAQ supervisory review.
January 31, 2023	Air Permit No. 02937T40 expires.
February 1, 2023	EMC officially approves and accepts the SOC issued to ACC.
March 31, 2023	DAQ supervisor provides comments on draft permit and review
April 11, 2023	DAQ receives name/ownership change from ACC (Application No. 6500055.23A), officially changing the name of the facility from “Elementis Chromium” to “American Chrome and Chemicals” (ACC).
April 12, 2023	DAQ sends draft permit to ACC and Wilmington Regional Office (WiRO) for review and comment.
April 21, 2023	DAQ receives comments on draft permit from WiRO.
April 24, 2023	DAQ receives comments on draft permit from ACC.

- xxx Permit renewal notice published, 30-day public notice and comment period begins, and 45-day EPA comment period begins.
- xxx 30-day public notice and comment period ends.
- xxx 45-day EPA comment period ends.

#### 4. Changes to Permit and Title V Equipment Editor (TVEE) Discussion

The following table summarizes changes made to the current ACC permit with this permit renewal:

Page No.	Section	Description of Changes
Cover and throughout	---	<ul style="list-style-type: none"> <li>Updated all dates and permit revision numbers</li> <li>Changed name of facility from “Elementis Chromium” to “American Chrome and Chemicals”</li> </ul>
Insignificant Activities List	Attachment	Moved to Section 3 of permit
--	Table of Contents	<ul style="list-style-type: none"> <li>Changed Section 3 from “General Conditions” to “Insignificant Activities per 15A NCAC 02Q .0503(8)”</li> <li>Added new Section 4, “General Conditions”</li> </ul>
3	List of Acronyms	Relocated here (formerly last page of permit)
4-10	1	Changed “BACT” designations in table to “PSD BACT”
13	2.1 A.2	Updated section to reflect the most current stipulations for 15A NCAC 02D .0515 (including inspections and maintenance as recommended by the manufacturer)
14	2.1 A.3.a	Changed “or” in first sentence to “and”
	2.1 A.3.c	Renumbered section; changed reference to Section 2.1 A.3.a to 2.1 A.3.c.i
15	2.1 A.3.d, f	Updated section to reflect the most current stipulations for 15A NCAC 02D .0516
	2.1 A.4	Updated section to reflect the most current stipulations for 15A NCAC 02D .0521
	2.1 A.4.a.i	Added Group J (as already listed in the limit/standards summary table for Section 2.1 A)

Page No.	Section	Description of Changes
16	2.1 A.5, 6	Updated sections to reflect the most current stipulations for 15A NCAC 02D .0524 and 40 CFR Part 60 Subpart Y
	2.1 A.5.b	Changed citation of 40 CFR 60.252(c) (referring to thermal dryers) to 40 CFR 60.254(a) (referring to coal processing and conveying equipment, coal storage systems, transfer and loading systems)
	2.1 A.6	<ul style="list-style-type: none"> <li>• Updated section to reflect the most current stipulations for 15A NCAC 02D. 0530(u)</li> <li>• Combined paragraphs b and c into paragraph b, and added requirement to determine emission factors for PM and PM<sub>10</sub></li> <li>• Relettered paragraphs d and e as paragraphs c and d</li> <li>• Deleted phrase “testing is not completed and/or” from paragraph c; Inserted “conditions for” between the words “incorporate” and “proper operation” in the first sentence</li> <li>• Added requirement to calculate SO<sub>2</sub> emissions to paragraph d</li> <li>• Added new paragraph e requiring calculation of emissions for NO<sub>x</sub>, PM, and PM<sub>10</sub>, with noncompliance statement</li> </ul>
18	2.1 A.7	Updated section to reflect the most current stipulations for 15A NCAC 02Q .0317 (for 02D .0530, PSD Avoidance)
	2.1 A.8	Updated section to reflect the most current stipulations for 15A NCAC 02Q .0317 (for 02D .0530, PSD Avoidance)
20	2.1 B.1	Updated section to reflect the most current stipulations for 15A NCAC 02D .0515 (including inspections and maintenance as recommended by the manufacturer)
21	2.1 B.2	Updated section to reflect the most current stipulations for 15A NCAC 02D .0521
23	2.1 C	Corrected ID No. of fines bin (changed from ES-11 to ES-16)
	2.1 C.1	Updated section to reflect the most current stipulations for 15A NCAC 02D .0515 (including inspections and maintenance as recommended by the manufacturer)
24	2.1 C.2	Updated section to reflect the most current stipulations for 15A NCAC 02D .0521
27	2.1 D.1	Updated section to reflect the most current stipulations for 15A NCAC 02D .0515 (including inspections and maintenance as recommended by the manufacturer)
28	2.1 D.2	Updated section to reflect the most current stipulations for 15A NCAC 02D .0521
29	2.1 E.1	Updated section to reflect the most current stipulations for 15A NCAC 02D .0515 (including inspections and maintenance as recommended by the manufacturer)
30	2.1 E.2	Updated section to reflect the most current stipulations for 15A NCAC 02D .0521
32	2.1 F.1	Updated section to reflect the most current stipulations for 15A NCAC 02D .0515 (including inspections and maintenance as recommended by the manufacturer)
33	2.1 F.2	Updated section to reflect the most current stipulations for 15A NCAC 02D .0521

Page No.	Section	Description of Changes
34	2.1 G.1	Updated section to reflect the most current stipulations for 15A NCAC 02D .0515 (including inspections and maintenance as recommended by the manufacturer)
35	2.1 G.2	Updated section to reflect the most current stipulations for 15A NCAC 02D .0521
37	2.1 H.1	Updated section to reflect the most current stipulations for 15A NCAC 02D .0515 (including inspections and maintenance as recommended by the manufacturer)
38	2.1 H.2	Updated section to reflect the most current stipulations for 15A NCAC 02D .0521
39	2.1 I.1	Updated section to reflect the most current stipulations for 15A NCAC 02D .0515 (including inspections and maintenance as recommended by the manufacturer)
40	2.1 I.2	Updated section to reflect the most current stipulations for 15A NCAC 02D .0521
41	2.2 A 2.2 A.1.a	Corrected “#3 Kiln surge feed bin (ID No. ES-5-K3)” in list of sources to “#3 kiln feed surge bin (ID No. ES515-9)”  <ul style="list-style-type: none"> <li>Moved emission sources and control devices to table; deleted subparagraphs a through i</li> <li>Removed “and #3 kiln feed surge bin” from emission source description of ES-5-K3</li> <li>Added separate line in table for #3 kiln feed surge bin (ID No. ES515-9)</li> </ul>
44	2.2 B.1	<ul style="list-style-type: none"> <li>Updated section to reflect the most current stipulations for 15A NCAC 02D .1111 (40 CFR Part 63, Subpart NNNNNN)</li> <li>Moved startup/shutdown/malfunction good air pollution control practices requirement (formerly paragraph f) under “Monitoring” subheading (now paragraph g). Other paragraphs renumbered accordingly.</li> <li>Changed numbering of subparagraphs in paragraph h</li> <li>Replaced all instances of “§” with “40 CFR”</li> </ul>
46	2.2 C	Updated section to reflect the most current stipulations for 15A NCAC 02D .1111 (40 CFR Part 63, Subpart JJJJJJ)
48	2.2 D.1	Updated section to reflect the most current stipulations for 15A NCAC 02Q .0317 (for 02Q .0700, Toxic Air Pollutant Procedures)
49	2.2 D.1.e 2.2 D.2.b	Removed reporting requirements for 15A NCAC 02Q. 0317 (for 02Q .0700, Toxic Air Pollutant Procedures)  Changed due date for RMP update to no later than June 2024
50	2.2 E.1 2.2 E.1.c.i	Updated section to reflect the most current stipulations for 15A NCAC 02D .0614  Changed monitoring approach for baghouses/fabric filters from monitoring pressure drop to visible emission observation
54	3	Section 3 is now “Insignificant Activities per 15A NCAC 02Q .0503(8)”
58-66	4	Updated General Conditions to Version 6.0 dated January 7, 2022

No changes were required to the TVEE as a result of this renewal.

## 5. Description of Changes and Estimated Emissions

ACC has not reported the addition, removal, or modification of any sources at the facility. No changes in emissions are expected.

## 6. Regulatory Review

ACC is subject to the following state regulations under 15A NCAC, in addition to the requirements in the General Conditions:

02D .0503, Particulates from Fuel Burning Indirect Heat Exchangers. This rule applies to particulate matter emissions from the combustion of fuel in indirect heat exchangers, such as boilers, that are discharged from any stack or chimney into the atmosphere. The regulation provides the following equation for determining the allowable emissions limit as a function of maximum heat input:

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

Where: E = allowable emissions limit for particulate matter in pounds per million Btu (lb/MMBtu); and  
Q = maximum heat input in million Btu per hour (MMBtu/hr).

The maximum heat input is the total heat content of all fuels and is the sum of maximum heat input of all fuel burning indirect heat exchangers at a plant site which are in operation, under construction, or permitted when determining the allowable emission limit for each fuel burning indirect heat exchanger.

The two boilers on site (ID Nos. ES-1 and ES-2) are subject to this regulation. Each boiler has a capacity of 122 million Btu per hour heat input. Per this regulation, PM emissions from each boiler shall not exceed 0.26 lb/MMBtu heat input. Monitoring, recordkeeping, or reporting is not required for particulate emissions from the firing of natural gas, No. 2 and No. 6 fuel oils, and on-specification used oil in these boilers. This permit renewal does not affect this status. Continued compliance is expected.

02D .0515, Particulates from Miscellaneous Industrial Processes. This rule addresses emissions of particulate matter from stacks, vents, or outlets for any industrial process for which no other particulate emission control standards apply. For such processes, the allowable emission rates shall not exceed the level calculated using one of the following equations, as appropriate for the process rate of the source:

$$\begin{aligned} E &= 4.10(P)^{0.67} && \text{for process rates less than or equal to 30 tons per hour (ton/hr)} \\ E &= 55.0(P)^{0.11} - 40 && \text{for process rates greater than 30 ton/hr} \end{aligned}$$

Where:

E = allowable emissions limit for particulate matter in pounds per hour (lb/hr), and  
P = process rate in ton/hr (i.e., the total weight per hour of all materials introduced into a specific process that may cause any emission of particulate matter. Liquid and gaseous fuels and combustion air are not included in the process weight).

The following emission sources listed in the appendix of this review are subject to this regulation, and are controlled by their respective emission control devices as listed in the appendix:



- Main Plant Stack – Groups A, B, C, D, E, F, H, and I
- Quench Area – Groups A and B
- Crystallization Area – Groups A and B
- Chromic Acid Area – Groups A and B
- Recycle Area – Groups A and B
- Neutralization Area – Groups A and B
- Waste Treatment Area – Groups A and B
- US Filter Site - Steam heated fluid bed dryer (ID No. ES2USF)
- Evaporation Area - #3 salt cake centrifuge (ID No. ES-38-5)

To ensure compliance, ACC shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there are no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include a monthly visual inspection of the system ductwork for leaks, and an annual internal inspection of the control device. ACC is required to record all inspection and maintenance results in a logbook, and submit summary reports of monitoring and recordkeeping semiannually. This permit renewal does not affect this status. Continued compliance is expected.

02D .0516, Sulfur Dioxide Emissions from Combustion Sources. Under this regulation, emissions of sulfur dioxide (SO<sub>2</sub>) from any source of combustion discharged from any vent, stack, or chimney shall not exceed 2.3 pounds of SO<sub>2</sub> per million British thermal units (MMBtu) input.

The sources in Groups C, D, E, G, and H listed under the Main Plant Stack (see appendix) are subject to this regulation. The following monitoring, recordkeeping, and reporting requirements apply:

- The maximum sulfur content of any No. 6 fuel oil received and burned shall not exceed 2.1 percent by weight.
- To ensure compliance, ACC shall monitor the sulfur content of the No. 6 fuel oil using fuel oil supplier certification per shipment received. ACC shall record the results of the fuel oil supplier certifications in a logbook on a quarterly basis, including the following information:
  - name of the fuel oil supplier;
  - maximum sulfur content of the fuel oil received during the quarter;
  - method used to determine the maximum sulfur content of the fuel oil; and
  - certified statement signed by the responsible official that the records of fuel oil supplier certification submitted represent all of the No. 6 fuel oil fired during the period.
- ACC shall monitor the sulfur and heat content of all coal burned during the period by using coal supplier certification per total shipment received. The coal supplier certification shall be recorded in a logbook per total shipment and include the following information:
  - the name of the coal supplier; and
  - a statement verifying that the methods used to determine the maximum sulfur content of the coal were in accordance with the following:
    - sampling - ASTM Method D 2234;
    - preparation - ASTM Method D 2013;
    - gross calorific value (Btu) - ASTM Method D 5865;
    - moisture content - ASTM Method D 3173; and
    - sulfur content - ASTM Method D 3177 or ASTM Method D 4239.
  - Calculations of the pounds of SO<sub>2</sub> per MMBtu heat content of the coal per total shipment taking into account any controls operated during the same period.

- No monitoring/recordkeeping is required for SO<sub>2</sub> emissions from the combustion of natural gas in these sources.
- ACC shall submit a summary report of the monitoring activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December and July 30 of each calendar year for the preceding six-month period between January and June. All instances of deviations from the requirements of this permit must be clearly identified. The report shall contain, at a minimum:
  - fuel oil supplier certifications;
  - coal supplier certifications; and
  - sulfur dioxide emission calculations per coal shipment.

This permit renewal does not affect this status. Continued compliance is expected.

02D .0521, Control of Visible Emissions. This regulation establishes opacity limits for visible emissions generated by fuel burning operations and industrial processes where visible emissions are expected to occur (except during startups, shutdowns, and malfunctions approved according to procedures in 15A NCAC 02D .0535, Excess Emissions Reporting and Malfunctions). The regulation establishes opacity limits for visible emissions from sources based on the date the sources were manufactured.

The following table lists sources at the ACC facility subject to this regulation and their respective opacity limits. The reader may refer to the appendix for specific source listings under the source groups shown in the table.

Date of Manufacture	Sources	Opacity Limit	Additional Limitations
As of July 1, 1971	All Group A, C, F, G, and H sources listed in the Main Plant Stack  All Group A sources listed in the following areas <ul style="list-style-type: none"> <li>• Quench Area</li> <li>• Crystallization Area</li> <li>• Chromic Acid Area</li> <li>• Recycle Area</li> <li>• Neutralization Area</li> <li>• Waste Treatment Area</li> </ul>	<u>40 percent opacity</u> averaged over a six-minute period	Six-minute averaging periods may exceed <u>40 percent</u> not more than: <ul style="list-style-type: none"> <li>• once in any hour, and</li> <li>• four times in any 24-hour period.</li> </ul> In no event shall the six-minute average exceed <u>90 percent opacity</u> .

Date of Manufacture	Sources	Opacity Limit	Additional Limitations
After July 1, 1971	All Group B, D, E, and I sources listed in the Main Plant Stack  All Group B sources listed in <ul style="list-style-type: none"> <li>• Quench Area</li> <li>• Crystallization Area</li> <li>• Chromic Acid Area</li> <li>• Recycle Area</li> <li>• Neutralization Area</li> <li>• Waste Treatment Area</li> </ul> Steam heated fluid bed dryer (ID No. ES2USF) at the US Filter Site  #3 salt cake centrifuge (ID No. ES-38-5) at the Evaporation Area	<u>20 percent opacity</u> averaged over a six-minute period	Six-minute averaging periods may exceed <u>20 percent</u> not more than: <ul style="list-style-type: none"> <li>• once in any hour, and</li> <li>• four times in any 24-hour period.</li> </ul> In no event shall the six-minute average exceed <u>87 percent opacity</u> .

To ensure compliance, ACC shall observe the emission points of these sources once a month during operation for any visible emissions above normal. The monthly observation must be made for each month of the calendar year period to ensure compliance with this requirement. If visible emissions from this source are observed to be above normal, ACC shall either:

- take appropriate action to correct the above-normal emissions as soon as practicable and within the monitoring period and record the action taken in a logbook in accordance with the recordkeeping requirements, or
- demonstrate the percent opacity from the emission points of the emission source in accordance with 15A NCAC 02D .0501(c)(8) (Method 9) for 12 minutes is below the required limit.

In addition, ACC is required to submit summary reports of monitoring and recordkeeping semiannually. This permit renewal does not affect this status. Continued compliance is expected.

02D .0524, New Source Performance Standards. See Section 8 of this review.

02D .0530, Prevention of Significant Deterioration (PSD). See Section 9 of this review.

02D .0614: Compliance Assurance Monitoring [40 CFR 64]. See Section 11 of this review.

02D .1100, Control of Toxic Air Pollutants. See Section 12 of this review.

02D .1111, Maximum Achievable Control Technology. See Section 7 of this review.

02Q .0711, Emission Rates Requiring a Permit. See Section 12 of this review.

The permit has been updated to reflect the most current stipulations for all applicable regulations.

## **7. National Emission Standards for Hazardous Air Pollutants (NESHAPS): Maximum and/or Generally Achievable Control Technology (MACT/GACT)**

ACC is considered an area source of HAP emissions; therefore, rules that apply specifically to major sources do not apply to this facility. The facility is a “natural” area source; as such, it does not need to include conditions in their air permit so it can avoid being a major source of HAP. The following area source standards apply:

40 CFR Part 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. This rule applies to all stationary internal combustion engines. The requirements of this rule for a given engine depend on several factors: engine capacity, manufacture date, HAP-Major/Minor, etc. For the purposes of this rule, each of the engines at this facility—with the exception of I-ES6USF—are:

- existing;
- emergency use;
- between 100 and 500 horsepower;
- diesel-fired/compression ignition; and
- uncontrolled.

For these engines, the general requirements of the rule are to perform regular maintenance and oil changes and to operate according to manufacturer's specifications. The facility is expected to continue to comply with this rule.

The remaining engine, I-ES6USF, is considered "new" under this rule. As such, its only requirements are to comply with the relevant NSPS.

Note that, for this facility, the engines subject to Subpart ZZZZ are listed in the permit as insignificant activities; therefore, there will not be a permit condition for this rule. Nevertheless, ACC is still subject to the requirements of Subpart ZZZZ.

40 CFR Part 63, Subpart JJJJJ, National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. This rule applies to boilers at area sources of HAP. Boilers fired exclusively with natural gas and boilers that use non-natural gas fuel as a backup are not subject to the rule. Boilers constructed before June 4, 2010 are considered "existing". Both boilers at this facility (ID Nos. ES-1 and ES-2) are considered existing.

To comply with this rule, the facility must perform regular maintenance and tune-ups of the boilers and a one-time energy assessment of the facility. Records of these activities must be kept and reported regularly.

This rule allows for natural gas-fired boilers to burn non-natural gas fuel during periods of maintenance and NG-curtailment (as specifically defined in the rule). Using this option, the boilers at this facility could potentially be exempt from this rule. However, Sean Coury stated in an email that ACC would prefer to be subject to this rule and maintain flexibility in choosing which fuels to use in the boilers.

40 CFR Part 63, Subpart NNNNNN, National Emissions Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources: Chromium Compounds. This rule applies to area sources of HAP that work with chromium compounds. Under Subpart NNNNNN, sources constructed before

April 4, 2007 are considered "existing". All chromium compound sources at this facility are subject to this rule and are considered existing.

Subpart NNNNNN limits PM emissions from an individual source based on the process rate of that source. To demonstrate compliance, the facility must operate emission control devices and perform regular maintenance on them. The facility must keep records on maintenance and monitoring, and submit reports on the maintenance and monitoring activities twice per year.

For the sake of clarity, it should be noted that the following regulations under 40 CFR Part 63 do not apply to the ACC facility:

- 40 CFR Part 63, Subpart VVVVVV, National Emissions Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources. According to 40 CFR 63.11494(c)(1)(vi), Subpart VVVVVV does not apply to a facility that is also subject to Subpart NNNNNN. Therefore, this rule does not apply to the ACC facility.
- 40 CFR Part 63, Subpart BBBB BB, National Emissions Standards for Hazardous Air Pollutants for Area Sources: Chemical Preparations Industry. According to the preamble to this rule published in 74 FR 69193 (December 30, 2009), this rule applies exclusively to facilities classified under NAICS code 325998. Since ACC is classified under a different NAICS code, this rule does not apply.

This permit renewal does not affect the status of this facility regarding these regulations. Continued compliance is expected.

## **8. New Source Performance Standards (NSPS)**

The ACC facility is subject to the following NSPS under 40 CFR Part 60.

Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984. This rule applies to storage tanks that contain volatile organic liquids and have a capacity of at least 75 cubic meters (~19,000 gallons). The only storage tank at the ACC facility that contains organic liquid and has a relevant capacity is the No. 6 fuel oil storage tank I-ES801-3 (capacity of 500,000 gallons).

Subpart Kb states that for tanks of this size, a volatile organic liquid must have a maximum true vapor pressure of 3.5 kilopascals (kPa). Tanks storing liquids with a lower pressure are not subject to the rule. Furthermore, the rule defines "maximum true vapor pressure" as a function of the maximum average ambient temperature.

According to AP-42 Table 7.1-2, the vapor pressure of No. 6 oil at 100°F is  $1.9 \times 10^{-4}$  pounds per square inch, which equates to  $1.3 \text{ E}^{-3}$  kPa. Therefore, this tank does not store a liquid that qualifies under the rule.

Subpart Y, Standards of Performance for Coal Preparation and Processing Plants. This rule applies to coal handling and preparation processes that process more than 181 megagrams (Mg) (200 tons) of coal per day. All coal handling processes at the ACC facility are subject to the rule.

The rule prohibits the discharge into the atmosphere from any coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal constructed, reconstructed, or modified on or before April 28, 2008, gases which exhibit 20 percent opacity or

greater. ACC complies with the requirements of Subpart Y by complying with 02D .0515 (it should be noted that, according to Mark Hedrick's August 31, 2016 inspection report, the facility has not burned coal since approximately 1992).

Subpart III, Stationary Compression Ignition Internal Combustion Engines. This rule applies to stationary engines manufactured and/or reconstructed after April 2006. Each engine at this facility, with the exception of I-ES6USF, was manufactured before that date. Therefore, this rule does not apply to those sources.

For I-ES6USF, the rule requires that the facility perform regular maintenance, operate according to manufacturer's specifications, and burn low-sulfur fuel. Since this source is listed as an insignificant activity in accordance with 15A NCAC 02Q .0503(8), the permit does not include a condition under this rule for Subpart III. Nevertheless, ACC must still comply with this rule.

The boilers at the ACC facility are not subject to 40 CFR Part 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. This NSPS applies to boilers constructed or modified after June 19, 1984. Both boilers were constructed before the applicability date, and have not been modified or reconstructed in a way that meets the definition of modification in Subpart Db. Therefore, Subpart Db does not apply to either boiler.

This permit renewal does not affect this status. Continued compliance is expected.

## 9. New Source Review (NSR)/Prevention of Significant Deterioration (PSD)

ACC has several sources subject to permit requirements to avoid applicability of PSD requirements.

1. Rotary kilns (ID Nos. ES-5-K1 through ES-5-K3): ACC has three kilns on site that fire natural gas, fuel oil (No. 6 and No. 2), oil, and on-specification used oil (150 MMBtu per hour heat input, 32.5 tons per hour process weight input). As requested by ACC in Permit Application No. 6500055.08B, and starting with permit No. 02937T34, the ACC permit includes the ability to fire the kilns using coal. Under 15A NCAC 02D .0530(u), the facility used the following projected actual emissions to demonstrate that firing coal in these three rotary kilns would not result in a significant emissions increase that would trigger a PSD review.

Pollutant	Projected Actual Emissions* (rotary kilns firing coal) (tons per year)
SO <sub>2</sub>	491.12
NO <sub>x</sub>	358.66
PM	94.94
PM <sub>10</sub>	94.04
VOC	1.95
CO	18.08
Lead	0.02

The permit requires that ACC keep records of actual emissions from the modified sources for five years after modifications to the kilns to allow coal burning are completed. As of this writing, ACC has not begun firing coal in the kilns. The permit further requires that ACC conduct testing on one of the three kilns while burning coal to confirm the vendor supplied NO<sub>x</sub> emissions factor (0.40 lb NO<sub>x</sub> per MMBtu) and the PM/PM<sub>10</sub> emissions rate. Upon DAQ approval of the testing

results, ACC must submit a permit application to incorporate proper operation and maintenance of the selective non-catalytic reduction system to control NO<sub>x</sub> emissions from the kilns.

When burning coal, ACC is required to monitor the sulfur content of the coal using coal supplier certifications, similar to the monitoring and recordkeeping requirements for 02D .0516 discussed above in Section 5 of this review.

Upon review, the permit language has been modified to better clarify whether the change in emissions from the coal burning modifications are within the significant emission levels. Changes were made to ensure that records of PM and PM<sub>10</sub> emissions were calculated, recorded, and reported in addition to NO<sub>x</sub> and SO<sub>2</sub> emissions, (2) SO<sub>2</sub> emissions were calculated assuming 66 percent of the SO<sub>2</sub> is absorbed in the kilns (as assumed in the permit review for permit No. 02937T34), (3) the PM and PM<sub>10</sub> emission factors determined from emissions testing will be used to calculate monthly and annual PM and PM<sub>10</sub> emissions, and (4) the NO<sub>x</sub> emission factor of 0.40 pounds per million Btu is used to calculate monthly and annual NO<sub>x</sub> emissions.

2. **Fuel oil in boilers (ID Nos. ES-1 and ES-2):** To avoid applicability of PSD, ACC must limit the use of fuel oil in these boilers such that actual emissions are less than:

Pollutant	Actual emissions, tons per consecutive 12-month period
SO <sub>2</sub>	474.4
NO <sub>x</sub>	106.4
PM	62.4
PM <sub>10</sub>	46.9

ACC must monitor emissions from burning fuel oil in these boilers by measuring and recording the quantity of fuel oil and on-specification used fuel oil combusted each month, and the percent by weight sulfur content by using fuel oil supplier certifications per shipment received. Each month ACC must calculate and record the actual emissions of each pollutant using the following emissions factors<sup>2</sup>, where “S” equals the percent weight of sulfur in the fuel:

Pollutant	No. 6 Fuel Oil (lb/1,000 gallons)	On-specification Used Oil (pounds /1,000 gallons)	No. 2 fuel Oil (pounds /1,000 gallons)
SO <sub>2</sub>	157(S)	150(S)	142(S)
NO <sub>x</sub>	47	47	24
PM	9.19(S) + 3.22 + 1.5	8.5	3.3
PM <sub>10</sub>	6.6(S) + 2.18	4.96	1

3. **Dryers (ID Nos. ES-6-RD1 and ES-6-RD2):** To avoid applicability of PSD, combined NO<sub>x</sub> emissions from the firing of No. 6 fuel oil in both dryers shall be less than 58.5 tons of per year. This limitation was added to permit No. 02937T36. ACC must demonstrate compliance with this limit by limiting both dryers to the following:

- no more than 36.4 million Btu per hour heat input, combined, when burning No. 6 fuel oil,

<sup>2</sup> Emission factors are from U.S. EPA AP-42, Section 1.3, published September 1998.

and

- burning no more than 2,125,176 gallons per year of No. 6 fuel oil combined.

ACC also has several emission sources that are subject to PSD.

- #4 Ball Mill (ID No. ES4-4);
- Lime truck and rail car unloading (ID No. ES-27);
- #3 Rotary kiln (ID No. ES-5-K3);
- #3 kiln feed surge bin (ID No. ES515-9);
- #2 recycle residue dryer (ID No. ES-6-RD2);
- #3 and #3A Quench and recirculation tanks (ID No. ES26-13 through 17);
- #3 tanks and receivers (ID No. ES-39-3 through 10);
- #3 belt conveyor (ID No. ES510-25);
- #4 tanks and hood (ID No. ES-28-1 through 5);
- #4 tanks (ES-29-7 and 8); and
- #3 centrifuge (ES38-5)

To ensure compliance with the 1980 BACT emission limits listed in Sections 2.2 A.1.a.ii, iii, and v below, ACC is required to do the following:

- use the listed PM/PM<sub>10</sub> control devices for the following sources:

Source ID No.	Emission Source	Control Device
ES4-4	#4 Ball Mill	Fabric filter
ES-27	Lime truck and rail car unloading	Fabric filter
ES-5-K3	#3 Rotary kiln	Electrostatic precipitator
ES515-9	#3 kiln feed surge bin	Electrostatic precipitator
ES-6-RD2	#2 recycle residue dryer	Dual cyclones and electrostatic precipitator
ES26-13 through 17	#3 and #3A Quench and recirculation tanks	Cyclonic scrubbers and electrostatic precipitator
ES-39-3 through 10	#3 tanks and receivers	Mist eliminator
ES-28-1 through 5	#4 tanks and hood	Mist eliminator
ES-29-7 and 8	#4 tanks	Mist eliminator
ES38-5	#3 centrifuge	Mist eliminator

- ensure the following PM/PM<sub>10</sub> emission limits are met:

Emission Source	PM/PM <sub>10</sub> Limit (lb/hr)	Control Technology
#4 Ball Mill (ID No. ES-4-4)	0.94	Fabric filter
Lime truck and rail car unloading (ID No. ES-27)	1.3	Fabric filter
#3 Rotary Kiln (ID No. ES-5-K3)	24.0	Electrostatic precipitator
#2 Recycle Residue Dryer (ID No. ES-6-RD2)	1.5	Dual cyclones and electrostatic precipitator



Emission Source	PM/PM <sub>10</sub> Limit (lb/hr)	Control Technology
#3 quench tank, #3A quench tank, #3 scrubber recirculation tank, #3A scrubber recirculation tank, and #3 wet electrostatic precipitator recirculation tank (combined) (ID Nos. ES-26-13 through 17)	1.4	Cyclonic scrubbers and wet electrostatic precipitator

- ensure emissions of SO<sub>2</sub> do not exceed the following limits:

Emission Source	SO <sub>2</sub> Emission limit (pounds per hour)	Control Technology
#3 Rotary Kiln (ID No. ES-5-K3)	109	Fuel sulfur limit
#2 Recycle Residue Dryer (ID No. ES-6-RD2)	40	

- ensure the sulfur content of fuel oil or any used oil fired in any combustion device does not exceed 2.1 percent by weight, and
- ensure emissions of NO<sub>x</sub> do not exceed the following limits:

Emission Source	NO <sub>x</sub> Emission limit (pounds per hour)
#3 Rotary Kiln (ID No. ES-5-K3)	82.9
#2 Recycle Residue Dryer (ID No. ES-6-RD2)	14.55

This permit renewal does not affect the status of these sources with respect to PSD. Continued compliance is expected.

### 10. Risk Management Plan (RMP) Requirements

40 CFR Part 68 requires stationary sources storing more than threshold quantities of regulated substances to develop a RMP in accordance with Section 112(r) of the Clean Air Act. The RMP lists the potential effects of a chemical accident at the facility, steps the facility is taking to prevent an accident, and emergency response procedures to be followed if an accident should occur.

ACC is subject to Section 112(r) of the Clean Air Act requirements because the Sodium Sulfate Purification Area has a maximum intended inventory of 83,000 lbs of sulfur dioxide—a quantity that exceeds the threshold for that substance in the Rule. ACC submitted an RMP to EPA on June 10, 2019 as required by their permit in accordance with 40 CFR Part 68.10 or Part 68.150. Their next RMP submittal will be due no later than June 10, 2024.

This permit renewal does not affect the 112(r) status of the facility. Continued compliance is expected.

### 11. Compliance Assurance Monitoring (CAM)

The CAM rule (40 CFR 64) applies to each pollutant specific emissions unit located at a major source that is required to obtain a Title V, Part 70 or 71 permit if it meets each of the following criteria:

- It is subject to an emission limitation or standard, and
- It uses a control device to achieve compliance, and
- It has potential pre-control emissions that equal or exceed the major source threshold (i.e., either 100 tpy for criteria pollutants, 10 tpy of any individual HAP, or 25 tpy of any combination of HAP).

The following emission limitations or standards are exempted from the CAM rule:

- NSPS or NESHAP standards proposed after November 15, 1990
- Stratospheric ozone protection requirements under Title VI of the Clean Air Act
- Acid rain program requirements
- Emission limitations or standards or other requirements that apply solely under an approved emissions trading program
- An emissions cap that meets requirements of 40 CFR 70.4(b)(12) or 71.6(a)(13)
- Emission limitations or standards for which a Part 70 or 71 permit specifies a continuous compliance determination method, as defined in 40 CFR 64.1, unless the applicable compliance method includes an assumed control device emission reduction factor that could be affected by the actual operation and maintenance of the control device (e.g., a surface coating line controlled by an incinerator for which continuous compliance is determined by calculating emissions on the basis of coating records and an assumed control device efficiency factor based on an initial performance test; in this example, this part would apply to the control device and capture system, but not to the remaining elements of the coating line, such as raw material usage)
- Certain municipally owned utility units, as defined in 40 CFR 72.2

Please note that the emission unit is not exempted from the CAM rule if nonexempt emission limitations or standards (e.g., a state rule or an older NSPS emission limit) apply to the emissions unit.

Upon review, it was determined that CAM applies to all sources at the facility with potential particulate emissions greater than 100 tons per year that use a control device to comply with 02D .0515. These sources are listed below:

Emission Source		Control Technology	
ID No.	Description	ID No.	Description
ES-4-1	Ball mill (chrome ore grinding unit)	CD510-1 and CD510-2	Fabric filter
ES-4-2	Ball mill (chrome ore grinding unit)		
ES-4-3	Ball mill (chrome ore grinding unit)	CD510-3	Fabric filter
ES-4-4	Ball mill (chrome ore grinding unit)	CD510-4	Fabric filter
ES-8-1 and ES-8-2	Soda ash storage bin	CD510-9	Fabric filter
ES-9	Soda ash railcar unloading	CD510-10	Fabric filter
ES-27	Lime unloading	CD510-11	Fabric filter

ES-36-1, ES-36-2, ES-36-3, ES-36-4, and ES-36-5	Waste treatment area	CD914-2	Baghouse
ES4USF	Product storage silo	CD-BH1	Fabric filter
ES5USF	Product storage silo	CD-BH2	Fabric filter
ES-5-K1	Rotary kiln	CD515-1	Electrostatic precipitator (ESP)
ES-5-K2	Rotary kiln	CD515-2	ESP
ES-5-K3	Rotary kiln	CD515-3	ESP
ES-6-RD1 and ES-6-RD2	Residue dryers	CD515-1, CD515-2, and CD515-3	ESP
ES-7-OD-1	Ore dryer		
ES-26-1	Quench tank	CD515-6	Wet ESP
ES-26-2 and ES-26-10	Quench tanks	CD515-6 and CD515-9	Wet ESPs
ES-26-9	Quench tank	CD515-9	Wet ESP
ES-26-13 and ES-26-14	Quench tanks	CD515-12	Wet ESP
ES-16-2	Fluid bed dryer	CD555-1	Scrubber

There have been no changes to the ACC facility since the last renewal that have extended the applicability of CAM to additional sources or withdrawn the applicability of CAM from the sources listed above. ACC submitted a CAM plan with this permit renewal application (and an amendment to that plan submitted in emails dated January 12, 2023 and April 24, 2023 from Sean DeCoury, Coury Science and Engineering) that calls for the following monitoring approach:

- For baghouses (a.k.a. fabric filters), ACC requested a change from daily monitoring of pressure drop through the baghouse using a differential pressure gauge to daily visible emission observations. In the event that the observed visible emissions should exceed normal, ACC must use Method 9 to demonstrate that the percent opacity from these baghouses are below permit limits. This change has been made to the permit.
- For ESPs, the power input to each field is measured and recorded at least once daily. The normal operating voltage is set at the highest level achievable without having an excessive spark rate. Based on field experience, power levels less than 0.5 kilowatts (kW) on stage 1a and less than 1kW on stages 1, 2, and 3 during normal operation result in opacity readings that approach 20 percent (typically the opacity of the ESP exhaust is less than 5 percent).
- For wet ESPs, the same approach for ESPs is used, except that power levels less than 0.2 kW during normal operation result in opacity readings that approach 20 percent (typically the opacity of the wet ESP exhaust is less than 5 percent).
- For the scrubber, the differential pressure is measured daily using a pressure transducer as an indicator of whether there is sufficient water flow to ensure adequate particulate removal. The indicator range is less than 0.25 inches water or greater than 13 inches water.

This permit renewal does not affect this status. Continued compliance is expected.

## 12. Facility-wide Air Toxics Review

Because ACC is subject to the MACT standards under 40 CFR 63 as discussed in Section 7 of this review, it has been exempted from NC toxics permitting in accordance with 15A NCAC 02Q .0702(a)(27)(A). As documented in a July 26, 2017 AQAB memorandum<sup>3</sup>, ACC submitted a dispersion modeling analysis to DAQ to evaluate changes in toxics ambient impacts from lowering the height of the

<sup>3</sup> Review of Dispersion Modeling Analysis for Elementis Chromium. Memorandum from M. Porter, AQAB/DAQ to R. Braswell, RCO/DAQ, July 26, 2017.

main plant stack. The modeling analysis demonstrated that facility-wide toxics emissions impacts were below applicable standards on a source-by-source basis.

ACC has elected to burn recycled or otherwise "used" fuel oil. To avoid the applicability of 15A NCAC 02Q .0700, Toxic Air Pollutant Procedures, the used fuel oil must meet the specifications of unadulterated fuel oil of the same grade, as shown in the table below.

<b>Constituent/Property</b>	<b>Allowable Level</b>
Arsenic	1.0 ppm maximum
Cadmium	2.0 ppm maximum
Chromium	5.0 ppm maximum
Lead	100 ppm maximum
Total Halogens	1000 ppm maximum
Flash Point	
No. 2	100°F minimum
No. 4	130°F minimum
No. 6	175°F minimum
Sulfur	
No. 2	0.5% maximum (by weight)
No. 4	2.0% maximum (by weight)
No. 6	2.0% maximum (by weight)
Ash	1.0% maximum

The permit includes a condition that requires recordkeeping (e.g., amounts of recycled oil delivered annually, delivery manifest documents, batch specific analytical reports, and certifications that the recycled oil does not contain detectable polychlorinated biphenyls) to demonstrate that the facility is burning fuel oil that meets these specifications.

The permit also included an annual reporting requirement to submit a summary of analytical oil testing results, and the total gallons of recycled fuel oil combusted at the facility; This reporting requirement has been removed from the permit as per the outcome of the April 2016 DAQ Permit Work Group meeting.

Continued compliance is expected.

### **13. Facility Emissions Review**

The table in the header page of this review summarizes emissions reported by ACC for the years 2017 through 2021 in annual emissions inventories. The numbers shown reflect total facility emissions after application of required emission controls.

As shown, annual emissions for NO<sub>x</sub>, CO, VOC, PM, and HAP have remained relatively steady during this time period. SO<sub>2</sub> emissions have declined over this period, from 0.1100 tons in 2017 to 0.0400 tons in 2021.

Since the permit was last renewed in 2018, there have been no modifications to the ACC facility that would result in changes to potential emissions from the facility.

### **14. Compliance History and Status**

The following compliance chronology dates from when the ACC permit was last renewed on February 23, 2018.

March 1, 2019	Mark Hedrick, Wilmington Regional Office (WiRO) conducts partial facility compliance inspection for recordkeeping requirements. The ACC facility appeared to be in compliance with all recordkeeping requirements.
March 8, 2019	Mark Hedrick, WiRO conducts full facility compliance inspection. The ACC facility appeared to be operating in compliance with all permit requirements.
June 17, 2019	Linda Willis, WiRO conducts 15A NCAC 02D .2100 Risk Management Program compliance inspection. The ACC facility appeared to be operating in compliance with 15A NCAC 02D .2100.
December 20, 2019	Linda Willis, WiRO conducts facility compliance inspection with focus on a complete review of the permit monitoring, recordkeeping and reporting requirements. The ACC facility appeared to be operating in compliance with all permit requirements.
August 25, 2020	Linda Willis, WiRO conducts onsite inspection with focus on visible emissions requirements. The ACC facility appeared to be operating in compliance with all visible emission permit requirements.
June 10, 2021	Linda Willis, WiRO conducts full facility compliance inspection. The ACC facility appeared to be operating in compliance with all permit requirements.
February 4, 2022	Linda Willis, WiRO conducts full facility compliance inspection. The ACC facility appeared to be operating in compliance with all permit requirements.
December 28, 2022	ACC signs SOC issued by the EMC, agreeing to comply with expired Air Permit No. 02937T40 until a new permit is issued, and to pay the required civil penalty as stipulated in the SOC. The SOC expires upon issuance of a renewed permit, or on December 31, 2023, whichever comes first.
February 27, 2023	DAQ sends letter to ACC acknowledges receipt of \$8,000 civil penalty payment for the SOC.

In summary, since the permit was last renewed in 2018, ACC has been found to be in full compliance with all permit requirements. Although their most recent air permit (No. 02937T40) expired due to late submittal of their permit application, ACC agreed under an SOC to continue compliance with the permit until a renewed permit is issued. Continued compliance is expected.

## **15. Public Notice/EPA and Affected State(s) Review**

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. Consistent with 15A NCAC 02Q .0525, the EPA will have a concurrent 45-day review period. 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 shall be provided to 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.

There are no affected states or local programs within 50 miles of the facility.

Notice of the DRAFT Title V Permit to Affected States ran from XXXX, 2023, to XXXX, 2023. ***Discuss any comments received from Affected States or Local Programs.***

Public Notice of the DRAFT Title V Permit ran from XXXX, 2023, to XXXX, 2023. ***Discuss any public comments received.***

EPA's 45-day review period ran concurrent with the 30-day Public Notice, from XXXX, 2023, to XXXX, 2023. ***Discuss any comments received from EPA and U.S. EPA Region 4 regarding the DRAFT Title V Permit.***

## **16. Other Regulatory Considerations**

The following items in Permit Application No. 6500055.22A were not required:

- Professional Engineer's seal
- Zoning consistency determination
- Permit fee.

## **17. Recommendations**

DAQ has reviewed the permit application(s) for American Chrome and Chemicals located in Castle Hayne, New Hanover County 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. DAQ recommends the issuance of Air Permit No. 02937T41 after the completion of public participation and the EPA review periods.

**Appendix**  
**Listing of Sources and Source Groups in Section 2.1 of American Chrome and Chemicals Permit**

A. MAIN PLANT STACK

Group	Emission Sources
A	<ul style="list-style-type: none"> <li>• #1 ball mill with classifier and product cyclone (ID No. ES-4-1), ore silo (ID No. ES-4-5), and #2 ball mill with classifier and product cyclone (ID No. ES-4-2)—each venting to two fabric filters (ID Nos. CD510-1 and 2) operating in parallel;</li> <li>• #3 ball mill with classifier and product cyclone (ID No. ES-4-3) with fabric filter (ID No. CD510-3); and</li> <li>• two soda ash storage silos (ID Nos. ES-8-1 and 2)—each venting to fabric filter (ID No. CD510-9)</li> </ul>
B	<ul style="list-style-type: none"> <li>• #4 ball mill with classifier and product cyclone (ID No. ES-4-4) with fabric filter (ID No. CD510-4);</li> <li>• soda ash railcar unloading (ID No. ES-9) with fabric filter (ID No. CD510-10);</li> <li>• lime truck and railcar unloading (ID No. ES-27) with fabric filter (ID No. CD510-11);</li> <li>• product silo (ID No. ES4USF) with fabric filter (ID No. CD-BH1) [US Filter Site]; and</li> <li>• product silo (ID No. ES5USF) with fabric filter (ID No. CD-BH2) [US Filter Site]</li> </ul>
C	#2 recycle residue dryer (ID No. ES-6-RD2) venting to dual cyclone (ID No. CD510-13) in series with one of three electrostatic precipitators (ID Nos. CD515-1, 2, and 3)
D	#3 rotary kiln (ID No. ES-5-K3) equipped with optional selective non-catalytic reduction (SNCR) (ID No. CD-K3-SNCR) and venting to electrostatic precipitator (ID No. CD515-3)
E	#1 recycle residue dryer (ID No. ES-6-RD1) venting to dual cyclone (ID No. CD510-14) in series with one of three electrostatic precipitators (ID Nos. CD515-1, 2, and 3)
F	<ul style="list-style-type: none"> <li>• dry ore bucket elevator (ID No. ES-7-5) and four dry ore surge bins (#1 through 4; ID Nos. ES-7-1 through 4)—each venting to dual cyclone (ID No. CD510-12) in series with one of three electrostatic precipitators (ID Nos. CD515-1, 2, and 3);</li> <li>• two kiln feed surge bins (#1 and 2; ID No. ES-5-1 and 2), mix area dust system (ID No. ES-5-4), mix drag conveyor (ID No. ES-5-5), #1 recycle drag conveyor (ID No. ES-6-3), and #1 dry residue bucket elevator (ID No. ES-6-4)—each venting to electrostatic precipitator (ID No. CD515-3); and</li> <li>• #2 dry residue bucket elevator (ID No. ES-6-2) and dry residue storage silo (ID No. ES-6-1)—each venting to dual cyclone (ID No. CD510-13) in series with one of three electrostatic precipitators (ID Nos. CD515-1, 2, and 3)</li> </ul>
G	two boilers (ID Nos. ES-1 and ES-2)
H	<ul style="list-style-type: none"> <li>• #1 rotary kiln (ID No. ES-5-K1) equipped with optional SNCR (ID No. CD-K1-SNCR) and venting to electrostatic precipitator (ID No. CD515-1);</li> <li>• #2 rotary kiln (ID No. ES-5-K2) equipped with optional SNCR (ID No. CD-K2-SNCR) and venting to electrostatic precipitator (ID No. CD515-2); and</li> <li>• rotary ore dryer (ID No. ES-7-OD-1) venting to dual cyclones (ID No. CD510-12) in series with one of three electrostatic precipitators (ID Nos. CD515-1, 2, and 3)</li> </ul>
I	#3 kiln feed surge bin (ID No. ES515-9) venting to electrostatic precipitator (ID No. CD515-3)
J	Coal receiving, storage, and grinding equipment (ID No. F-CRSG)

B. QUENCH AREA

Group	Emission Sources
A	<ul style="list-style-type: none"> <li>• #1 quench tank (ID No. ES-26-1), #1 scrubber recirculation tank (ID No. ES-26-3), and #1 wet electrostatic precipitator recirculation tank (ID No. ES-26-5)—each venting to #1 quench tank wet cyclonic scrubber (ID No. CD515-5) in series with #1 wet electrostatic precipitator (ID No. CD515-6).<sup>4</sup></li> <li>• #1A quench tank (ID No. ES-26-2), #2A quench tank (ID No. ES-26-10), #1A-2A scrubber recirculation tank (ID No. ES-26-4), and area repump tank (ID No. ES-26-6)—each venting to #1A-2A quench tank wet cyclonic scrubber (ID No. CD515-7) in series with #1 and/or #2 wet electrostatic precipitator (ID Nos. CD515-6 and -9).<sup>5</sup></li> <li>• #2 quench tank (ID No. ES-26-9), #2 scrubber recirculation tank (ID No. ES-26-11), and #2 Wet electrostatic precipitator recirculation tank (ID No. ES-26-12)—each venting to #2 quench tank wet cyclonic scrubber (ID No. CD515-8) in series with #2 wet electrostatic precipitator (ID No. CD515-9).<sup>6</sup></li> </ul>
B	<ul style="list-style-type: none"> <li>• #3 quench tank (ID No. ES-26-13) and #3 scrubber recirculation tank (ID No. ES26-15)—each venting to either #3 or #3A quench tank wet cyclonic scrubber (ID No. CD515-10 or 11), in series with #3 wet electrostatic precipitator (ID No. CD515-12).</li> <li>• #3 Wet electrostatic precipitator recirculation tank<sup>7</sup> (ID No. ES-26-17), #3A quench tank (ID No. ES-26-14), and #3A scrubber recirculation tank (ID No. ES-26-16)—each venting to #3A quench tank wet cyclonic scrubber (ID No. CD515-11) in series with #3 wet electrostatic precipitator (ID No. CD515-12).</li> </ul>

C. CRYSTALLIZATION AREA

Group	Emission Sources
A	<ul style="list-style-type: none"> <li>• crystal centrifuge (ID No. ES-16-3)</li> <li>• crystal dissolving tank (ID No. ES-16-17)</li> <li>• wet conveyor (ID No. ES-16-9)</li> <li>• fluid bed dryer (ID No. ES-16-2)</li> <li>• fluid bed cooler (ID No. ES-16-1)</li> <li>• crystal feed tank (ID No. ES-16-10)</li> <li>• culls bin (ID No. ES-16-11)</li> <li>• fines bin (ID No. ES-16-16)</li> <li>• crystal storage bin (ID No. ES-16-5)</li> <li>• crystal screen (ID No. ES-16-4)</li> <li>• crystal bucket elevator (ID No. ES-16-6)</li> <li>• bag dump hopper (ID No. ES-16-15)</li> <li>• red liquor sump (ID No. ES-16-14)</li> <li>• bag slitter (ID No. ES-16-12)</li> <li>• above ground sump (ID No. ES-16-13)</li> <li>• crystal bagging machine (ID No. ES-16-7)</li> </ul> <p>Each of the above venting to crystal impingement plate scrubber with demister (ID No. CD555-1)</p>
B	<p>super sack filling machine (ID No. ES-16-8) venting to crystal impingement plate scrubber with demister (ID No. CD555-1)</p>

<sup>4</sup>These sources may also vent to quench tank scrubbers #1A 2A and #2

<sup>5</sup>These sources may also vent to quench tank scrubber #1

<sup>6</sup>These sources may also vent to quench tank scrubber #1A-2A

<sup>7</sup>This source may also vent to #3A scrubber



D. CHROMIC ACID AREA

Group	Emission Sources
A	<p>#1 and #2 filtrate receivers (ID Nos. ES-21-28 and ES-21-29)—venting to filter exhaust mist eliminator (ID No. CD590-3) in series with main chromic acid packed bed scrubber (ID No. CD590-4) in series with Brownian diffusion mist eliminator (ID No. CD590-2)</p>
	<ul style="list-style-type: none"> <li>• #2 crude crystal rotary filter (ID No. ES-21-16),</li> <li>• vacuum engines seal water (ID No. ES-21-27),</li> <li>• vacuum engine separators (ID No. ES-21-37),</li> <li>• #1, #2, &amp; #3 crude crystal bins (ID Nos. ES-21-21 through 23),</li> <li>• #1, #2, &amp; #3 melters (ID Nos. ES-21-1 through 3),</li> <li>• #1, #2, &amp; #3 bisulfate urinals (ID Nos. ES-21-4 through 6),</li> <li>• #1 and #3 chromic acid flakers (ID No. ES-21-7 and 9),</li> <li>• lump tank (ID No. ES-21-24),</li> <li>• #1, #2, &amp; #3 chromic acid flaker conveyors (ID Nos. ES-21-10 through 12),</li> <li>• 85% liquor storage tank (ID No. ES-21-18),</li> <li>• packing scrubber tank (ID No. ES-21-25), and</li> <li>• chromic acid main plant scrubber tank (ID No. ES-21-20)</li> </ul> <p>Each of the above venting to main chromic acid packed bed scrubber (ID No. CD590-4) in series with Brownian diffusion mist eliminator (ID No. CD590-2)</p>
B	<ul style="list-style-type: none"> <li>• #1 crude crystal rotary filter (ID No. ES-21-15),</li> <li>• #1&amp;#2 chromic acid reactors (ID Nos. ES-21-13 and 14),</li> <li>• bisulfate surge tank (ID No. ES-21-26),</li> <li>• #2 chromic acid flaker (ID No. ES-21-8),</li> <li>• chromic acid filtrate storage tank (ID No. ES-21-17), and</li> <li>• chromic acid filtrate surge tank (ID No. ES-21-19)</li> </ul> <p>Each of the above venting to main chromic acid packed bed scrubber (ID No. CD590-4) in series with Brownian diffusion mist eliminator (ID No. CD590-2)</p>
	<ul style="list-style-type: none"> <li>• tote bin screw conveyor (ID No. ES-21-33),</li> <li>• sparger car loading hose (ID No. ES-21-36),</li> <li>• sparger cars chromic acid bulk conveyor (ID No. ES-21-34),</li> <li>• main packing bin (ID No. ES-21-35),</li> <li>• drum filling machine (ID No. ES-21-30),</li> <li>• chromic acid tote bin filling machine (ID No. ES-21-31),</li> <li>• tote bin transloading vent (ID No. ES-21-32),</li> <li>• hydration conveyor (ID No. ES-21-38),</li> <li>• #3 hydration conveyor (ID No. ES-21-44),</li> <li>• drying conveyor (ID No. ES-21-39),</li> <li>• fines bin (ID No. ES-21-41),</li> <li>• fines conveyor (ID No. ES-21-43),</li> <li>• lumps bin (ID No. ES-21-42), and</li> <li>• dust free chromic acid packing bin (ID No. ES-21-40)</li> </ul> <p>Each of the above venting to chromic acid packing impingement scrubber (ID No. CD590-1) in series with Brownian diffusion mist eliminator (ID No. CD590-2).</p>

#### E. RECYCLE AREA

Group	Emission Sources
A	<ul style="list-style-type: none"> <li>#1 recycle vacuum filter (ID No. ES-3-3), #1 and 2 hydroclone overflow receivers (ID Nos. ES-3-1 and 2), #1 and 2 recycle vacuum filters (ID Nos. ES-3-3 and 4)—each venting to #1 and #2 recycle filter systems mist eliminator (ID No. CD510-15),</li> <li>#1 repulp tank (ID No. ES-39-8) venting to #3 recycle filter system mist eliminator (ID No. CD510-18)</li> </ul>
B	<ul style="list-style-type: none"> <li>#3 recycle belt conveyor (ID No. ES510-25) venting to recycle conveyors and repump tank mist eliminator (ID No. CD510-16),</li> <li>#2 repulp tank (ID No. ES-3-5), venting to #1 and #2 recycle filter systems mist eliminator (ID No. CD510-15),</li> <li>#3 separator tank (ID No. ES-39-3)<sup>8</sup>, #3 belt wash tank (ID No. ES-39-5), #3 belt wash overflow tank (ID No. ES-39-9), #3 recycle vacuum filter (ID No. ES-39-4), #3 hydroclone overflow receiver (ID No. ES-39-6), #3 filtrate receiver tank (ID No. ES-39-7), and #3 reversible conveyor (ID No. ES-39-10)—each venting to #3 recycle filter system mist eliminator (ID No. CD510-18).</li> </ul>

#### F. NEUTRALIZATION AREA

Group	Emission Sources
A	<ul style="list-style-type: none"> <li>#1 and 2 probe bowls (ID No. ES-12-4), and #1 through 3 reject filter hoods (ID No. ES12-1 through 3)—each venting to #1, #2, and #3 reject filter hood system and tanks mist eliminator (ID No. CD535-1), and</li> <li>#2 quench light slurry tank (ID No. ES-28-5) venting to #4 reject filter hood system mist eliminator (ID No. CD535-4)</li> </ul>
B	#4 reject filter hood (ID No. ES-28-1), #4 filtrate receiver tank (ID No. ES-28-3), #4 repulp tank (ID No. ES-28-4), and #4 wash receiver tank (ID No. ES-28-2)—each venting to #4 reject filter hood system mist eliminator (ID No. CD535-4), and #4 filtrate separator tank (ID No. ES-29-7) and #4 wash separator tank (ID No. ES-29-8)—each venting to #4 system mist eliminator (ID No. CD535-5) in series with #1, #2, and #3 reject filter hood system and tanks mist eliminator (ID No. CD535-1)

#### G. WASTE TREATMENT AREA

Group	Emission Sources
A	lime slurry tank (ID No. ES-36-1) and sludge hold tank (ID No. ES-36-5)—each venting to lime/crushed limestone silo baghouse (ID No. CD914-2)
B	lime silo (ID No. ES-36-2) and #1 and 2 lime/crushed limestone silos (ID Nos. ES-36-3 and 4)—each venting to lime/crushed limestone silo baghouse (ID No. CD914-2)

#### H. US FILTER SITE

Steam heated fluid bed dryer (ID No. ES2USF), venting to cyclone (ID No. CDCY1) in series with packed bed scrubber (ID No. CDVS1).

#### I. EVAPORATION AREA

#3 salt cake centrifuge (ID No. ES-38-5), venting to wet salt cake demister (ID No. CD550-8)

<sup>8</sup> This source may also vent to I-CD510-17.