Facility Name:	ERCO Worldwide, Inc.		
City:	Valdosta		
County:	Lowndes		
AIRS #:	04-13-185-00082		
	Application #:	TV-290238	
Date A	pplication Received:	July 26, 2017; Revised December 3, 2018	
	Permit No:	2819-185-0082-V-02-0	

Program	Review Engineers	Review Managers	
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Introduction

This narrative is being provided to assist the reader in understanding the content of referenced operating permit. Complex issues and unusual items are explained here in simpler terms and/or greater detail than is sometimes possible in the actual permit. The permit is being issued pursuant to: (1) Georgia Air Quality Act, O.C.G.A § 12-9-1, et seq. and (2) Georgia Rules for Air Quality Control, Chapter 391-3-1, and (3) Title V of the Clean Air Act. Section 391-3-1-.03(10) of the Georgia Rules for Air Quality Control incorporates requirements of Part 70 of Title 40 of the Code of Federal Regulations promulgated pursuant to the Federal Clean Air Act. The narrative is intended as an adjunct for the reviewer and to provide information only. It has no legal standing. Any revisions made to the permit in response to comments received during the public participation and EPA review process will be described in an addendum to this narrative.

I. Facility Description

- A. Facility Identification
 - 1. Facility Name: ERCO Worldwide, Inc.
 - 2. Parent/Holding Company Name: ERCO Worldwide, Inc.
 - 3. Previous and/or Other Name(s): Sterling Pulp Chemicals, Inc.
 - 4. Facility Location: 5700 Hunt Road, Valdosta, (Lowndes County)
 - 5. Attainment, Non-attainment Area Location, or Contributing Area

The facility is located in an attainment area.

B. Site Determination

There are no other facilities which could possibly be contiguous or adjacent and under common control.

C. Existing Permits

Table 1 below lists all current Title V permits, all amendments, 502(b)(10) changes, and off-permit changes, issued to the facility, based on a comparative review of form A.6, Current Permits, of the Title V application and the "Permit" file(s) on the facility found in the Air Branch office.

Table 1: List of Current Permits, Amendments, and Off-Permit Changes

Permit Number and/or Off-Permit Change	Date of Issuance/ Effectiveness	Purpose of Issuance
2819-185-0082-S-01-0	September 18, 2003	Operational SM permit

D. Process Description

1. SIC Codes(s)

2819 – Industrial Inorganic Chemicals, Not Elsewhere Classified

The SIC Code(s) identified above were assigned by EPD's Air Protection Branch for purposes pursuant to the Georgia Air Quality Act and related administrative purposes only and are not intended to be used for any other purpose. Assignment of SIC Codes by EPD's Air Protection Branch for these purposes does not prohibit the facility from using these or different SIC Codes for other regulatory and non-regulatory purposes.

Should the reference(s) to SIC Code(s) in any narratives or narrative addendum previously issued for the Title V permit for this facility conflict with the revised language herein, the language herein shall control; provided, however, language in previously issued narratives that does not expressly reference SIC Code(s) shall not be affected.

2. Description of Product(s)

ERCO Worldwide, Inc. manufactures sodium chlorate (NaClO₃). The plant receives salt (NaCl) that is dissolved in a saturator with water to form a brine solution. The brine solution is sent to the cell line where the brine solution is electrolyzed to form a sodium chlorate (NaClO₃) solution and a sodium chloride (NaCl) solution. This solution, in turn, is sent to the crystallizer where part of the sodium chlorate is removed from the sodium chlorate/sodium chloride solution as crystal. This crystal is dried and transported to a silo for storage. The liquid fraction from the crystallizer (called mother liquor) is returned to the cell line where the remainder of the sodium chloride is electrolyzed to sodium chlorate. The total production capacity for this facility is 27,400 lb NaClO₃/hr.

3. Overall Facility Process Description

NaClO₃ Production Process

The NaClO₃ is produced in the following three basic steps:

- Brine preparation and purification
- Brine electrolysis to sodium chlorate
- Crystallization, separation and purification of intermediate cell liquor to produce sodium chlorate product

The first step of brine preparation includes the creation of sodium chloride solution using common salt. This brine solution is purified prior to sending it to the electrolytic cells. In the cells, direct current is used to convert chloride ions to hypochlorite ions under controlled process conditions. The electrolysis process takes place in two cell lines made up of 18 reactors and associated electrolytic cells. Hydrochloric acid is used for pH control, sodium dichromate is used to suppress undesirable reactions at the cathodes, and cell liquor coolers provide temperature control. In each cell liquor is circulated from a surge tank, through the cell liquor coolers, to the reactors, and back to the surge tank by 2 pumps. Each reactor is piped to the bottom and the top of 5 or 6 electrolytic cells. The cells piped to each reactor are referred to collectively as cell modules. The circulation piping provides fresh liquor flow into the bottom of each cell from the reactor and returns the liquor and gas mixture to the top of the reactor where the gas is disengaged. The reactors provide retention time for the chemical conversion of hypochlorite ions to chlorate ions.

Hydrogen gas with a small concentration of chlorine is routed from the cell lines to packed bed scrubber towers (Control Devices S-451 and S-452 on line 1 and S-2451 and S-2452 on line 2) utilizing brine as the initial scrubbing medium (in S-451 and S-2451) to maximize the recovery of chlorine and caustic as the second scrubbing medium (in S-452 and S-2452) for absorption of the remaining trace amounts of chlorine while the hydrogen is vented to the atmosphere. Both cell lines are equipped with 2 dedicated scrubbers that operate in series.

The Environmental Vent Scrubber (EVS) system (Control Device S-450) provides an air sweep of chemical storage tanks as well as other process vessels to minimize emissions and to prevent the buildup of explosive hydrogen gas. Air is pulled through a packed bed tower utilizing caustic as the scrubbing medium to absorb chlorine and scrubbed air is vented to the atmosphere.

After undergoing a dehypo process utilizing hydrogen peroxide, the dehypoed cell liquor from the electrolytic cell lines is sent to a crystallizer where the solution is boiled at low temperature under vacuum pressure resulting in sodium chlorate slurry formation in the bottom of the vessel. This slurry is pumped to a centrifuge where the product crystals are separated from solution and washed to remove contaminants to a level that meets customer specification. Crystals are sent through a fluidized bed dryer that is heated by a natural gas burner (Emission Unit ID E-468) before being pneumatically transported to a product loading silo.

Particulate matter emissions generated in the dryer exhaust gas stream are scrubbed by an impingement scrubber (Control Device S-453) and in the silo by a venturi scrubber (Control Device S-466). Product loading is through a rotary valve and chute equipped with a baghouse filter (Control Device M-448).

4. Overall Process Flow Diagram

The facility provided a process flow diagram in their Title V permit application.

- E. Regulatory Status
 - 1. PSD/NSR: The facility is considered a minor source under PSD.
 - 2. Title V Major Source Status by Pollutant

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the pollutant?			
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status	
PM	✓			\checkmark	
PM10	\checkmark			\checkmark	
PM _{2.5}	\checkmark			\checkmark	
SO_2	✓			\checkmark	
VOC	✓			\checkmark	
NO _x	✓			\checkmark	
СО	✓			\checkmark	
Individual HAP	✓			\checkmark	
Total HAPs	✓			\checkmark	

Table 2: Title V Major Source Status

**The facility is required to obtain a Title V operating permit under the provisions of 40 CFR 63 Subpart VVVVVV

3. MACT Standards

40 CFR 63 Subpart ZZZZ – "National Emission Standards for Stationary Reciprocating Internal Combustion Engines (RICE)."

40 CFR 63 Subpart VVVVV – "National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Areas Sources."

4. Program Applicability (AIRS Program Codes)

Program Code	Applicable (y/n)
Program Code 6 - PSD	No
Program Code 8 – Part 61 NESHAP	No
Program Code 9 - NSPS	No
Program Code M – Part 63 NESHAP	Yes
Program Code V – Title V	Yes

Regulatory Analysis

II. Facility Wide Requirements

A. Emission and Operating Caps:

Facility-wide HAP emissions are capped at less than 10 tpy for an individual HAP and less than 25 tpy for combined HAPs in order to avoid classifications as a major source.

B. Applicable Rules and Regulations

None applicable.

C. Compliance Status

ERCO has started submitting semi-annual compliance certification reports since 2017, with the first semi-annual compliance report dated July 2017. The most recent annual semi-annual compliance report was submitted to the GA EPD on in July 2018.

The Valdosta facility has an environmental management system which includes elements to ensure that the facility is in compliance with applicable regulatory requirements. In accordance with 40 CFR 70.5(c)(8)(iii)(A), ERCO will continue to comply with all applicable requirements identified in this permit application for all units currently in compliance. Further, in accordance with 40 CFR 70.5(c)(8)(iii)(B), ERCO will meet, in a timely manner, any new applicable requirements that become effective during the permit term.

ERCO has started submitting annual compliance certification reports starting 2018. Upon issuance of the Title V operating permit, ERCO will submit compliance certifications to the U.S. EPA and GA EPD no less than annually on a schedule determined by the facility's Title V operating permit, as required under 40 CFR 70.6(c)(5).

D. Permit Conditions

Conditions 2.1.1 and 2.1.2 limit emissions of HAP and specific HAPs on a facility-wide basis in order to avoid classification as a major source.

III. Regulated Equipment Requirements

A. Equipment List for the Process

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	Description	Applicable Requirements/Standards	Corresponding Permit Conditions	ID No.	Description
T-510	Concentrated HCl Tank	391-3-102(2)(b)	3.4.1, 5.2.1, 5.2.2	S-456	Acid Tank Scrubber
T-519	Dilute HCl Head Tank		through 5.2.5, 6.1.7	S-450	Environmental Vent Scrubber
T-511	Dilute HCl Tank	391-3-102(2)(b)	3.4.1, 5.2.1, 5.2.2 through 5.2.5, 6.1.7	S-450	Environmental Vent Scrubber
K-412	Spent Acid Reactor Tank	391-3-102(2)(b)	3.4.1, 5.2.1, 5.2.2 through 5.2.5, 6.1.7	S-450	Environmental Vent Scrubber
T-491	Acid Wash Tank				
T-408	Line 1 Reactors	40 CFR 63 Subpart VVVVVV 391-3-102(2)(b)	3.3.1, 3.3.2, 3.4.1, 5.2.1, 5.2.2 through 5.2.5, 6.1.7, 6.2.1, 6.2.2	S-451 S-452	Line 1 Brine Scrubber Line 1 Tailgas Scrubber
T-2408	Line 2 Reactors	40 CFR 63 Subpart VVVVV 391-3-102(2)(b)	3.3.1, 3.3.2, 3.4.1, 5.2.1, 5.2.2 through 5.2.5, 6.1.7, 6.2.1, 6.2.2	S-2451 S-2452	Line 2 Brine Scrubber Line 2 Tailgas Scrubber
E-468 D-422	Dry Burner and Dryer	391-3-102(2)(b) 391-3-102(2)(e)	3.4.1, 3.4.2, 5.2.1, 5.2.2 through 5.2.5, 6.1.7	S-453	Dryer Scrubber
T-522	Product Silo	391-3-102(2)(b) 391-3-102(2)(e)	3.4.1, 3.4.2, 5.2.1, 5.2.2 through 5.2.5, 6.1.7	S-466	Silo Scrubber
N/A	Railcar Loading	391-3-102(2)(b) 391-3-102(2)(e)	3.4.1, 3.4.2, 5.2.2, 5.2.3, 5.2.5, 5.2.6, 5.2.7, 6.1.7	M-448	Baghouse Filter
EE-710	Emergency Generator	40 CFR 63 Subpart ZZZZ 391-3-102(2)(g)	3.3.3, 3.3.4, 3.4.3	None	None

B. Equipment & Rule Applicability

<u>40 CFR 63 Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines</u> (RICE)

The subpart contains emission limits and maintenance activities the facility must complete depending on the size of the engine being used and the emergency or non-emergency status. The facility operates a diesel-fired emergency generator which was installed prior to June 12, 2006 and is considered existing equipment under this subpart. The generator is subject to the requirements under Table 8 and general air pollution control practices as defined Subpart ZZZZ.

<u>40 CFR 63 Subpart VVVVV (6V) – NESHAP for Chemical Manufacturing Area Sources (CMAS)</u> This subpart applies to new and existing chemical manufacturing process units (CMPU) that use or produce at least one of the HAPs listed in Table 1 of the rule in concentrations exceeding the thresholds listed in 40 CFR 63.11494(a)(2) and that are located at an area source of HAPs. The NaClO₃ manufacturing process meets the definition of a CMPU, as it uses sodium dichromate as a feedstock to increase the efficiency of electrolysis. Chromium compounds are among the listed HAPs in Table 1 and are present in the sodium dichromate feedstock in an amount exceeding 0.1% by weight.

The CMPU for the NaClO₃ manufacturing process begins when the raw materials are added to the production lines. For the crystallized product, the CMPU ends at the fluidized bed dryers. For product that is sold as liquid after the dehypo system and is not sent to the crystallizers and dryers, the CMPU ends when the product is filtered to remove residual chrome prior to product storage and/or shipment off-site. Note that this regulation defines "storage tank" as a vessel that stores liquids containing organic HAP. Therefore, none of the tanks or silos utilized by ERCO for the chemical manufacturing process are subject to CMAS, as they only store inorganic chemicals.

If an area source subject to this regulation installs a federally-enforceable control device on an affected CMPU and if the use of that control device is necessary for the facility to maintain its emissions at area source levels, then that facility is required under CMAS to obtain a Title V (Part 70) operating permit. ERCO uses multiple scrubbers to control emissions of Cl_2 and HCl from the NaClO₃ manufacturing process in order to maintain the Valdosta facility's area source status. As such, facility is submitting an application to EPD to obtain a Title V operating permit, as required under this provision of the rule.

ERCO's CMPU is subject to the following management practices under CMAS:

The facility must conduct inspections of process vessels and equipment for each CMPU in metal HAP service to demonstrate compliance with 40 CFR 63 Subpart VVVVVV and to demonstrate that the process vessels and equipment are sound and free of leaks. The inspections should be conducted as follows:

- Inspections must be conducted at least quarterly;
- For these inspections, detection methods incorporating sight sound, or smell are acceptable;
- Inspections must be conducted while the subject CMPU is operating; and
- No inspection is required in a calendar quarter during which the subject CMPU does not operate for the entire calendar quarter and is not in metal HAP service.
- If a leak is discovered, the facility must repair any leak within 15 calendar days after detection of the leak, or document the reason for any delay of repair.
- The facility must keep records of the dates and results of each inspection event, the dates of equipment repairs, and, if applicable, the reasons for any delay in repair.
- The management practice in 40 CFR 63.11495(a)(1) (process vessel must be equipped with a cover or lid that must be closed at all times) is not applicable, since the process only contains metal HAP (chromium compounds) in a liquid form that will not result in particulate emissions of metal HAP.

ERCO conducted its initial semiannual inspection in July 2017. As such, the facility is in compliance with the applicable management practices under CMAS.

ERCO is not subject to the requirement to monitor emissions from metal HAP process vents, since the affected CMPU only contains metal HAP in a liquid form that will not result in particulate emissions of metal HAP. Further, the emission standards for organic HAP process vents, surge control vessels and bottom receivers, and storage tanks are not applicable, as the affected CMPU is not in organic HAP service.

Emission standards for halogenated vent streams are provided in 40 CFR 63.11496(b). Under CMAS, the definition for "halogenated vent streams" references the definition in provided in 40 CFR 63 Subpart FFFF, *NESHAP for Miscellaneous Organic Chemical Manufacturing*. Under Subpart FFFF, a halogenated vent stream is defined as a vent stream with emissions of halogen atoms contained in organic compounds of 0.45 kg/hr or greater. The halogens present in the vent streams for ERCO's affected CMPU are HCl and Cl₂, neither of which are contained in organic compounds. As such, the standards for halogenated vent streams do not apply.

The regulation also provides emission standards for heat exchange and wastewater systems at affected CMPUs. In 2013, the USEPA released a Frequently Asked Questions document for CMAS, in which it clarified that the requirements for heat exchange and wastewater systems in the rule do not apply to a CMPU subject to CMAS solely because of the use of a Table 1 metal HAP. As such, since ERCO's affected CMPU is only subject to CMAS as a result of its use of chromium compounds, it is not subject to the requirements for heat exchange and wastewater systems in 40 CFR 63.11499 and 40 CFR 63.11498, respectively.

ERCO submitted its Initial Notification and its Notification of Compliance Status (NOCS) in July 2017. If a process change occurs that affects the facility's compliance demonstration, a new NOCS must be submitted.

The facility is subject to the requirement to submit semiannual compliance reports containing the information specified in 40 CFR 63.11501(d)(1), (3), (4), and (8). Compliance reports are only required for semiannual periods during which the facility experienced any of the events described in those sections of the rule.

The facility must maintain, for a period of up to five years, records of inspections, repairs, and reasons for any delay of repair.

<u>391-3-1-.02(2)(b) - Visible Emissions</u>

Rule (b) limits visible emissions from all sources to no more than 40% opacity, unless a source has a more restrictive opacity limitation elsewhere in the Georgia rules. This limitation is applicable to the facility's process sources. Compliance is demonstrated through the use of parametric monitoring of the dust scrubbers on the dryers, silos, and loadout operations.

<u>391-3-1-.02(2)(d) – Fuel Burning Equipment</u>

This rule limits PM and opacity from fuel-burning equipment. The Valdosta facility does not operate any boilers. It does operate a dryer; however, the dryer is considered direct heating equipment as the heated air contacts the material it is drying. Therefore, this rule does not apply to the dryer. The diesel-fired emergency generator is the only source at the Valdosta facility that is subject to this rule. Compliance is achieved by meeting all the applicable requirements under 40 CFR 63 Subpart ZZZZ.

<u>391-3-1-.02(2)(e) – Particulate Emissions from Manufacturing Processes</u>

Rule (e), also known as the process weight rule (PWR), limits emissions from manufacturing processes based on their process input weight rates. The following equations are used to calculate the PWR PM emission limit from a manufacturing process, where E is the PM emission limit (lb/hr) and P is the process input weight rate (tons/hr):

 $E = 4.1P^{0.67}$; for $P \le 30$ tons/hr $E = 55P^{0.11} - 40$; for P > 30 tons/hr

This limitation is applicable to the facility's process sources. Compliance is demonstrated through the use of parametric monitoring of the dust scrubbers on the dryers, silos, and loadout operations.

<u>391-3-1-.02(2)(g) – Sulfur Dioxide</u>

This rule limits the maximum allowable fuel sulfur content to 3% by weight of fuels used in fuel burning sources with a heat input capacity of less than 100 MMBtu/hr. As stated above, the dryer is considered direct heating equipment; therefore, it does not meet the definition of fuel burning equipment and is subsequently not subject to this rule. The diesel-fired emergency generator is the only source at the Valdosta facility that is subject to this rule. Compliance with this requirement is achieved by meeting all fuel requirements set forth in 40 CFR 63 Subpart ZZZZ.

<u>391-3-1-.02(2)(n) – Fugitive Dust</u>

Rule (n) requires facilities to take reasonable precautions to limit fugitive dust from becoming airborne. Further, opacity from fugitive dust sources, such as roads and the handling of dusty materials, are limited to 20% opacity. The facility will continue to comply with this regulation.

C. Permit Conditions

Condition 3.3.1 requires the facility to comply with all applicable provisions of 40 CFR 63 Subpart VVVVVV for chemical manufacturing processes.

Condition 3.3.2 requires the facility to comply with the listed management practices per Subpart VVVVVV.

Conditions 3.3.3 and 3.3.4 require the facility to comply with all applicable provisions and maintenance practices of 40 CFR 63 Subpart ZZZZ for the emergency generator.

Conditions 3.4.1 and 3.4.2 list PM and opacity emission limits for compliance with Rules (b) and (e), respectively, for all process emission units.

Condition 3.4.3 lists fuel sulfur requirements for compliance with Rule (g).

IV. Testing Requirements (with Associated Record Keeping and Reporting)

A. General Testing Requirements

The permit includes a requirement that the Permittee conduct performance testing on any specified emission unit when directed by the Division. Additionally, a written notification of any performance test(s) is required 30 days (or sixty (60) days for tests required by 40 CFR Part 63) prior to the date of the test(s) and a test plan is required to be submitted with the test notification. Test methods and procedures for determining compliance with applicable emission limitations are listed and test results are required to be submitted to the Division within 60 days of completion of the testing.

B. Specific Testing Requirements

Not applicable.

V. Monitoring Requirements

A. General Monitoring Requirements

Condition 5.1.1 requires that all continuous monitoring systems required by the Division be operated continuously except during monitoring system breakdowns and repairs. Monitoring system response during quality assurance activities is required to be measured and recorded. Maintenance or repair is required to be conducted in an expeditious manner.

B. Specific Monitoring Requirements

Condition 5.2.1 requires the facility to monitor and record pressure drop, scrubbant flow rate, pH, and the concentration of sodium hydroxide for the Environmental Vent Scrubber (S-450), Acid Tank Scrubber (S-456), Brine Scrubbers (S-451 and S-2451), and Tailgas Scrubbers (S-452 and S-2452), and pressure drop and scrubbant flow rate for the Dryer Scrubber (S-453) and Silo Scrubber (S-466).

Conditions 5.2.2 - 5.2.5 list various maintenance and recordkeeping requirements for the control and monitoring equipment.

Condition 5.2.6 requires the facility to conduct a visible emissions check for baghouses and filters and lists the procedures for doing so.

C. Compliance Assurance Monitoring (CAM)

Not applicable.

VI. Record Keeping and Reporting Requirements

A. General Record Keeping and Reporting Requirements

The Permit contains general requirements for the maintenance of all records for a period of five years following the date of entry and requires the prompt reporting of all information related to deviations from the applicable requirements. Records, including identification of any excess emissions, exceedances, or excursions from the applicable monitoring triggers, the cause of such occurrence, and the corrective action taken, are required to be kept by the Permittee and reporting is required on a semiannual basis.

B. Specific Record Keeping and Reporting Requirements

Condition 6.1.7 lists excursions of operating parameters that must be recorded and reported in accordance with the requirements of Condition 6.1.4.

Conditions 6.2.1 and 6.2.2 require the facility to comply with the listed management practices in accordance with 40 CFR 63 Subpart VVVVV.

Condition 6.2.3 requires the facility to submit operating parameters for the Acid Tank Scrubber (S-456) and Brine Scrubbers (S-451 and S-452) within 60 days of the permit issuance.

VII. Specific Requirements

- A. Operational Flexibility: Not applicable.
- B. Alternative Requirements: Not applicable.
- C. Insignificant Activities

See Permit Application on GEOS website. See Attachment B of the permit

- D. Temporary Sources: Not applicable.
- E. Short-Term Activities: Not applicable.
- F. Compliance Schedule/Progress Reports: Not applicable.
- G. Emissions Trading: Not applicable.
- H. Acid Rain Requirements: Not applicable.
- I. Stratospheric Ozone Protection Requirements: Not applicable.
- J. Pollution Prevention: Not applicable.

K. Specific Conditions: Not applicable.

VIII. General Provisions

Generic provisions have been included in this permit to address the requirements in 40 CFR Part 70 that apply to all Title V sources, and the requirements in Chapter 391-3-1 of the Georgia Rules for Air Quality Control that apply to all stationary sources of air pollution.

Template Condition 8.14.1 was updated in September 2011 to change the default submittal deadline for Annual Compliance Certifications to February 28.

Template Condition Section 8.27 was updated in August 2014 to include more detailed, clear requirements for emergency generator engines currently exempt from SIP permitting and considered insignificant sources in the Title V permit.

Template Condition Section 8.28 was updated in August 2014 to more clearly define the applicability of the Boiler MACT or GACT for major or minor sources of HAP.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.