

# **Statement of Basis**

**Permit to Construct No. P-2016.0041  
Project ID 61744**

**Yellowstone Plastics, Inc.  
Idaho Falls, Idaho**

**Facility ID 019-00041**

**Proposed for Public Comment**

**DRAFT [REDACTED] 2016**

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Permit Writer**

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01. et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

**ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE.....3**

**FACILITY INFORMATION.....4**

    Description.....4

    Permitting History.....4

    Application Scope.....4

    Application Chronology.....4

**TECHNICAL ANALYSIS.....5**

    Emissions Units and Control Equipment.....5

    Emissions Inventories.....5

    Ambient Air Quality Impact Analyses.....8

**REGULATORY ANALYSIS .....9**

    Attainment Designation (40 CFR 81.313).....9

    Facility Classification.....9

    Permit to Construct (IDAPA 58.01.01.201).....9

    Tier II Operating Permit (IDAPA 58.01.01.401).....9

    Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70).....9

    PSD Classification (40 CFR 52.21).....10

    NSPS Applicability (40 CFR 60).....10

    NESHAP Applicability (40 CFR 61).....10

    MACT Applicability (40 CFR 63).....10

    Permit Conditions Review.....10

**PUBLIC REVIEW .....13**

    Public Comment Opportunity.....13

    Public Comment Period.....13

**APPENDIX A – EMISSION INVENTORIES.....14**

**APPENDIX B – NESHAP REGULATORY APPLICABILITY .....15**

## ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

acfm	actual cubic feet per minute
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
Btu	British thermal units
CAA	Clean Air Act
CAS No.	Chemical Abstracts Service registry number
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CMS	continuous monitoring systems
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	CO <sub>2</sub> equivalent emissions
DEQ	Department of Environmental Quality
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gases
HAP	hazardous air pollutants
hr/yr	hours per consecutive 12 calendar month period
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
MMBtu	million British thermal units
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standard
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
PM	particulate matter
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SDS	Safety Data Sheet (see also MSDS)
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
T/yr	tons per consecutive 12-calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
VOC	volatile organic compounds

## **FACILITY INFORMATION**

### ***Description***

Yellowstone Plastics, Inc. does flexographic printing (roller coating) of polyethylene plastic bags. There are six printing lines, each consisting of a multi-color printing press and natural gas-fired dryers. Emissions of volatile organic compounds (VOC), hazardous air pollutants (HAP), and toxic air pollutants (TAP) from the flexographic printing presses, from ink and solvent mixing activities, and from press cleanup activities are controlled by the use of a regenerative thermal oxidation (RTO) control device.

### ***Permitting History***

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

April 2, 2002	019-00041, Tier II operating permit to establish synthetic minor limits on PTE, Permit status (A, but will become S upon issuance of this permit)
October 13, 2000	019-00041, Permit to Construct to correct a VOC monitoring permit condition (S)
December 2, 1998	019-00041, Permit to Construct a flexographic printing process (roller coating) for polyethylene plastic bags (S)

### ***Application Scope***

This PTC is for a minor modification at an existing minor facility.

The applicant has proposed to:

- Install and operate additional flexographic printing presses and an RTO to control VOC, HAP, and TAP emissions from the flexographic printing process.
- Incorporate requirements from Tier II Operating Permit No. 019-00041, issued on April 2, 2002.
- Convert the existing Tier II operating permit to a Permit to Construct.

### ***Application Chronology***

July 7, 2016	DEQ received an application and an application fee.
July 12 – 27, 2016	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
July 18, 2016	DEQ made available the draft permit and statement of basis for peer and regional office review.
July 22, 2016	DEQ made available the draft permit and statement of basis for applicant review.
July 22, 2016	DEQ determined that the application was incomplete.
August 12, 2016	DEQ received supplemental information regarding equipment fuel input capacities from the applicant.
August 16, 2016	DEQ determined that the application was complete.

## TECHNICAL ANALYSIS

### *Emissions Units and Control Equipment*

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source	Control Equipment
<p><u>Flexographic Printing Presses (P-1 through P-6)</u></p> <ul style="list-style-type: none"> <li>• PCMC 6 Color Flexographic Printing Press (P-1), with 1.2 MMBtu/hr between-color dryer and 1.2 MMBtu/hr tunnel dryer</li> <li>• PCMC 8 Color Flexographic Printing Press (P-2), with 1.2 MMBtu/hr between-color dryer and 1.2 MMBtu/hr tunnel dryer</li> <li>• F&amp;K 10 Color Flexographic Printing Press (P-3), with between-color dryer and tunnel dryer at <math>\leq 10</math> MMBtu/hr combined</li> <li>• FSC Telia 8 Color Printing Press (P-4), with between-color dryer and tunnel dryer at <math>\leq 10</math> MMBtu/hr combined</li> <li>• Vision 8 Color Flexographic Printing Press (P-5), with 0.8 MMBtu/hr between-color dryer and 0.8 MMBtu/hr tunnel dryer</li> <li>• Flexotecnica EVO XG 10 Color Flexographic Printing Press (P-6), with 0.751 MMBtu/hr between-color dryer and 0.853 MMBtu/hr tunnel dryer</li> </ul> <p>Fuel: natural gas only for all dryers and RTO</p>	Regenerative Thermal Oxidizer (RTO)
Ink and solvent mixing activities and Press cleanup activities	None
<p><u>Plant Building Heating Units (1 and 2)</u></p> <p>Manufacturer/model: Reyco 600 GasPac            Maximum Capacity: 6.7 MMBtu/hr            Date of Construction: 1999            Fuel: natural gas</p> <p>Manufacturer/model: Reyco 500 GasPac            Maximum Capacity: 4.9 MMBtu/hr            Date of Construction: 1999            Fuel: natural gas</p>	None

### *Emissions Inventories*

#### Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit an emission inventory was developed for the flexographic printing process (see Appendix A). Emissions estimates of criteria pollutant, GHG, HAP PTE were based on emission factors from AP-42, operation of 8,760 hours per year, and process information specific to the facility for this proposed project.

**Uncontrolled Potential to Emit**

Using the definition of Potential to Emit, uncontrolled Potential to Emit is then defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall **not** be treated as part of its design **since** the limitation or the effect it would have on emissions **is not** state or federally enforceable.

The uncontrolled Potential to Emit is used to determine if a facility is a “Synthetic Minor” source of emissions. Synthetic Minor sources are facilities that have an uncontrolled Potential to Emit for regulated air pollutants or HAP above the applicable Major Source threshold without permit limits.

As provided in Appendix A, uncontrolled facility-wide emissions of VOC were estimated to exceed 100 tons per year (914 T/yr of VOC emission estimated from the flexographic printing presses).

**Potential to Emit**

Estimated Potential to Emit for criteria and GHG pollutants is provided below (Table 2); see Appendix A for a detailed presentation of the calculations of these emission estimates.

Potential to Emit is used to establish the change in emissions at a facility and to determine the facility’s classification as a result of this project. Potential to Emit includes all permit limits resulting from this project.

Potential to Emit is also used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table (Table 2) presents the facility-wide potential to emit for criteria pollutants.

**Table 2 POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

Source	PM <sub>10</sub> /PM <sub>2.5</sub>		SO <sub>2</sub>		NO <sub>x</sub>		CO		VOC		Pb		CO <sub>2e</sub>	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Post-Project Potential to Emit	0.07	0.31	0.0055	0.03	0.91	4.00	0.77	3.36	4.18	18.32	4.6E-6	2E-5	1,505	6,591

**Non-Carcinogenic and Carcinogenic TAP Emissions**

A summary of the estimated PTE for emissions increase of non-carcinogenic toxic air pollutants (TAP) is provided in the following table (Table 3).

Because weekly ink and solvent use limits (Permit Conditions 2.9 and 2.10) have been imposed and agreed to by the permittee, no non-carcinogenic EL specified in IDAPA 58.01.01.585 are expected to be exceeded by the facility (see Appendix A). Hexane and toluene emissions are from natural gas combustion.

In addition, multiplying the 24-hour average emission rate in lb/hr by 7 results in a weekly average emission rate that is below applicable EL. As a result, the monitoring frequency for ink and solvent usage monitoring has been extended to a weekly period.

Facility-wide emissions of non-carcinogenic and carcinogenic TAP from fuel combustion were not additive to volatile organic TAP emissions from the flexographic printing presses, and will be limited based on establishing an annual facility-wide natural gas usage limitation. Fuel usage based on maximum heat input capacity is approximately 156 MMscf/yr, and the facility is being limited to approximately 80 MMscf/yr by this permit (Permit Condition 2.11).

**Table 3 POST-PROJECT PTE FOR NON-CARCINOGENIC TAP – FLEXOGRAPHIC PRINTING PROCESS**

<b>Non-Carcinogenic Toxic Air Pollutants</b>	<b>Post-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)</b>	<b>Post-Project 24-hour Average Emissions Rates x 7 (lb/week) <sup>(a)</sup></b>	<b>Non-Carcinogenic Screening Emission Level (lb/hr)</b>	<b>Exceeds Screening Level? (Y/N)</b>
Methanol	0.005	0.035	17.3	No
Xylene	0.009	0.063	29	No
Ethanol	0.14	0.98	125	No
N-Propanol	2.00	14	33.3	No
N-Propyl Acetate	0.54	3.78	56	No
Ethyl Acetate	0.01	0.07	93.3	No
Isopropanol	0.006	0.042	65.3	No
Isopropyl Acetate	0.015	0.11	69.3	No
Heptane	0.018	0.13	109	No
Dipropylene Glycol Methyl Ether	0.042	0.30	40	No

Because weekly (and therefore annual) ink and solvent use limits (Permit Conditions 2.9 and 2.10) and an annual natural gas usage limit (Permit Condition 2.11) have been imposed and agreed to by the facility in applying for this permit, no TAP EL specified in IDAPA 58.01.01.585–586 are expected to be exceeded by the facility (see Appendix A).

Modeling was not required for non-carcinogenic nor carcinogenic TAP because none of the applicable EL for non-carcinogenic TAP were exceeded as a result of this project.

**Post Project HAP Emissions**

The following table presents the post-project potential to emit for HAP pollutants from all emissions units at the facility as submitted by the applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

**Table 4 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY**

<b>Hazardous Air Pollutants</b>	<b>PTE (lb/hr)</b>	<b>PTE (T/yr)</b>
Methanol	0.23	1.01
Xylene	0.41	1.80
PAH	2.1E-03	0.009
Benzene	1.92E-05	0.00008
Formaldehyde	6.85E-04	0.003
Hexane	1.64E-02	0.072
Toluene	3.11E-05	0.00014
Arsenic	1.83E-06	0.000
Barium	4.02E-05	0.00018
Beryllium	1.10E-07	0.0000005
Cadmium	1.00E-05	0.00004
Chromium	1.28E-05	0.00006
Cobalt	7.67E-07	0.000003
Copper	7.76E-06	0.00003
Manganese	3.47E-06	0.00002
Mercury	2.37E-06	0.000010
Molybdenum	1.00E-05	0.00004
Nickel	1.92E-05	0.00008
Selenium	2.19E-07	0.0000010
Vanadium	2.10E-05	0.00009
Zinc	2.65E-04	0.0012
<b>Totals</b>	<b>0.03</b>	<b>2.90</b>

### **Ambient Air Quality Impact Analyses**

The estimated emission rates of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, HAP, and TAP from this project were below applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline<sup>1</sup>. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

Facility-wide emissions of volatile organic TAP from the flexographic printing process were not estimated to exceed applicable EL. Facility-wide emissions of TAP from fuel combustion will be limited based on establishing an annual facility-wide natural gas usage limitation. Fuel usage based on maximum heat input capacity is approximately 156 MMscf/yr, and the facility is being limited to approximately 80 MMscf/yr by this permit. The estimated emission increases of these TAP therefore demonstrated preconstruction compliance with TAP standards in accordance with IDAPA 58.01.01.210.08 for controlled average emission rates. Modeling analyses conducted in the development of TAP rules indicates that if a controlled average emission rate is below the applicable EL, controlled ambient concentrations are expected to be below the applicable acceptable ambient concentration. Annual (and weekly) limits were included in accordance with IDAPA 58.01.01.210.08.c to limit TAP emissions from flexographic printing activities and from fuel combustion (Permit Conditions 2.3, 2.9, 2.10, and 2.11).

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP).

<sup>1</sup> Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

## REGULATORY ANALYSIS

### **Attainment Designation (40 CFR 81.313)**

The facility is located in Bonneville County, which is designated as attainment or unclassifiable for PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

### **Facility Classification**

The facility is classified as SM80 based on limitations to the potential to emit hazardous air pollutants of  $\geq 8$  T/yr of a single HAP or  $\geq 20$  T/yr of total HAP (combined).

### **Permit to Construct (IDAPA 58.01.01.201)**

IDAPA 58.01.01.201 ..... Permit to Construct Required

IDAPA 58.01.01.201 requires that “no owner or operator may commence construction or modification of any stationary source, facility, major facility, or major modification without first obtaining a permit to construct from the Department which satisfies the requirements of Sections 200 through 228 unless the source is exempted in any of Sections 220 through 223.”

The permittee has requested that a PTC be issued to the facility for the proposed modified emissions source. Therefore, this permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

### **Tier II Operating Permit (IDAPA 58.01.01.401)**

IDAPA 58.01.01.401 ..... Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

Also as requested, requirements from the existing Tier II permit will be incorporated into the proposed PTC and the existing Tier II permit will be replaced/superseded.

### **Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)**

IDAPA 58.01.01.301 ..... Requirement to Obtain Tier I Operating Permit

IDAPA 58.01.01.006 defines a Tier I source as “Any source located at a major facility as defined in Section 008.” IDAPA 58.01.01.008 defines a Major Facility as either:

- For HAPS a facility with the potential to emit ten (10) tons per year (T/yr) or more of any hazardous air pollutant, other than radionuclides, or
- The facility emits or has the potential to emit twenty-five (25) T/yr or more of any combination of any hazardous air pollutants, other than radionuclides.
- The facility emits or has the potential to emit one hundred (100) T/yr or more of any regulated air pollutant. The fugitive emissions shall not be considered in determining whether the facility is major unless the facility is a “Designated Facility”:

Post-project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for criteria pollutants or 10 tons per year for any one HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

**PSD Classification (40 CFR 52.21)**

40 CFR 52.21 ..... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

**NSPS Applicability (40 CFR 60)**

The facility is not subject to any NSPS requirements.

**NESHAP Applicability (40 CFR 61)**

The facility is not subject to any NESHAP requirements in 40 CFR 61.

**MACT Applicability (40 CFR 63)**

The facility is not subject to any NESHAP requirements in 40 CFR 63. A detailed regulatory applicability analysis was provided for Subpart KK – NESHAP for the Printing and Publishing Industry and is included in Appendix B.

**Permit Conditions Review**

This section describes the permit conditions for this initial permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

This section describes the permit conditions for this initial permit.

Permit conditions 1.1 and 1.2 establish the scope of this permitting action.

Permit condition 1.3 provides a description of the regulated sources and the control devices used at the facility.

Permit conditions 2.1 and 2.2 provide a description of the process and the control devices for the flexographic printing process.

Permit condition 2.3 establishes hourly and annual VOC emission limits for the flexographic printing process. These hourly emission rates were assumed when estimating facility-wide VOC, TAP, and HAP emissions.

Permit condition 2.4 establishes odor emission limits for the facility in accordance with IDAPA 58.01.01.775-776.

Permit Condition 2.5 (Permit Condition 3.4 of Tier II Operating Permit No. 019-00041) establishes an opacity limit for the RTO stack, dryer stack, and functionally equivalent openings associated with the flexographic printing process, in accordance with IDAPA 58.01.01.625.

Permit Condition 2.6 requires operation of the RTO at the operating temperature specified by the manufacturer to achieve optimum destruction removal efficiency. Optimal destruction removal efficiency was assumed when estimating VOC emissions from the flexographic printing process.

Permit Condition 2.7 requires installation of a continuous temperature monitoring device to ensure compliance with Permit Condition 2.6.

Permit Condition 2.8 requires operation of the RTO control device at all times that flexographic printing presses are in operation to achieve the destruction removal efficiency used in estimating VOC emissions from the flexographic printing process. Any periods of time that flexographic printing presses are operated while the RTO is not operated (e.g. including during periods of RTO shutdown, scheduled maintenance, upset, or breakdown) shall be treated as excess emissions events and the procedures of IDAPA 58.01.01.130-136 followed (General Provision 3.11).

Permit Conditions 2.9 and 2.10 establish weekly usage limits for ink and solvent materials at the facility. These limits were assumed when facility-wide VOC and non-carcinogenic TAP and HAP emissions were estimated from the flexographic printing process.

Permit Condition 2.11 requires that only natural gas is combusted as fuel at the facility (i.e., facility-wide) and establishes annual natural gas usage limits. These limits were assumed when facility-wide criteria pollutant and non-carcinogenic TAP and HAP emissions were estimated from fuel combustion.

Permit Condition 2.12 (Permit Condition 3.5 of Tier II Operating Permit No. 019-00041) requires use of only ink and solvent materials evaluated and for which emission estimates were provided in the application. Any changes to these materials or their formulations should be evaluated by the permittee because it could result in an increase in VOC, HAP, and/or TAP emissions. Documentation of each evaluation and emission estimates are required by Permit Condition 2.18.

Permit Condition 2.13 requires monitoring of RTO operating temperature to ensure compliance with Permit Conditions 2.6 through 2.8.

Permit condition 2.14 requires monitoring of all odor complaints received, performing appropriate corrective actions, and maintaining records of corrective actions taken at the facility for the automotive coating process to ensure compliance with Permit Condition 2.4.

Permit conditions 2.15 and 2.16 require monitoring of the amount of ink and solvent used at the facility on a weekly basis to ensure compliance with Permit Conditions 2.9 and 2.10.

Permit condition 2.17 requires monitoring of the amount of **natural gas** used at the facility on an annual basis to ensure compliance with Permit Condition 2.11.

Permit Condition 2.18 (Permit Condition 3.7 of Tier II Operating Permit No. 019-00041) requires demonstrating that any proposed changes to ink and solvent materials or their blends or formulations will not result in an increase in emissions of any regulated air pollutant. Documentation of emission estimate calculations and supporting Material Safety Data Sheets (MSDS) shall be maintained onsite.

Permit Conditions 2.19 and 2.20 require an initial performance test to demonstrate the RTO performs under “worst-case normal” conditions and within manufacturer’s specified operating parameters, and achieves the destruction removal efficiency used in estimating facility-wide VOC, TAP, and HAP emissions. Records of RTO operating temperature shall be provided to verify compliance with relevant permit conditions during testing (Permit Condition 2.6 through 2.8).

Permit Conditions 3.3, 3.8, 3.9, and 3.10 of Tier II Operating Permit No. 019-00041 were not included.

Because installation and operation of the RTO control device (Permit Condition 2.6 through 2.8) is expected to reduce emissions of VOC and HAP below major source thresholds, requirements for tracking individual HAP, total HAP, and total VOC emissions were no longer required. Refer to the Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70) section and the Emissions Inventories section for additional discussion.

### General Provision 3.1

The duty to comply general compliance provision requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

### General Provision 3.2

The maintenance and operation general compliance provision requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

### General Provision 3.3

The obligation to comply general compliance provision specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

#### General Provision 3.4

The inspection and entry provision requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

#### General Provision 3.5

The permit expiration construction and operation provision specifies that the permit expires if construction has not begun within two years of permit issuance or if construction has been suspended for a year in accordance with IDAPA 58.01.01.211.02.

#### General Provision 3.6

The notification of construction and operation provision requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.03.

#### General Provision 3.7

The performance testing notification of intent provision requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

#### General Provision 3.8

The performance test protocol provision requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

#### General Provision 3.9

The performance test report provision requires that the permittee report any performance test results to DEQ within 60 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

#### General Provision 3.10

The monitoring and recordkeeping provision requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

#### General Provision 3.11

The excess emissions provision requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130-136. Periods of Any periods of time that flexographic printing presses are operated while the RTO is not operated (e.g. including during periods of RTO shutdown, scheduled maintenance, upset, or breakdown are considered excess emissions events for which these procedures shall be followed.

#### General Provision 3.12

The certification provision requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

#### General Provision 3.13

The false statement provision requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

#### General Provision 3.14

The tampering provision requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

#### General Provision 3.15

The transferability provision specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

General Provision 3.16

The severability provision specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

## **PUBLIC REVIEW**

### ***Public Comment Opportunity***

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

### ***Public Comment Period***

## **APPENDIX A – EMISSION INVENTORIES**

Yellowstone Plastics VOC Calculations

Andrew Nimrod  
6/13/2016

RTO Data

Projected Ink Use	Ink Description	40%	30%	30%	Projected Reducing Solvent Use	Projected Cleaning Solvent Use
lbs	Ink VOC %	HI Opaque White Ink	1190 Pro Black Ink	Polyamide Pro Black Ink	lbs	lbs
635,330	27.24%	54.69%	88.571	793,087	180,000	
730,630	69.226	104,239	119,874	912,050	207,000	
	lbs of VOC's	79,609	101,857			
	Annual Operating Schedule 24/7/51 (hrs):		8,568			
	Max. Annual Operating Schedule 24/7/52 (hrs):		8,736			

1. Amount is for 5 existing presses based off of 2015 data + 1 new press.
2. Uncontrolled and Controlled VOC's based off of Max Operating 24/7/52.
3. Total VOC to RTO based off of actual planned operation 24/7/51.
4. Projected new press VOC output.

MVOC Constituents

CAS #	Chemical Name	MW	VOC %	LEL %	UEL %	A1 (F)	FP (F)	BP (F)	Pre-VOC (lb/hr)	Post VOC (lb/hr)	h (BTU/lb)
1190	Pro Black								11.9	13.7	
71-23-8	Propyl Alcohol, n-	60.095	26.95	2.2	13.7	775	74	207	3.22	3.70	13,480
64-17-5	Ethanol	46.0494	11.22	3.3	19	685	55	173	1.34	1.54	12,830
109-60-4	Propyl Acetate, n-	102.1317	6.72	1.7	8	842	55	215	0.80	0.92	17,430
108-21-4	Isopropyl Acetate	102.1317	4.8	1.8	8	860	36	194	0.57	0.66	9,420
67-63-0	Isopropanol	60.095	2.01	2	12.7	750	53	181	0.24	0.28	12,000
	<b>Polyamide Proc Black</b>								<b>10.1</b>	<b>11.7</b>	
71-23-8	Propyl Alcohol, n-	60.095	38.29	2.2	13.7	775	74	207	3.88	4.46	13,480
109-60-4	Propyl Acetate, n-	102.1317	4.8	1.7	8	842	55	215	0.49	0.56	17,430
68526-86-3	Alcohol	200.36	1.1			500	252	482	0.11	0.13	17,430
108-21-4	Isopropyl Acetate	102.14	0.63	1.8	7.8	860	35	192	0.06	0.07	17,430
64-17-5	Ethanol	46.0494	0.58	3.3	19	685	55	173	0.06	0.07	12,830
	<b>High Opaque White</b>								<b>7.92</b>	<b>9.11</b>	
71-23-8	Propyl Alcohol, n-	60.095	15.24	2.2	13.7	775	74	207	1.21	1.39	13,480
142-82-5	Heptane	100.21	10	1.1	6.7	433	25	209	0.79	0.91	12,000
64-17-5	Ethanol	46.0494	1.43	3.3	19	685	55	173	0.11	0.13	12,830
109-60-4	Propyl Acetate, n-	102.1317	0.5	1.7	8	842	55	215	0.04	0.05	17,430
	<b>Cleaning Solvent - AMPAC #4</b>								<b>20.6</b>	<b>23.7</b>	
71-23-8	Propyl Alcohol, n-	60.095	30	2.2	13.7	775	74	207	6.18	7.11	13,480
64-17-5	Ethanol	46.0494	22	3.3	19	685	55	173	4.53	5.21	12,830
109-60-4	Propyl Acetate, n-	102.1317	20	1.7	8	842	55	215	4.12	4.74	17,430
141-78-6	Ethyl Acetate	88.1	2.1	2.2	9	800	24	171	0.43	0.50	
1330-20-7	Xylene	106.158	2	1	7	867	75	281	0.41	0.47	17,760
67-56-1	Methanol	32.04	1.12	6	36.5	867	53.6	148	0.23	0.27	9,078
	<b>Reducing Solvent - 80/20</b>								<b>90.3</b>	<b>103.8</b>	
71-23-8	Propyl Alcohol, n-	60.095	80	2.2	13.7	775	74	207	72.22	83.05	13,480
109-60-4	Propyl Acetate, n-	102.1317	20	1.7	8	842	55	215	18.05	20.76	17,430
	<b>Reducing Solvent - 90/10</b>								<b>0.5</b>	<b>0.6</b>	
71-23-8	Propyl Alcohol, n-	60.095	90	2.2	13.7	775	74	207	0.46	0.53	13,480
109-60-4	Propyl Acetate, n-	102.1317	10	1.7	8	842	55	215	0.05	0.06	17,430

$$\text{Concentration (PPM)} = 10^6 * \left( \frac{\text{VOC lb/hr}}{\text{RTO SCFM} * \rho_{\text{air}} + 60 * \frac{\text{MW}_{\text{VOC}}}{\text{MW}_{\text{air}}}} \right)$$

Toxic Air Pollutants				
Substance	Pre-Project Emission Rate	Post Project Emission Rate	Change in ER	EL
	lb/hr	lbs/hr	lbs/hr	lbs/hr
Methanol	0.231	0.005	-0.23	17
Xylene	0.412	0.009	-0.40	29
Ethanol	6.04	0.14	-5.90	125
N-Propanol	87.17	2.00	-85.16	33.3
N-Propyl Acetate	23.55	0.54	-23.01	56
Ethyl Acetate	0.433	0.010	-0.42	93.3
Isopropanol	0.240	0.006	-0.23	65.3
Isopropyl Acetate	0.64	0.015	-0.62	69.3
Heptane	0.79	0.018	-0.77	109

Notes:

1. Pre project emission rate are based off of ink usage for the past 12 months, but without existing oxidizer

Hazardous Air Pollutants		
Substance	Emission Rate	ER
	lb/hr	Ton/yr
Methanol	0.231	1.01
Xylene	0.412	1.80

\*Substances above are per EPA Clean Air Act List of HAPs

**Yellowstone Plastics, Inc.**  
**RTO PTE Emission Inventory**  
 50,000 SCFM RTO  
 Idaho Falls, ID  
 5-16-16

RTO Natural Gas Products of Combustion (POC) Emissions

Source	Max Heat Input MM BTU/hr	Hourly Natural Gas Use MM Ft <sup>3</sup> /hr.	Annual Natural Gas Use MM Ft <sup>3</sup> /yr	EMISSIONS											
				Total PM		Sulfur dioxide		Nitrogen oxides		Carbon monoxide		TOC		CO <sub>2</sub> e	
				lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
RTO Max Capacity(cold startup)	8.60	0.00860	0.41	0.07	0.00	0.01	0.00	0.86	0.02	0.72	0.02	0.05	0.001	1,007	4,009
RTO Normal Operation	3.90	0.00390	31.04	0.03	0.12	0.00	0.01	0.39	1.55	0.33	1.30	0.02	0.09	457	1,818
RTO Idle Mode	1.61	0.00161	1.17	0.01	0.00	0.00	0.00	0.16	0.06	0.14	0.05	0.01	0.003	189	751
<b>Totals:</b>					0.12		0.01	1.57		1.32		0.09		5,827	

**Notes:**

- The following natural gas combustion factors from AP-42 were used to calculate emissions:  
 a. Natural gas heating value = 1000 BTU/cu. ft.  
 b. Natural gas emission factors (lb/MM ft<sup>3</sup>);

Combustor Size (MMBTU/hr Heat Input)	Total Particulate Matter PM	Sulfur dioxide SO <sub>2</sub>	Nitrogen oxides NOx	Carbon monoxide CO	TOC
0.3 - <100	7.6	0.6	100	84	5.5
<0.3	7.6	0.6	94	40	5.5

**NOTES:**

- SO<sub>2</sub> based on a sulfur content of natural gas of 2000 gr/MMscf
- NOx expressed as NO<sub>2</sub>. Emissions based on full load conditions.

- The following formulas were used to calculate emissions:

- MM cu.ft. annual gas use = actual from gas bills
- Emissions (lb/hr) = (Emission factor x (MM BTU/hr / 1000 BTU/cu. ft))
- Emissions (TPY) = (Emission factor x MM cu. ft. annual gas use)/2000lb/ton

## **APPENDIX B – NESHAP REGULATORY APPLICABILITY**

Non-Applicability Determination**40 CFR Part 63 - National Emission Standards for Hazardous Air Pollutants for Source Categories (a.k.a. Maximum Achievable Control Technology (MACT))**~~Example of a NSPS Regulatory Analysis~~

[Title 40, Part 63]

[61 FR 27140, May 30, 1996, as amended at 71 FR 29799, May 24, 2006; 76 FR 22597, Apr. 21, 2011]

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## TITLE 40--PROTECTION OF ENVIRONMENT

## CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY (CONTINUED)

PART 60-STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES--  
Table of ContentsSUBPART KK--NATIONAL EMISSION STANDARDS FOR THE PRINTING AND PUBLISHING  
INDUSTRY

## Sec.63.820 Applicability.

(a) The provisions of this subpart apply to:(1) Each new and existing facility that is a major source of hazardous air pollutants (HAP), as defined in 40 CFR 63.2, at which publication rotogravure, product and packaging rotogravure, or wide-web flexographic printing presses are operated, and**Yellowstone Plastics will not be a major source of any hazardous air pollutants (HAPS) for their flexographic printing process or other facility equipment's so is not affected by this section.**(2) Each new and existing facility at which publication rotogravure, product and packaging rotogravure, or wide-web flexographic printing presses are operated for which the owner or operator chooses to commit to and meets the criteria of paragraphs (a)(2)(i) and (ii) of this section for purposes of establishing the facility to be an area source of HAP with respect to this subpart. A facility which establishes area source status through some other mechanism, as described in paragraph (a)(7) of this section, is not subject to the provisions of this subpart.(i) Use less than 9.1 Mg (10 tons) per each rolling 12-month period of each HAP at the facility, including materials used for source categories or purposes other than printing and publishing, and(ii) Use less than 22.7 Mg (25 tons) per each rolling 12-month period of any combination of HAP at the facility, including materials used for source categories or purposes other than printing and publishing.**Yellowstone Plastics will remain well below the singular 10 ton HAP limit as well as the 25 ton rolling annual combined HAP limit so is not affected by Subpart KK.**