

January 17, 2018

Staci Mocerino
Portco Packaging
211 5th Street
Woodland, WA 98674

Subject: Final Approval for Increase in Hours of Operation for the RTO

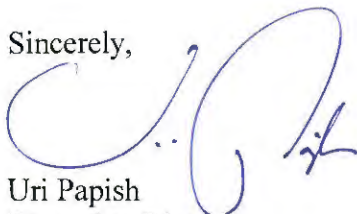
Dear Ms. Mocerino:

The public comment period for the preliminary determination to issue Air Discharge Permit 17-3254 (ADP 17-3254) in response to ADP Application CO-983 concluded on January 16, 2018. The Southwest Clean Air Agency (SWCAA) did not receive any comments from the public relative to the preliminary determination. Therefore, a final determination to issue ADP 17-3254 has been made pursuant to Section 400-110(4) of SWCAA's General Regulations for Air Pollution Sources. Electronic copies of 17-3254 and the associated Technical Support Document are available for public review in the permit section of SWCAA's internet home page (<http://www.swcleanair.org/permitsADPfinals.asp>). Original copies are enclosed for your files.

This Air Discharge Permit may be appealed directly to the Pollution Control Hearings Board (PCHB) at P.O. Box 40903, Olympia, Washington 98504-0903 within 30 days of receipt as provided in RCW 43.21B.

If you have any comments, or desire additional information, please contact me or Vanessa McClelland at (360) 574-3058, extension 129.

Sincerely,



Uri Papish
Executive Director

UP: vnm
Enclosure

cc: US EPA Region X
Air Permit Section AWT-150
1200 6th Avenue
Seattle, WA 98101



SOUTHWEST CLEAN AIR AGENCY

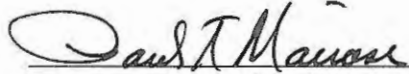
**Air Discharge Permit
SWCAA 17-3254**

Final Date: January 17, 2018

Facility Name: Portco Packaging
Physical Location: 211 5th Street
Woodland, WA 98674

SWCAA ID: 2425

REVIEWED BY:


Paul T. Mairose, Chief Engineer



APPROVED BY:

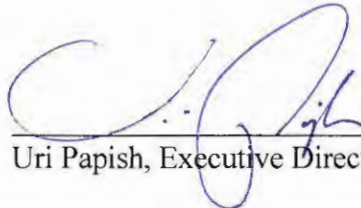

Uri Papish, Executive Director

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1. Equipment/Activity Identification

ID No.	Equipment/Activity	# of Units	Control Equipment	# of Units
1	Nordmeccanica laminator with two corona treaters and a natural gas dryer	1	Ship & Shore Environmental, Inc. regenerative thermal oxidizer, low sulfur fuel (NG) Ozone adsorption unit (Carbon)	1
2	W & H Miraflex flexographic printing press with one corona treater and dryers	1	Ship & Shore Environmental, Inc. regenerative thermal oxidizer, low sulfur fuel (NG) Ozone adsorption unit (Carbon)	1
3	Uteco flexographic printing press with one corona treater and dryer	1	Ship & Shore Environmental, Inc. regenerative thermal oxidizer, low sulfur fuel (NG) Enercon ozone destruct unit	2
4	Natural gas heater	1	Low sulfur fuel (NG)	N/A

2. Permit Terms and Conditions

The following tables detail the specific terms and conditions of this permit. In addition to the requirements listed below, equipment at this facility may be subject to additional federal, state, and local regulations. The permit term or requirement number is identified in the left hand column. The permit term or requirement is contained in the middle column. The emission unit, equipment, or activity to which the permit term or condition applies is listed in the right hand column.

This Permit supersedes SWCAA 16-3203 in its entirety.

2.1 Emission Limits

No.	Emission Limits	Equipment/ Activity															
1.	<p>Emissions from the regenerative thermal oxidizer, laminating and printing operations (excluding printer dryers) must not exceed the following:</p> <table border="0" data-bbox="256 331 1263 699"> <thead> <tr> <th><u>Pollutant</u></th> <th><u>Annual Emission Limit (12-month rolling total)</u></th> <th><u>Short Term Limit (1-hour average)</u></th> </tr> </thead> <tbody> <tr> <td>NO_x</td> <td>14.00 tpy</td> <td>2.69 lb/hr (Destruct Mode) 15 ppmv (Destruct Mode) 30 ppmv (Start-up/Idle Mode)</td> </tr> <tr> <td>CO</td> <td>40.50 tpy</td> <td>5.45 lb/hr (Destruct Mode) 50 ppmv (Destruct Mode) 400 ppmv (Start-up/Idle Mode)</td> </tr> <tr> <td>VOCs as C₃H₈</td> <td>50.0 tpy</td> <td>20 ppmv (as HC)</td> </tr> <tr> <td>PM₁₀/PM_{2.5}</td> <td>0.08 tpy</td> <td>None</td> </tr> </tbody> </table> <p>VOC emission calculations must be calculated using a material balance methodology and the most recent capture and destruction efficiency determined during a source test of the regenerative thermal oxidizer. The material balance must include ink and solvent purchases (or solvent deliveries in the event that purchased solvent is stored off-site by a third party) and beginning inventory, returns, ending inventory and solvent and ink waste shipped off-site. All other emissions (NO_x, CO, SO₂, PM₁₀, TAPs) must be calculated using the emission factors presented in the Technical Support Document for this Air Discharge Permit unless unit specific source test data is collected. The VOCs from printing operations must be calculated on a 12-month rolling total rolled monthly.</p>	<u>Pollutant</u>	<u>Annual Emission Limit (12-month rolling total)</u>	<u>Short Term Limit (1-hour average)</u>	NO _x	14.00 tpy	2.69 lb/hr (Destruct Mode) 15 ppmv (Destruct Mode) 30 ppmv (Start-up/Idle Mode)	CO	40.50 tpy	5.45 lb/hr (Destruct Mode) 50 ppmv (Destruct Mode) 400 ppmv (Start-up/Idle Mode)	VOCs as C ₃ H ₈	50.0 tpy	20 ppmv (as HC)	PM ₁₀ /PM _{2.5}	0.08 tpy	None	1-3
<u>Pollutant</u>	<u>Annual Emission Limit (12-month rolling total)</u>	<u>Short Term Limit (1-hour average)</u>															
NO _x	14.00 tpy	2.69 lb/hr (Destruct Mode) 15 ppmv (Destruct Mode) 30 ppmv (Start-up/Idle Mode)															
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VOCs as C ₃ H ₈	50.0 tpy	20 ppmv (as HC)															
PM ₁₀ /PM _{2.5}	0.08 tpy	None															
2.	<p>Annual emissions from the corona treaters must not exceed the following:</p> <table border="0" data-bbox="256 1150 878 1224"> <thead> <tr> <th><u>Pollutant</u></th> <th><u>Annual Emission Limit</u></th> </tr> </thead> <tbody> <tr> <td>Ozone</td> <td>0.99 tpy</td> </tr> </tbody> </table> <p>Annual emission must be calculated using actual hours of operation and percent control for each control technology as outlined in Section 6 of the Technical Support Document.</p>	<u>Pollutant</u>	<u>Annual Emission Limit</u>	Ozone	0.99 tpy	1-3											
<u>Pollutant</u>	<u>Annual Emission Limit</u>																
Ozone	0.99 tpy																
3.	<p>Emissions from natural gas combustion from the printer dryers, laminator dryer and space heating must not exceed the following:</p> <table border="0" data-bbox="256 1423 873 1577"> <thead> <tr> <th><u>Pollutant</u></th> <th><u>Annual Emission Limit</u></th> </tr> </thead> <tbody> <tr> <td>NO_x</td> <td>2.85 tpy</td> </tr> <tr> <td>CO</td> <td>2.39 tpy</td> </tr> <tr> <td>PM₁₀/PM_{2.5}</td> <td>0.21 tpy</td> </tr> </tbody> </table> <p>Annual emissions must be calculated using the emission factors presented in Section 6 of the Technical Support Document for this Air Discharge Permit unless unit specific source test data is collected.</p>	<u>Pollutant</u>	<u>Annual Emission Limit</u>	NO _x	2.85 tpy	CO	2.39 tpy	PM ₁₀ /PM _{2.5}	0.21 tpy	1-4							
<u>Pollutant</u>	<u>Annual Emission Limit</u>																
NO _x	2.85 tpy																
CO	2.39 tpy																
PM ₁₀ /PM _{2.5}	0.21 tpy																
4.	<p>Emissions of toxic air pollutants (TAPs) as defined in WAC 173-460 (effective 2/14/1994) must not exceed their respective small quantity emission rate (SQER). Emissions of TAPs must not collectively cause the VOC emission limit in this Air Discharge Permit to be exceeded.</p>	1-4															

No.	Emission Limits	Equipment/ Activity
5.	Visible emissions must not exceed zero percent opacity for more than 3 minutes in any one hour period as determined in accordance with SWCAA Method 9 (See Appendix A of SWCAA 400).	1-4

2.2 Operating Limits and Requirements

No.	Operating Limits and Requirements	Equipment/ Activity
6.	Each pollution control device must be attached to and operated whenever the processing equipment served by that control device is in operation. Control devices must be operated and maintained in accordance with the manufacturer's specifications. Furthermore, control devices must be operated in a manner that minimizes emissions.	Plantwide
7.	Emission units identified in this Permit must be maintained and operated in total and continuous conformity with the emission levels and operational requirements specified in this Permit. SWCAA reserves the right to take any and all appropriate action to maintain the conditions of this Permit, including directing the facility to cease operations until corrective action can be completed.	1-4
8.	Operations that cause or contribute to a nuisance odor must use recognized good practice and procedures to reduce these odors to a reasonable minimum.	Plantwide
9.	Reasonable precautions must be taken at all times to prevent and minimize fugitive emissions from plant operations.	Plantwide
10.	The use of printing inks containing lead or hexavalent chromium is prohibited.	2-3
11.	The ozone adsorption unit and destruct unit must be operated at all times when the corona treaters are in operation.	1-3
12.	The carbon in the ozone adsorption units must be replaced when quarterly ozone monitoring shows carbon is no longer operating at 90% capture in both beds. If only one bed shows capture below 90%, the bed showing capture above 90% must be used.	1-2
13.	If low-VOC/water-based inks are used, the facility has the option to bypass the RTO. However, the facility must prove through recordkeeping that only low-VOC/water-based inks were used during the period the RTO was bypassed.	2-3
14.	The regenerative thermal oxidizer system must provide a minimum capture efficiency of 75% of VOCs released from printing presses at the facility. Compliance must be determined using the material balance and source testing methodology in Appendix A. The system settings affecting capture rate (e.g. fan speed, inlet pressure) must be maintained at the minimum levels during which compliance was demonstrated during the most recent source emissions test.	1-3

No.	Operating Limits and Requirements	Equipment/ Activity								
15.	<p>The regenerative thermal oxidizer must be operated in accordance with the following limitations:</p> <table border="0" data-bbox="196 296 1333 516"> <thead> <tr> <th data-bbox="196 296 337 327"><u>Parameter</u></th> <th data-bbox="680 296 984 327"><u>Operating Requirement</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="196 327 570 365">VOC Destruction Efficiency</td> <td data-bbox="680 327 1333 436">98% reduction (mass basis, 1-hour average) or 20 ppmvd as propane (C₃H₈) at outlet, whichever is least stringent</td> </tr> <tr> <td data-bbox="196 436 521 474">Temperature (minimum)</td> <td data-bbox="680 436 1224 474">1,500 degrees Fahrenheit (1-hour average)</td> </tr> <tr> <td data-bbox="196 474 526 512">Temperature (maximum)</td> <td data-bbox="680 474 1224 512">1,800 degrees Fahrenheit (1-hour average)</td> </tr> </tbody> </table> <p>The minimum or maximum operating temperatures are required during VOC Destruct Mode and should be retention chamber temperatures. The temperatures listed above may be modified upon demonstrating to SWCAA's satisfaction (e.g. via source emissions testing) that the proposed modification will provide for equivalent or superior control of volatile organic compounds, toxic air pollutants, and/or odorous emissions. If the permittee demonstrates to SWCAA's satisfaction that an alternative operating parameter results in equivalent or superior emission control, the minimum operating parameters used in the demonstration may replace the operating parameters listed above.</p>	<u>Parameter</u>	<u>Operating Requirement</u>	VOC Destruction Efficiency	98% reduction (mass basis, 1-hour average) or 20 ppmvd as propane (C ₃ H ₈) at outlet, whichever is least stringent	Temperature (minimum)	1,500 degrees Fahrenheit (1-hour average)	Temperature (maximum)	1,800 degrees Fahrenheit (1-hour average)	1-3
<u>Parameter</u>	<u>Operating Requirement</u>									
VOC Destruction Efficiency	98% reduction (mass basis, 1-hour average) or 20 ppmvd as propane (C ₃ H ₈) at outlet, whichever is least stringent									
Temperature (minimum)	1,500 degrees Fahrenheit (1-hour average)									
Temperature (maximum)	1,800 degrees Fahrenheit (1-hour average)									
16.	The regenerative thermal oxidizer's burner must be visually inspected annually to assure the burner is in good operating order. Things to note would be cracks, corrosion, soot or other signs of damage that could result in incomplete combustion.	1-3								
17.	<p>If the test results from any performance monitoring event (during Start-up/Idle Mode) indicate that emission concentrations will exceed the relevant concentrations identified below, the permittee must either perform 60 minutes of additional monitoring to more accurately quantify CO and NO_x emissions, or initiate corrective action. Additional testing or corrective action must be initiated as soon as practical but no later than three days after the potential exceedance is identified. Corrective action includes tuning, maintenance by service personnel, limitation of oxidizer load, or other action taken to maintain compliance with permitted limits. Monitoring of unit emissions must be conducted within three days following completion of any corrective action to confirm that the corrective action has been effective. Corrective action must be pursued until observed emission concentrations no longer exceed the relevant concentrations indicated below.</p> <table border="0" data-bbox="196 1465 1333 1577"> <thead> <tr> <th data-bbox="196 1465 643 1535"></th> <th data-bbox="643 1465 967 1535">NO_x (ppmvd as measured)</th> <th data-bbox="967 1465 1333 1535">CO (ppmvd as measured)</th> </tr> </thead> <tbody> <tr> <td data-bbox="196 1535 643 1577">RTO Start-up/Idle Mode</td> <td data-bbox="643 1535 967 1577">30</td> <td data-bbox="967 1535 1333 1577">400</td> </tr> </tbody> </table>		NO _x (ppmvd as measured)	CO (ppmvd as measured)	RTO Start-up/Idle Mode	30	400	1-3		
	NO _x (ppmvd as measured)	CO (ppmvd as measured)								
RTO Start-up/Idle Mode	30	400								
18.	Exhaust from the regenerative thermal oxidizer must be discharged vertically above the roof level of the building in which that particular emission unit is housed and at a point higher than surrounding buildings and/or terrain. Any device that obstructs or prevents vertical discharge is prohibited.	1-3								

No.	Operating Limits and Requirements	Equipment/ Activity
19.	Containers of ink and solvent must be covered except when transferring material into or out of the container. If solvent or ink is being continuously pumped from a container, the opening for the suction line must be as small as possible without interfering with the material transfer rate. Used rags and wipes containing VOCs must be stored in closed containers. Disposal of rags and wipes must be in a manner which minimizes fugitive emissions of VOCs.	Plantwide

2.3 Monitoring and Recordkeeping Requirements

No.	Monitoring and Recordkeeping Requirements	Equipment/ Activity
20.	<p>The following information must be collected, recorded at the intervals specified below, and readily available on-site for inspection:</p> <ul style="list-style-type: none"> (a) An inventory balance of all inks and solvents must be recorded monthly. The inventory must be based on beginning and ending inventory, and waste shipped off-site; (b) Hours and types of inks when low-VOC/water-based inks are used and the RTO is bypassed must be recorded monthly during periods when the RTO is bypassed. If the RTO is continuously operated during press operation, regardless of inks used, make a note of that annually; (c) The retention chamber temperature of the regenerative thermal oxidizer must be monitored continuously and recorded at least once for every 15 minutes of Destruct Mode operation. A single average center bed temperature value must be generated for each clock hour of Destruct Mode operation; (d) For each ink and solvent utilized on-site, data must be maintained on-site detailing the toxic air pollutant content of the material, the volatile organic content of the material, the water content of the material, the solids content of the material, and the density of the material as necessary to calculate annual emissions and demonstrate compliance with the terms and conditions of this Permit; (e) The total amount of natural gas consumed must be recorded at least once for each calendar year. If possible, the natural gas usage should be determined for each piece of equipment; (f) Hours of operation for each corona treater recorded for each calendar month; (g) Quarterly ozone measurement tests from both beds of the ozone adsorption unit and the ozone destruct unit must be recorded for each test; (h) Differential pressure across the Enercon ozone destruct unit must be logged weekly; (i) Results from the visual inspection of the regenerative thermal oxidizer's burner must be recorded for each occurrence; and (j) Maintenance activities that may affect emissions to the ambient air must be logged for each occurrence. 	1-4
21.	With the exception of data logged by a computerized data acquisition system or strip chart, each record required by this Air Discharge Permit must include the date and the name of the person making the record entry. If a device is not operating during a specific time period, a record must be made to that effect.	1-4

No.	Monitoring and Recordkeeping Requirements	Equipment/ Activity
22.	All records required by this Air Discharge Permit must be kept on site for a minimum period of no less than five years and must be available for inspection by SWCAA representatives.	1-4
23.	All upset conditions and/or excess emissions must be recorded for each occurrence.	1-4

2.4 Emission Monitoring and Testing Requirements

No.	Emission Monitoring and Testing Requirements	Equipment/ Activity
24.	Source emissions testing of the regenerative thermal oxidizer system must be conducted initially and at least once every 5 years no later than the end of June in accordance with Appendix A of this Permit. The initial test was conducted in June 2015.	1-3
25.	Performance monitoring of the regenerative thermal oxidizer burner must be conducted annually in Start-up/Idle Mode as described in Appendix B of this Permit no later than the end of June. Performance monitoring is not required in any year when a source test has been performed.	1-3
26.	Source emissions testing of the ozone adsorption unit must be conducted initially and within the schedule established in accordance with Appendix C of this Permit. The Permittee must provide adequate and safe access to sampling ports meeting the criteria of EPA Method 1 (40 CFR 60, Appendix A). Subsequent source emissions testing must be conducted at the frequencies indicated in Appendix C. The initial full test was conducted in February 2017.	1-2
27.	Source emissions testing of the ozone destruct unit must be conducted initially and within the schedule established in accordance with Appendix D of this Permit. The Permittee must provide adequate and safe access to sampling ports meeting the criteria of EPA Method 1 (40 CFR 60, Appendix A). Subsequent source emissions testing must be conducted at the frequencies indicated in Appendix D. The initial full test was conducted in February 2017.	3

2.5 Reporting Requirements

No.	Reporting Requirements	Equipment/ Activity
28.	<p>SWCAA must be notified at least seven days in advance of the use of any new material (in excess of five gallons), which will result in emissions of toxic or hazardous air pollutants not listed in the TAP summary of the Technical Support Document. The written notice must include the following:</p> <ul style="list-style-type: none"> (a) A description of the proposed change(s) in materials with an MSDS for each new material, (b) The date the change(s) is (are) to be made, (c) The change(s) in emissions of VOCs, HAPs and TAPs occurring as a result of the change, and (d) A summary of any applicable requirement(s) that would apply as a result of the change(s). <p>If the proposed emission rate of a new TAP exceeds one or more SQERs and/or the VOC limits established by this Air Discharge Permit or otherwise circumvents an applicable requirement including those established by this Air Discharge Permit, New Source Review must be required prior to making the proposed change.</p>	Plantwide
29.	<p>An annual emissions inventory report must be submitted in accordance with SWCAA 400-105(1). In addition to the emissions information required under SWCAA 400-105(1), each annual report must include an estimate of annual emission quantities for each TAP compound emitted by the facility.</p>	Plantwide
30.	<p>Upset conditions that could potentially cause excess emissions must be reported to SWCAA as soon as possible after discovery. The permittee may provide notification to SWCAA via telephone. A message may be left on the answering machine for upset conditions that occur outside of normal business hours.</p>	Plantwide
31.	<p>Excess emissions must be reported to SWCAA as follows:</p> <ul style="list-style-type: none"> • As soon as possible, but no later than 12 hours after discovery for emissions that represent a potential threat to human health or safety; • As soon as possible, but no later than 48 hours after discovery for emissions which the permittee wishes to claim as unavoidable; and • No later than 30 days after the end of the month of discovery for all other excess emissions. 	Plantwide
32.	<p>Deviations from permit conditions must be reported no later than 30 days after the end of the month during which the deviation is discovered.</p>	Plantwide

No.	Reporting Requirements	Equipment/ Activity
33.	<p>The following emissions inventory related records must be reported to SWCAA as indicated below:</p> <ul style="list-style-type: none"> (a) An inventory balance of all inks and solvents must be reported to SWCAA for each calendar quarter by the end of the month following the end of the calendar quarter. The inventory must be based on beginning and ending inventory, and waste shipped off-site; (b) The total amount of natural gas consumed must be reported to SWCAA by March 15th for the previous calendar year. If possible, the natural gas usage should be determined for each piece of equipment; (c) The total hours of each mode (Destruction or Start-up/Idle) the regenerative thermal oxidizer operated in must be reported to SWCAA for each calendar quarter by the end of the month following the end of the calendar quarter; (d) The total hours of operation for each corona treater must be reported to SWCAA by March 15th for the previous calendar year; (e) Air emissions of volatile organic compounds and toxic air pollutants (TAPs) must be reported to SWCAA for each calendar quarter by the end of the month following the end of the calendar quarter. Each report must include a summary of total emissions of volatile organic compounds and TAPs, summarized in a 12-month rolling total, that have been emitted during the 12 calendar month period ending the last day of the calendar quarter; and (f) Air emissions of criteria air pollutants, volatile organic compounds, hazardous air pollutants, and toxic air pollutants (TAPs) must be reported to SWCAA annually by March 15th for the previous calendar year. 	1-4
34.	The results of emissions testing performed in accordance with Appendix A, and for the full test reports required for Appendix C and D, must be reported to SWCAA no later than 45 calendar days of completion in both printed and electronic formats.	1-3
35.	The results of the quarterly emission testing performed in accordance with Appendix C and D must be reported to SWCAA no later than 15 days following completion.	1-3
36.	The results of all performance monitoring conducted in accordance with Appendix B must be reported to SWCAA no later than 15 days following completion.	1-3

3. General Provisions

No.	General Provisions
A.	The equipment and activities specified in ADP Application CO-983 must be maintained and operated in total and continuous conformity with the emission levels identified in this Permit. SWCAA reserves the right to take any and all appropriate action to maintain the conditions of this Permit, including directing the facility to cease operations until corrective action can be completed.
B.	For the purpose of ensuring compliance with this Permit, duly authorized representatives of the Southwest Clean Air Agency must be permitted access to the permittee's premises and the facilities being constructed, owned, operated and/or maintained by the permittee for the purpose of inspecting said facilities. These inspections are required to determine the status of compliance with this Permit and applicable regulations and to perform or require such tests as may be deemed necessary.

No.	General Provisions
C.	The provisions, terms and conditions of this Permit must be deemed to bind the permittee, its officers, directors, agents, servants, employees, successors and assigns, and all persons, firms, and corporations acting under or for the permittee.
D.	The requirements of this Permit must survive any transfer of ownership of the source or any portion thereof.
E.	This Permit must be posted conspicuously at or be readily available near the source.
F.	This Permit must be invalid if construction/installation has not commenced within eighteen months from date of issuance.
G.	This Permit does not supersede requirements of other Agencies with jurisdiction and further, this Permit does not relieve the permittee of any requirements of any other governmental Agency. In addition to this Permit, the permittee may be required to obtain permits or approvals from other agencies with jurisdiction.
H.	Compliance with the terms of this Permit does not relieve the permittee from the responsibility of compliance with SWCAA General Regulations for Air Pollution Sources, previously issued Regulatory Orders, RCW 70.94, Title 173 WAC or any other applicable emission control requirements, nor from the resulting liabilities and/or legal remedies for failure to comply.
I.	If any provision of this Permit is held to be invalid, all unaffected provisions of the Permit must remain in effect and be enforceable.
J.	No change in this Permit must be made or be effective except as may be specifically set forth by written order of the Southwest Clean Air Agency upon written application by the permittee for the relief sought.
K.	The Southwest Clean Air Agency may, in accordance with RCW 70.94 impose such conditions as are reasonably necessary to assure the maintenance of compliance with the terms of this Permit, the Washington Clean Air Act, and the applicable rules and regulations adopted under the Washington Clean Air Act.

1. Introduction:

- a. The purpose of this testing is to quantify emissions of volatile organic compounds, nitrogen oxides, carbon monoxide, toxic air pollutants and the opacity of emissions from the Regenerative Thermal Oxidizer exhaust to demonstrate compliance with the emission limitations established in this Air Discharge Permit. In addition, the volatile organic compound capture and control efficiencies of the Regenerative Thermal Oxidizer system must be determined to demonstrate compliance with the minimum capture and control efficiencies established by this Air Discharge Permit.

2. Testing Requirements:

- a. Source emissions testing of the Regenerative Thermal Oxidizer inlet and outlet must be conducted at least once every 5 years (no later than the end of June). Initial source emissions testing must be conducted no later than the end of June 2015 at the maximum production rate at which the equipment will be operated. The use of an alternative test schedule or method must be pre-approved by SWCAA in writing. Any such request must be clearly identified in the test plan or other request documentation.
- b. A comprehensive test plan must be submitted to SWCAA for review and approval at least 10 calendar days prior to testing.
- c. SWCAA must be notified of the test date at least 5 calendar days prior to testing.
- d. The Regenerative Thermal Oxidizer must be tested in Start-up/Idle Mode and in Destruct Mode. There are no compliance standards for Start-up/Idle Mode; the test is to determine the emission rates during this mode and to assure the burner is operating within an acceptable range.
- e. **Start-up/Idle Mode**

Unless otherwise specified, testing for each constituent must consist of a minimum of three sampling runs from the oxidizer outlet of the duration specified below.

<u>Constituent</u>	<u>Test Method or Equivalent¹</u>	<u>Minimum Test Duration</u>
Stack gas velocity, flow rate	EPA Methods 1 and 2	N/A
O ₂ and CO ₂	EPA Methods 3 or 3A	N/A
Moisture	EPA Method 4	60 minutes
Nitrogen oxides	EPA Method 7E	60 minutes
Carbon monoxide	EPA Method 10	60 minutes
Volatile organic compounds	EPA Method 25A	60 minutes
Opacity of emissions	SWCAA Method 9	6 minutes if no opacity is measured or a minimum of 30 minutes if opacity other than zero is measured.

Air Discharge Permit SWCAA 17-3254 - Appendix A
Emission Testing Requirements
Regenerative Thermal Oxidizer

2. Testing Requirements (continued):

f. Destruct Mode

Regenerative Thermal Oxidizer Outlet

Unless otherwise specified, testing for each constituent must consist of a minimum of three sampling runs of the duration specified below. In Destruct Mode testing at the inlet and outlet of the Regenerative Thermal Oxidizer must be conducted simultaneously. Testing must be conducted while maintaining operations as steady as practicable.

<u>Constituent</u>	<u>Test Method or Equivalent¹</u>	<u>Minimum Test Duration</u>
Stack gas velocity, flow rate	EPA Methods 1 and 2	N/A
O ₂ and CO ₂	EPA Methods 3 or 3A	N/A
Moisture	EPA Method 4	60 minutes
Nitrogen oxides	EPA Method 7E	60 minutes
Carbon monoxide	EPA Method 10	60 minutes
Volatile organic compounds	EPA Method 25A ²	60 minutes
Opacity of emissions	SWCAA Method 9	6 minutes if no opacity is measured or a minimum of 30 minutes if opacity other than zero is measured.
N-propanol, n-propyl acetate, glycol ethers, and any other TAP comprising more than 5% of total inlet VOCs	EPA Method 18	60 minutes
Methane	EPA Method 18	60 minutes

¹ The use of an alternate or equivalent test method must be pre-approved by SWCAA in writing.

² VOC emissions measured using EPA Method 25A during Destruct Mode must be reported as carbon, propane (C₃H₈), and n-propanol (C₃H₈O). If the results of the Method 18 sampling indicates that oxygen-containing compounds make up 25% or more of the total hydrocarbons, then the Midwest Scaling Protocol for the Measurement of "VOC Mass Emissions" (August 2004) published by the Environmental Protection Agency or an equivalent alternative approved by SWCAA must be used to appropriately scale VOC emissions.

Regenerative Thermal Oxidizer Inlet

Unless otherwise specified, testing for each constituent must consist of a minimum of three sampling runs of the duration specified below.

**Air Discharge Permit SWCAA 17-3254 - Appendix A
Emission Testing Requirements
Regenerative Thermal Oxidizer**

2. Testing Requirements (continued):

<u>Constituent</u>	<u>Test Method or Equivalent¹</u>	<u>Minimum Test Duration</u>
Stack gas velocity, flow rate	EPA Methods 1 and 2	N/A
O ₂ and CO ₂	EPA Methods 3 or 3A	N/A
Moisture	EPA Method 4	60 minutes
Volatile organic compounds	EPA Method 25A ²	60 minutes
N-propanol, n-propyl acetate, glycol ethers, isopropyl alcohol and any other TAP comprising more than 5% of total inlet VOCs	EPA Method 18	60 minutes
Methane	EPA method 18	60 minutes
VOC capture efficiency	Material Balance ³	60 minutes

¹ The use of an alternate or equivalent test method must be pre-approved by SWCAA in writing.

² VOC emissions measured using EPA Method 25A must be reported as carbon, propane (C₃H₈), and n-propanol (C₃H₈O). If the results of the Method 18 sampling indicates that oxygen-containing compounds make up 25% or more of the total hydrocarbons, then the Midwest Scaling Protocol for the Measurement of "VOC Mass Emissions" (August 2004) published by the Environmental Protection Agency or an equivalent alternative approved by SWCAA must be used to appropriately scale VOC emissions.

³ The VOC capture efficiency may be determined using a variety of material balance methodologies. The mass of VOCs used by the printers may be compared with the mass of VOCs measured in the vent(s) upstream of the dryer exhaust(s). If the printers are adequately enclosed, the mass of VOCs used by the printers can be compared with the mass of VOCs escaping the enclosure. If the printers are adequately enclosed, the mass of VOCs escaping the enclosure can be compared with the mass of VOCs in the vents(s) upstream of the dryers exhaust(s). All capture efficiency measurement strategies must be pre-approved by SWCAA.

3. Source Operation:

- a. A complete record of production related parameters applicable to the testing, including but not limited to the following must be kept during emissions testing to correlate operations with emissions and must be recorded in the final report of the test results:
 1. Average Regenerative Thermal Oxidizer retention chamber temperature for each run
 2. Average VOC usage rate by each printing press for each run
 3. Types and amount of VOC containing products used by each printing press for each run
 4. Supplemental fuel consumption rate by the Regenerative Thermal Oxidizer
 5. Startups and shutdowns

3. Source Operation: (continued)

- b. Source operations during emissions testing must be representative of maximum intended operating conditions.

4. Reporting:

A final emission test report must be prepared and submitted to SWCAA within 45 calendar days of test completion in both printed and electronic formats. At a minimum, the report must contain the following information:

- a. A description of the source including manufacturer, model number and design capacity of the equipment, and the location of the sample ports or test locations.
- b. Time and date of the test and identification and qualifications of the personnel involved.
- c. A summary of results, reported in units and averaging periods consistent with the applicable emission standard or limit.
- d. A summary of control system or equipment operating conditions.
- e. A summary of production related parameters.
- f. A description of the test methods or procedures used including all field data, quality assurance/quality control procedures and documentation.
- g. A description of the analytical procedures used including all laboratory data, quality assurance/quality control procedures and documentation.
- h. Copies of field data and example calculations.
- i. Chain of custody information.
- j. Calibration documentation.
- k. Discussion of any abnormalities associated with the results.
- l. A statement signed by the senior management official of the testing firm certifying the validity of the source test report.
- m. In Destruct Mode, if oxygen measured during the source test is greater than 19% O₂, then report with no O₂ correction (as measured). If oxygen measured during the source test is less than 19% O₂, correct to 19% O₂.

Air Discharge Permit SWCAA 17-3254 - Appendix B
Performance Monitoring Requirements
Regenerative Thermal Oxidizer

1. Introduction:

- a. The purpose of periodically monitoring the exhaust of the Regenerative Thermal Oxidizer burner is to minimize emissions and provide a reasonable assurance that the unit is operating properly.
- b. Periodic monitoring may be conducted with an electrochemical cell combustion analyzer, analyzers used for reference method testing, or other analyzers pre-approved by SWCAA.

2. Monitoring Requirements:

- a. Monitoring to determine emission concentrations of the following constituents must be conducted for the Regenerative Thermal Oxidizer burner no later than the end of June during each calendar year. The use of an alternative test schedule must be pre-approved by SWCAA in writing. Performance monitoring is not required during any year in which source emissions testing of the same unit was performed pursuant to Appendices A of this Permit.

Constituents to be Measured

Carbon Monoxide (CO)

Nitrogen Oxides (NO_x)

Oxygen (O₂)

Temperature

- b. Burner operation during monitoring must be representative of maximum intended operating conditions during that year, and must be operated with fresh air (instead of VOC laden air.)
- c. Alternative monitoring methodologies must be pre-approved by SWCAA.

3. Minimum Quality Assurance/Quality Control Measures:

- a. The analyzer(s) response to span gas of a known concentration must be determined before and after testing. No more than 12 hours may elapse between span gas response checks. The test results are invalid if the difference between the pre-test and post-test response checks is greater than 10% of the initial span gas response value.
- b. The CO and NO_x span gas concentrations must be no less than 50% and no more than 200% of the emission concentration corresponding to the permitted emission limit. A lower concentration span gas may be used if it is more representative of measured concentrations. Ambient air may be used to zero the CO and NO_x cells/analyzer(s) and span the oxygen cell/analyzer.
- c. Sampling of each exhaust stack must consist of at least 1 test consisting of at least 5 minutes of data collection following a "ramp-up phase." The ramp-up phase ends when analyzer readings have stabilized (less than 5%/minute change in emission concentration). Emission concentrations must be recorded at least once every 30 seconds during testing. All test data collected following the ramp-up phase(s) must be reported to SWCAA. Alternative testing methods may be utilized provided pre-approval is obtained from SWCAA.

Air Discharge Permit SWCAA 17-3254 - Appendix B
Performance Monitoring Requirements
Regenerative Thermal Oxidizer

3. Minimum Quality Assurance/Quality Control Measures (continued):

If the results from any performance monitoring event for the Regenerative Thermal Oxidizer burner indicate that emission concentrations will exceed 30 ppm NO_x and 400 ppm CO, the permittee must either perform 60 minutes of additional monitoring to more accurately quantify CO and NO_x emissions, or initiate corrective action. Additional testing or corrective action must be initiated as soon as practical but no later than three days after the potential exceedance is identified. Corrective action includes tuning, maintenance by service personnel, limitation of boiler load, or other action taken to maintain compliance with permitted limits. Monitoring of unit emissions must be conducted within three days following completion of any corrective action to confirm that the corrective action has been effective. Corrective action must be pursued until observed emission concentrations no longer exceed the permitted emission concentrations. Initiation of corrective action does not shield the permittee from enforcement actions by SWCAA.

4. Reporting:

- a. All monitoring results must be recorded at the facility and reported to SWCAA. The following information must be included in the report:
 - (1) Time and date of the emissions evaluation;
 - (2) Identification of the personnel involved;
 - (3) A summary of results, reported in units consistent with the applicable emission standard(s) or limit(s);
 - (4) A summary of equipment operating conditions;
 - (5) A description of the evaluation methods or procedures used including all field data, quality assurance/quality control procedures and documentation; and
 - (6) Analyzer response check documentation.
- b. If oxygen measured during the source test is greater than 19% O₂, then report with no O₂ correction (as measured). If oxygen measured during the source test is less than 19% O₂, correct to 19% O₂.
- c. Monitoring results must be reported to SWCAA within 15 calendar days of test completion.

Air Discharge Permit SWCAA 17-3254 - Appendix C
Emission Testing Requirements
Ozone Adsorption Unit

1. Introduction:

- a. The purpose of this testing is to quantify emissions and determine the destruction efficiency from the ozone adsorption unit when in normal operation, and to demonstrate compliance with the requirements of this Air Discharge Permit.
- b. Initial emission testing of the ozone adsorption unit must occur within 60 days from initial operation. Subsequent emission testing for the unit must be performed quarterly by the end of each quarter.

For the full test (including flowrate, velocity and temperature), subsequent emission testing must be conducted within 60 days of permit issuance and every five years thereafter by the end of the month in which it was initially performed. For the ozone only test, it must be conducted by the end of each quarter. An alternate testing schedule may be implemented if approved in writing by SWCAA in advance of the regularly scheduled test.

- c. For the extensive emission test required at initial testing and every five years, a comprehensive test plan must be submitted to SWCAA for review and approval two weeks (10 business days) prior to tests, and SWCAA personnel must be informed at least five days prior to testing so that they may be present during testing.
- d. A minimum of three (3) test runs must be performed for each constituent listed below to ensure the data are representative. Compliance must be demonstrated by averaging the results of the individual sampling runs. The sampling methods identified below must be used unless alternate methods are approved in writing by SWCAA in advance of the emission testing.
- e. Testing must include, but not necessarily be limited to, the constituents identified in Section 2.

2. Testing Requirements:

Full Test: Initial test and every five years thereafter.

- a. Constituents to be measured in the exhaust stack of the ozone adsorption unit. Ozone to also be measured at the incoming vent as well.

Test Methods or Equivalent

- (1) Volumetric flow rate, gas velocity and temperature
- (2) Ozone

EPA Methods 1, 2, and 4
Draeger tubes,
chemiluminescent or neutral
buffered potassium iodide

Quarterly test.

- a. Constituents to be measured in the incoming vent and exhaust stack of the ozone adsorption unit.

Test Methods or Equivalent

- (1) Ozone

Draeger tubes,
chemiluminescent or neutral
buffered potassium iodide

Air Discharge Permit SWCAA 17-3254 - Appendix C
Emission Testing Requirements
Ozone Adsorption Unit

3. Source Operation:

- a. A complete record of production related parameters including process start ups, shutdowns, and adjustments must be kept during emissions testing to correlate operations with emissions, and must be recorded in the final test report.
- b. Source operations during the emissions test must be representative of the maximum level of normal operation.

4. Reporting Requirements:

- a. A final emission test report must be prepared and submitted to SWCAA within 15 calendar days for the quarterly test completion and within 45 calendar days for the extensive test completion in both printed and electronic formats, and must contain the following information as applicable:
 - (1) Description of the source including manufacturer, model number and design capacity of the equipment, and the location of the sample ports or test locations,
 - (2) Time and date of the test and identification and qualifications of the personnel involved,
 - (3) Summary of results, reported in units and averaging periods consistent with the application emissions standard or unit,
 - (4) Summary of control system or equipment operating conditions,
 - (5) Summary of production related parameters,
 - (6) A description of the test methods or procedures used including all field data, quality assurance/quality control procedures and documentation,
 - (7) A description of the analytical procedures used including all laboratory data, quality assurance/quality control procedures and documentation,
 - (8) Copies of field data and example calculations,
 - (9) Chain of custody information,
 - (10) Calibration documentation,
 - (11) Discussion of any abnormalities associated with the results, and
 - (12) A statement signed by the senior management official of the testing firm certifying the validity of the source test report.
- b. All test results must be reported as measured with no correction.

Air Discharge Permit SWCAA 17-3254 - Appendix D
Emission Testing Requirements
Ozone Destruct Unit

1. Introduction:

- a. The purpose of this testing is to quantify emissions and determine the destruction efficiency from the ozone destruct units when in normal operation, and to demonstrate compliance with the requirements of this Air Discharge Permit.
- b. Initial emission testing of the new ozone destruct unit must occur within 60 days from initial operation. Subsequent emission testing for the unit must be performed quarterly by the end of each quarter.

For the full test (including flowrate, velocity and temperature), subsequent emission testing must be conducted within 60 days of permit issuance and every five years thereafter by the end of the month in which it was initially performed. For the ozone only test, it must be conducted by the end of each quarter. An alternate testing schedule may be implemented if approved in writing by SWCAA in advance of the regularly scheduled test.

- c. A comprehensive test plan for the full test must be submitted to SWCAA for review and approval two weeks (10 business days) prior to tests, and SWCAA personnel must be informed at least five days prior to testing so that they may be present during testing.
- d. A minimum of three (3) test runs must be performed for each constituent listed below to ensure the data are representative. Compliance must be demonstrated by averaging the results of the individual sampling runs. The sampling methods identified below must be used unless alternate methods are approved in writing by SWCAA in advance of the emission testing.
- e. Testing must include, but not necessarily be limited to, the constituents identified in Section 2.

2. Testing Requirements:

Full Test: Initial test and every five years thereafter.

- a. Constituents to be measured in the exhaust stack of the ozone adsorption unit. Ozone to also be measured at the incoming vent as well.

	Test Methods or Equivalent
(1) Volumetric flow rate, gas velocity and temperature	EPA Methods 1, 2, and 4
(2) Ozone	Draeger tubes, chemiluminescent or neutral buffered potassium iodide

Quarterly test.

- b. Constituents to be measured in the incoming vent and exhaust stack of the ozone destruct unit
- | | Test Methods or Equivalent |
|-----------|--|
| (1) Ozone | Draeger tubes,
chemiluminescent or neutral
buffered potassium iodide |

3. Source Operation:

- a. A complete record of production related parameters including process start ups, shutdowns, and adjustments must be kept during emissions testing to correlate operations with emissions, and must be recorded in the final test report.
- b. Source operations during the emissions test must be representative of the maximum level of normal operation.

4. Reporting Requirements:

- a. A final emission test report must be prepared and submitted to SWCAA within 15 calendar days for the quarterly test completion and within 45 calendar days for the extensive test completion in both printed and electronic formats, and must contain the following information as applicable:
 - (1) Description of the source including manufacturer, model number and design capacity of the equipment, and the location of the sample ports or test locations,
 - (2) Time and date of the test and identification and qualifications of the personnel involved,
 - (3) Summary of results, reported in units and averaging periods consistent with the application emissions standard or unit,
 - (4) Summary of control system or equipment operating conditions,
 - (5) Summary of production related parameters,
 - (6) A description of the test methods or procedures used including all field data, quality assurance/quality control procedures and documentation,
 - (7) A description of the analytical procedures used including all laboratory data, quality assurance/quality control procedures and documentation,
 - (8) Copies of field data and example calculations,
 - (9) Chain of custody information,
 - (10) Calibration documentation,
 - (11) Discussion of any abnormalities associated with the results, and
 - (12) A statement signed by the senior management official of the testing firm certifying the validity of the source test report.
- b. All test results must be reported as measured with no O₂ correction.