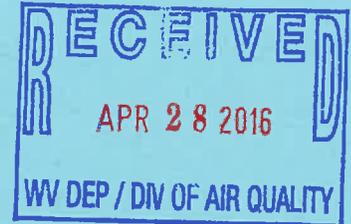


April 2016  
Project No. 15-158



**REGULATION 13 PERMIT CLASS II  
ADMINISTRATIVE UPDATE  
APPLICATION R13-2880A**

**INSTALL AND OPERATE A NATURAL  
GAS FIRED LEAN EXOTHERMIC GAS  
GENERATOR**

**SKANA ALUMINUM COMPANY  
Wilsonburg, West Virginia  
Facility ID 033-00198**

**PREPARED BY:**

**MSES Consultants, Inc.  
P.O. Drawer 190  
Clarksburg, West Virginia 26302-019  
(304) 624-9700**

Skana Aluminum <sup>Company</sup>  
Wilsonburg  
033-00198  
R13-2880B  
John Legg

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## List of Attachments

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# LIST OF ATTACHMENTS

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B	Map(s)
G	Process Description
I	Emission Units Table
J	Emission Points Data Summary Sheet
L	Emissions Unit Data Sheet(s)
N	Supporting Emissions Calculations
P	Public Notice



WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**DIVISION OF AIR QUALITY**

601 57<sup>th</sup> Street, SE  
 Charleston, WV 25304  
 (304) 926-0475  
[www.dep.wv.gov/daq](http://www.dep.wv.gov/daq)

**APPLICATION FOR NSR PERMIT  
 AND  
 TITLE V PERMIT REVISION  
 (OPTIONAL)**

PLEASE CHECK ALL THAT APPLY TO NSR (45CSR13) (IF KNOWN):

- CONSTRUCTION     MODIFICATION     RELOCATION  
 CLASS I ADMINISTRATIVE UPDATE     TEMPORARY  
 CLASS II ADMINISTRATIVE UPDATE     AFTER-THE-FACT

PLEASE CHECK TYPE OF 45CSR30 (TITLE V) REVISION (IF ANY):

- ADMINISTRATIVE AMENDMENT     MINOR MODIFICATION  
 SIGNIFICANT MODIFICATION

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS ATTACHMENT S TO THIS APPLICATION

**FOR TITLE V FACILITIES ONLY:** Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

**Section I. General**

1. Name of applicant (as registered with the WV Secretary of State's Office):

Skana Aluminum Company

2. Federal Employer ID No. (FEIN):

3. Name of facility (if different from above):

Same

4. The applicant is the:

- OWNER     OPERATOR     BOTH

5A. Applicant's mailing address:

345 Wilsonburg Road

Clarksburg, WV 26301

5B. Facility's present physical address:

Same

6. West Virginia Business Registration. Is the applicant a resident of the State of West Virginia?     YES     NO

- If YES, provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A**.
- If NO, provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A**.

7. If applicant is a subsidiary corporation, please provide the name of parent corporation:

8. Does the applicant own, lease, have an option to buy or otherwise have control of the proposed site?     YES     NO

- If YES, please explain:    Applicant owns the facility
- If NO, you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be constructed, modified, relocated, administratively updated or temporarily permitted (e.g., coal preparation plant, primary crusher, etc.): Aluminum rolling mill

10. North American Industry Classification System (NAICS) code for the facility:

331319

11A. DAQ Plant ID No. (for existing facilities only):

033-00198

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):

R13-2880A

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates or Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction or Relocation permits**, please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

From Clarksburg take US Route 50 West. Exit at Wilsonburg. Turn right at the stop sign. Turn left immediately into the facility.

12.B. New site address (if applicable): Not Applicable	12C. Nearest city or town: Wilsonburg	12D. County: Harrison
12.E. UTM Northing (KM): 4,348.5	12F. UTM Easting (KM): 552.6	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility:  
Install and operate a lean exothermic gas generator.

14A. Provide the date of anticipated installation or change: 11/01/2016 - If this is an <b>After-The-Fact</b> permit application, provide the date upon which the proposed change did happen: / /	14B. Date of anticipated Start-Up if a permit is granted: Immediately After Installation
--	---

14C. Provide a **Schedule** of the planned **Installation of/Change to and Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:  
Hours Per Day 24      Days Per Week 7      Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved?     YES     NO

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see [www.epa.gov/ceppo](http://www.epa.gov/ceppo)), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process (*if known*). A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance (*if known*). Provide this information as **Attachment D**.

**Section II. Additional attachments and supporting documents.**

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan**, e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to **Plot Plan Guidance**).  
- Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F**.

23. Provide a **Process Description** as **Attachment G**.  
- Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

**All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.**

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H**.  
– For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I**.

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J**.

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K**.

28. Check all applicable **Emissions Unit Data Sheets** listed below:

<input type="checkbox"/> Bulk Liquid Transfer Operations	<input type="checkbox"/> Haul Road Emissions	<input type="checkbox"/> Quarry
<input type="checkbox"/> Chemical Processes	<input type="checkbox"/> Hot Mix Asphalt Plant	<input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities
<input type="checkbox"/> Concrete Batch Plant	<input type="checkbox"/> Incinerator	<input type="checkbox"/> Storage Tanks
<input type="checkbox"/> Grey Iron and Steel Foundry	<input type="checkbox"/> Indirect Heat Exchanger	
<input checked="" type="checkbox"/> General Emission Unit, specify Lean Exothermic Gas Generator		

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L**.

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

<input type="checkbox"/> Absorption Systems	<input type="checkbox"/> Baghouse	<input type="checkbox"/> Flare
<input type="checkbox"/> Adsorption Systems	<input type="checkbox"/> Condenser	<input type="checkbox"/> Mechanical Collector
<input type="checkbox"/> Afterburner	<input type="checkbox"/> Electrostatic Precipitator	<input type="checkbox"/> Wet Collecting System
<input type="checkbox"/> Other Collectors, specify		

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M**.

30. Provide all **Supporting Emissions Calculations** as **Attachment N**, or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O**.  
➤ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and **Example Legal Advertisement** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?  
 YES     NO  
➤ If **YES**, identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's **"Precautionary Notice – Claims of Confidentiality"** guidance found in the **General Instructions** as **Attachment Q**.

### Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

<input type="checkbox"/> Authority of Corporation or Other Business Entity	<input type="checkbox"/> Authority of Partnership
<input type="checkbox"/> Authority of Governmental Agency	<input type="checkbox"/> Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R**.

*All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.*

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

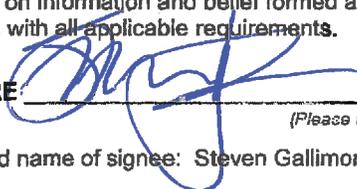
**Certification of Truth, Accuracy, and Completeness**

I, the undersigned  **Responsible Official** /  **Authorized Representative**, hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

**Compliance Certification**

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE: \_\_\_\_\_



(Please use blue ink)

DATE: \_\_\_\_\_

4-15-14

(Please use blue ink)

35B. Printed name of signee: Steven Gallimore

35C. Title: Director of Operations

35D. E-mail:  
steve.gallimore@skanaaluminum.com

35E. Phone: 920-946-7763

35F. FAX:

36A. Printed name of contact person (if different from above): Mary K. Eggett

36B. Title: HR / Office Administrator

36C. E-mail:  
mary.eggett@skanaaluminum.com

36D. Phone: 304-423-5573

36E. FAX: 304-423-5584

**PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Attachment A: Business Certificate               | <input type="checkbox"/> Attachment K: Fugitive Emissions Data Summary Sheet            |
| <input checked="" type="checkbox"/> Attachment B: Map(s)                             | <input checked="" type="checkbox"/> Attachment L: Emissions Unit Data Sheet(s)          |
| <input type="checkbox"/> Attachment C: Installation and Start Up Schedule            | <input type="checkbox"/> Attachment M: Air Pollution Control Device Sheet(s)            |
| <input type="checkbox"/> Attachment D: Regulatory Discussion                         | <input checked="" type="checkbox"/> Attachment N: Supporting Emissions Calculations     |
| <input type="checkbox"/> Attachment E: Plot Plan                                     | <input type="checkbox"/> Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans |
| <input type="checkbox"/> Attachment F: Detailed Process Flow Diagram(s)              | <input checked="" type="checkbox"/> Attachment P: Public Notice                         |
| <input checked="" type="checkbox"/> Attachment G: Process Description                | <input type="checkbox"/> Attachment Q: Business Confidential Claims                     |
| <input type="checkbox"/> Attachment H: Material Safety Data Sheets (MSDS)            | <input type="checkbox"/> Attachment R: Authority Forms                                  |
| <input checked="" type="checkbox"/> Attachment I: Emission Units Table               | <input type="checkbox"/> Attachment S: Title V Permit Revision Information              |
| <input checked="" type="checkbox"/> Attachment J: Emission Points Data Summary Sheet | <input checked="" type="checkbox"/> Application Fee                                     |

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

**FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:**

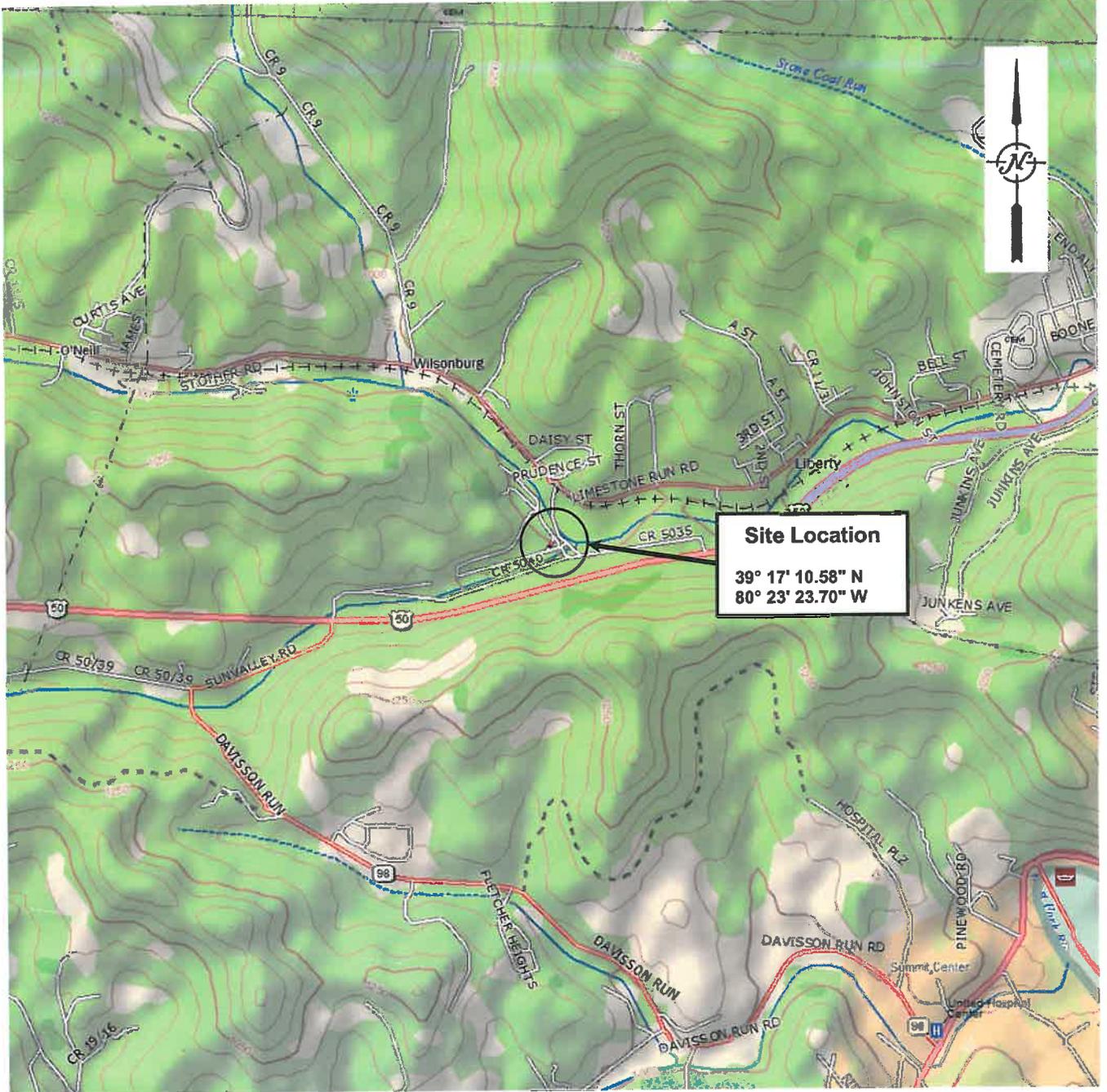
- Forward 1 copy of the application to the Title V Permitting Group and:
- For Title V Administrative Amendments:
  - NSR permit writer should notify Title V permit writer of draft permit,
- For Title V Minor Modifications:
  - Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,
  - NSR permit writer should notify Title V permit writer of draft permit.
- For Title V Significant Modifications processed in parallel with NSR Permit revision:
  - NSR permit writer should notify a Title V permit writer of draft permit,
  - Public notice should reference both 45CSR13 and Title V permits,
  - EPA has 45 day review period of a draft permit.

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone

**ATTACHMENT A**  
**Business Certificate**

**ATTACHMENT B**

**Map(s)**



**Site Location**  
 39° 17' 10.58" N  
 80° 23' 23.70" W

Reference:  
 3-D TopoQuads © DeLorme,  
 Yarmouth, Me 04096  
 Source Data:  
 7.5 Minute USGS  
 Topographic Quadrangles

Wolf Summit, WV  
 Clarksburg, WV

## Vicinity Map

Scale 1" = 2000'

*MSES Consultants, Inc.*  
 Clarksburg, West Virginia

**Skana Aluminum Co.**  
**Wilsonburg, WV**

**Reg 13 Air Permit**

Project No. 15-158

**Attachment B**

**ATTACHMENT G**  
**Process Description**

## **ATTACHMENT G**

### ***PROCESS DESCRIPTION***

The purpose of this Class II Administrative Update is for the installation and operation of an exothermic lean burn gas generator. This natural gas fueled equipment will generate a lean atmosphere for the annealing furnaces.

The Skana Aluminum Company process can best be described with respect to air emissions as follows:

Aluminum coils are unloaded via fork truck in the Receiving Area, and are then transported to the Cold Rolling Mill, where a continuous sheet of aluminum is drawn through a set of rolls which physically reduce the sheet thickness. The mill used at Skana Aluminum is categorized as a 4-HI cold rolling mill. A light hydrocarbon oil (similar to kerosene) is applied to the aluminum sheet as it passes through the roll. The MSDS sheet for this oil was provided in the R13-2880 permit application.

After passing through the Cold Rolling Mill, the aluminum sheet is re-rolled into a coil and is annealed in Annealing Furnaces 1, 2, or 3. Each of these furnaces uses natural gas as fuel for the indirect burners. The actual furnace payload area which contains coils of aluminum is inerted with nitrogen to provide a non-oxidizing environment. The furnaces are heated to a maximum temperature of 600 C. The inerting atmosphere from the furnaces contains a limited VOC content which remains on the coils from the rolling process. The total VOC content per furnace load is estimated to be less than ten (10) pounds per furnace cycle.

**ATTACHMENT I**

**Emission Units Table**



**ATTACHMENT J**

**Emission Points Data Summary  
Sheet**

**Attachment J  
EMISSION POINTS DATA SUMMARY SHEET**

**Table 1: Emissions Data**

Emission Point ID No. (Must match Emission Units Table & Plot Plan)	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point (Must match Emission Units Table & Plot Plan)		Air Pollution Control Device (Must match Emission Units Table & Plot Plan)		Vent Time for Emission Unit (chemical processes only)		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup>  (Speciate VOCs & HAPS)	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase  (At exit conditions, Solid, Liquid or Gas/Vapor)	Est. Method Used <sup>6</sup>	Emission Concentration  (ppmv or mg/m <sup>4</sup> )	
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr				
401E	Upward Vertical Stack	401S	Exo-thermic Lean Gas Generator	NA	NA	NA	NA	CO NOx PM SO2 VOC	5.50 0.174 0.0132 0.0010 0.0096	24.1 0.764 0.059 0.0046 0.042	NA NA	NA	Gas/Vapor  Solid	EE & AP-42		

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

- <sup>1</sup> Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
- <sup>2</sup> Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
- <sup>3</sup> List all regulated air pollutants. Speciate VOCs, including all HAPS. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. DO NOT LIST H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.
- <sup>4</sup> Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).
- <sup>5</sup> Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 VOC/20 minute batch).
- <sup>6</sup> Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify). Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m<sup>3</sup>) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO<sub>2</sub>, use units of ppmv (See 45CSR10).



**ATTACHMENT L**

**Emissions Unit Data Sheet(s)**

**Attachment L**  
**EMISSIONS UNIT DATA SHEET**  
**GENERAL**

To be used for affected sources other than asphalt plants, foundries, incinerators, indirect heat exchangers, and quarries.

Identification Number (as assigned on *Equipment List Form*):

<p>1. Name or type and model of proposed affected source:</p> <p>XH1500-NM-HE Lean Exothermic Gas Generator</p>
<p>2. On a separate sheet(s), furnish a sketch(es) of this affected source. If a modification is to be made to this source, clearly indicated the change(s). Provide a narrative description of all features of the affected source which may affect the production of air pollutants.</p>
<p>3. Name(s) and maximum amount of proposed process material(s) charged per hour:</p> <p>1744 scfh natural gas combusted</p>
<p>4. Name(s) and maximum amount of proposed material(s) produced per hour:</p> <p>15,000 scfh lean exothermic gas</p>
<p>5. Give chemical reactions, if applicable, that will be involved in the generation of air pollutants:</p>

\* The identification number which appears here must correspond to the air pollution control device identification number appearing on the *List Form*.

6. Combustion Data (if applicable):

(a) Type and amount in appropriate units of fuel(s) to be burned:

1,744 scfh natural gas

(b) Chemical analysis of proposed fuel(s), excluding coal, including maximum percent sulfur and ash:

(c) Theoretical combustion air requirement (ACF/unit of fuel):

@

°F and

psia.

(d) Percent excess air:

(e) Type and BTU/hr of burners and all other firing equipment planned to be used:

(f) If coal is proposed as a source of fuel, identify supplier and seams and give sizing of the coal as it will be fired:

(g) Proposed maximum design heat input: 1.744 × 10<sup>6</sup> BTU/hr.

7. Projected operating schedule:

Hours/Day

24

Days/Week

7

Weeks/Year

52

8. Projected amount of pollutants that would be emitted from this affected source if no control devices were used:

@	°F and		psia
a. NO <sub>x</sub>	0.174	lb/hr	grains/ACF
b. SO <sub>2</sub>	0.0010	lb/hr	grains/ACF
c. CO	5.5	lb/hr	grains/ACF
d. PM <sub>10</sub>	0.0033	lb/hr	grains/ACF
e. Hydrocarbons		lb/hr	grains/ACF
f. VOCs	0.0096	lb/hr	grains/ACF
g. Pb		lb/hr	grains/ACF
h. Specify other(s)			
PM Condensable	0.0099	lb/hr	grains/ACF
CO <sub>2</sub>	192	lb/hr	grains/ACF
		lb/hr	grains/ACF
		lb/hr	grains/ACF

NOTE: (1) An Air Pollution Control Device Sheet must be completed for any air pollution device(s) used to control emissions from this affected source.

(2) Complete the Emission Points Data Sheet.

9. Proposed Monitoring, Recordkeeping, Reporting, and Testing

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING

RECORDKEEPING

REPORTING

TESTING

**MONITORING.** PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

## **XH1500 Lean Exothermic Gas Generator**

**GAS ATMOSPHERES** offers to supply a Model XH1500 Lean Exothermic Gas Generator designed and manufactured in accordance with the following specification:

The Gas Atmospheres Model Model XH1500-NM-HE Gas Generator shall provide 15,000 SCFH of lean exothermic gas at the following adjustable analysis:

<b>*Analysis</b>	<b>% by Volume(adjustable)</b>
Carbon-monoxide	0.25 to 5.0%
Hydrogen	0.25 to 5.0%
Oxygen	< 100 ppm
Carbon dioxide	12 to 9%
Nitrogen	Balance
<b>To process:</b>	
Volume	15,000 SCFH
Pressure:	14" W.C.
Temperature:	15°F above entering cooling water temperature Max 85°F inlet water temp.
W/Refrigerant Dryer	40°F Temperature/Dewpoint

### **ASSUMED SITE CONDITIONS:**

Fuel: Natural Gas	5 PSIG min.
Cooling Water In:	Treated Tower Water(Max 85°F)
Electricity:	460/3/60
Area Classification:	Indoor, unclassified
Elevation:	Unknown

\*Analysis based on the use of natural gas for combustion fuel

## **Equipment**

### ***Combustion System***

The combustion system employs a nozzle mix burner mounted on a carbon steel face plate with pilot assembly, ultra violet flame supervision and flame viewing port. The face plate is gasketed and bolted to the combustion chamber. The burner is supplied with a pre-piped air and fuel control package for controlling combustion air and fuel volumes and is complete with safeties and interlocks. The combustion system includes:

- Nozzle mix burner with intermittent pilot (Pyronics).
- Ultra violet flame supervision-self checking (Fireeye).
- Combustion air blower, with inlet filter/silencer and ODP motor (Spencer Turbine).
- Air flow switch – LOW
- High/Low fuel gas pressure switches
- Fuel safety shut off valve and Fuel blocking valve
- Ratio control regulator
- Limiting orifice, flow elements and flow adjusting valves

**Modern**  
Equipment Company

369 W. Western Avenue  
Port Washington, WI 53074-0993

o 262.284.9431  
f 262.284.9433

The combustion system is designed to meet NFPA 86 Standards and to operate at 3 PSIG. A fuel pressure regulator maybe necessary depending upon incoming Natural Gas pressure.

### ***Combustion Chamber***

The combustion chamber is a water cooled, modified two-pass scotch boiler design consisting of a stainless steel firing tube, stainless steel tube sheets and return flue tubes enclosed in a water tight carbon steel shell. Exothermic gas, cooled to approximately 500°F, is discharged from the combustion chamber assembly through an outlet on the burner end of the unit. The fabricated assembly is supplied with the following:

- Water tight carbon steel shell with flanged ends for mounting the burner plate and rear door.
- Type 304 stainless steel firing tube.
- Type 304 stainless steel tube sheets and return flue tubes rolled and TIG seal welded.
- 40 psig design pressure waterside.
- Water cooled rear door of carbon steel construction with thermocouple and peep sight
- Hard refractory surrounding the burner
- Water temperature switch - HIGH
- Water flow switch.

### ***Gas Cooling***

The effluent atmosphere gas from the combustion chamber passes through the tube side of a shell and tube aftercooler. Water condensed in the aftercooler is removed from the gas stream.

- Gas Aftercooler, carbon steel shell with removable bundle, copper tubes, steel tube sheets and baffles; ASME Section VIII designed and stamped for 150 psig
- Gas/Water Separator
  - Carbon steel vessel with Tp 304 S. S. mist eliminator connected to the discharge of the gas cooler
  - Condensate drainer, thermometer, temperature switch, level switch, and pressure gauge
- Atmosphere Overpressure Relief Regulator shipped as a loose item for installation in the product gas piping or installed on Gas/Water Separator depending upon capacity of generator.

### ***Automatic Turndown***

Floating on line turndown with a range of 100% to 30% of design rated capacity is composed of a butterfly valve with a 4-20mA positioner located in the combustion air supply to the burner and a pressure transducer sensitive to the generated gas discharge pressure. As pressure changes at the generator discharge due to a rise or fall of product gas required the output (4-20mA) from the pressure transducer changes to increase or decrease generator capacity and maintain pressure setpoint. When capacity reaches the 30% rate any additional pressure increase in Product Gas pressure will cause the Inert Gas Relief Valve to open venting excess product Inert Gas to atmosphere.

### ***Controls***

Electrical controls for the generator are mounted on the side of the generator in a NEMA 12 dust tight enclosure and include:

- ***Fused interlocking door disconnect switch***
- Control power transformer, 460/3/60 to 120/1/60
- Automatic Start-up control (Fireye)
- Flame supervision(Fireye)

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- Motor starter
- Cover elements including:
  - Pilot Lights: Air Blower Run
  - Purge Complete
  - Flame ON
  - Alarm OFF

Pushbuttons: Emergency Stop

Selector Switch: Alarm ON-OFF  
Alarm Horn  
System On-Off

Note: Generator start-up shall be automatic with the following steps:

1. Isolate the generator from the process use.
2. Start system with selector switch in main control panel and purging with air will start automatically. When purge completes pilot is established, U. V. supervision of pilot flame holds the circuit in. When system recognizes that pilot flame is established main fuel blocking valves will open automatically establishing main flame.
3. *Adjustments of fuel and cooling water flow may be necessary after lite-off.*

#### **ESTIMATED OPERATING INFORMATION**

Utility Requirements		<u>XH-1500</u>
Fuel: (Natural Gas)	SCFH	1744
Power:	KWH	7
Cooling Water	GPM	140
Length		168"
Width		63"
Height		74"
Weight (Dry)		8,800 lbs.

#### **PACKAGE ASSEMBLY**

The package with options shall be assembled, piped, and wired. An *operational test* (within test facility limits) to demonstrate mechanical, volumetric, and analytical performance along with logic and safeties is performed in our test area prior to shipment. You are invited to witness this test work. Testing does not include the refrigerant gas dryer when furnished. Refrigerant dryer is tested separately at point of manufacturer. Prior to shipment, generator package shall be cleaned and finish painted with one coat of blue enamel.

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**ATTACHMENT N**

**Supporting Emissions Calculations**

# SKANA ALUMINUM COMPANY

## ATTACHMENT N - EMISSIONS CALCULATIONS

### Gas Generator Products of Combustion

Exothermic Gas Generator			
Pollutant	AP-42 Emission Factor <sup>1</sup>	Total Emissions	
	(lb/10 <sup>6</sup> ft <sup>3</sup> )	(lb/hr)	(tons/yr)
CO	3153.6	5.50	24.1
CO <sub>2</sub>	110092	192	841
NO <sub>x</sub>	100	0.174	0.764
SO <sub>2</sub>	0.6	0.0010	0.0046
PM-CON	5.7	0.0099	0.044
PM-FIL	1.9	0.0033	0.015
VOC	5.5	0.0096	0.042

CO and CO<sub>2</sub> emission factors derived from information provided by the equipment vendor.  
 Vendor states CO emission limits are 5.5 lb/hr and 24.1 tpy.  
 CO<sub>2</sub> emission limits are 192 lb/hr and 841 tpy.

*Example : 100 lb NO<sub>x</sub>/10<sup>6</sup> ft<sup>3</sup> x 1744 ft<sup>3</sup>/hr = 0.174 lb/hr NO<sub>x</sub>  
 0.174 lb NO<sub>x</sub>/hr x 8,760 hr/yr / 2000 lb/ton = 0.764 tpy NO<sub>x</sub>*

1744000 btu/hr	burner size
1000 btu/cuft	natural gas heating value
1744 cuft/hr	fuel usage
8760 hr/yr	annual operating hours

<sup>1</sup>Reference: USEPA AP-42 Chapter 1, Section 4 Tables 1.4-1 and 1.4-2, dated 7/98

**ATTACHMENT P**

**Public Notice**

## **AIR QUALITY PERMIT NOTICE Notice of Application**

Notice is given that Skana Aluminum Company has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Class II Administrative Update, for a natural gas fueled lean exothermic gas generator located at 345 Wilsonburg Road, in Clarksburg, in Harrison County, West Virginia. The latitude and longitude coordinates are: 39.28625 degrees north, and -80.39020 degrees west.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be: 24.1 tons per year of carbon monoxide, 0.764 tons per year of oxides of nitrogen, 0.132 tons per year of particulate matter, 0.0046 tons per year of sulfur dioxide, 0.042 tons per year of volatile organic compounds.

Startup of operation began on or about the 1<sup>st</sup> day of January, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57<sup>th</sup> Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1227, during normal business hours.

Dated this the 29th day of April, 2016.

By: Steven Gallimore  
Director of Operations  
Skana Aluminum Company  
345 Wilsonburg Road  
Clarksburg, WV 26301

