CONSTRUCTION PERMIT and ENHANCED NEW SOURCE REVIEW
OFFICE OF AIR MANAGEMENT

S & R Enterprises, Incorporated
State Road 15 and Dimension Avenue
Wabash, Indiana 46992

is hereby authorized to construct

(a) Three (3) natural gas-fired oxygen furnaces, rated at 6.0 million British thermal units per hour each, equipped with one (1) existing baghouse exhausting through Stack S1, capacity: 3.5 tons per hour of aluminum dross and salt cake each.

(b) One (1) sizing line consisting of one (1) grizzley feeder, one (1) primary crusher, five (5) conveyors and one (1) primary screen, capacity: 25 tons per hour of aluminum dross and salt cake, each, as well as two (2) hoppers and one (1) secondary crusher, capacity: 25 tons of aluminum dross and salt cake per hour, each, all equipped with one (1) baghouse, exhausting through Stack S4.

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP 169-10043-00035	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

Construction Conditions

General Construction Conditions

1. That the data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).

2. That this permit to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

3. That pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.

4. That pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. That notwithstanding Construction Condition No. 6, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

First Time Operation Permit

6. That this document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:

   (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.

   (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

   (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

   (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-7-19 (Fees).

   (e) The Permittee has submitted their Part 70 (T 169-7107) application on November 7, 1996 for the existing source. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

7. That when the facility is constructed and placed into operation the following operation conditions shall be met:

Operation Conditions

General Operation Conditions

1. That the data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM).

2. That the permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder.

Preventive Maintenance Plan

3. That pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a preventive maintenance plan, including the following information:

   (a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.

   (b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.

   (c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

   The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

Transfer of Permit

4. That pursuant to 326 IAC 2-1-6 (Transfer of Permits):

   (a) In the event that ownership of the three (3) oxygen furnaces and the one (1) aluminum dross and salt cake sizing line is changed, the Permittee shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.

   (b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.

   (c) The OAM shall reserve the right to issue a new permit.

Permit Revocation

5. That pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

   (a) Violation of any conditions of this permit.

(b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.

(c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.

(d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

(e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

Availability of Permit

6. That pursuant to 326 IAC 2-1-3(l), the Permittee shall maintain the applicable permit on the premises of this source and shall make this permit available for inspection by the IDEM, or other public official having jurisdiction.

Performance Testing

7. That pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements) compliance stack tests shall be performed for three (3) oxygen furnaces for PM within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up. These tests shall be performed on the existing baghouse Stack S1 according to 326 IAC 3-6 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Commissioner.

(a) A test protocol shall be submitted to the OAM, Compliance Data Section, 35 days in advance of the test.

(b) The Compliance Data Section shall be notified of the actual test date at least two (2) weeks prior to the date.

(c) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing.

(d) Whenever the results of the stack test performed exceed the level specified in this permit, appropriate corrective actions shall be implemented within thirty (30) days of receipt of the test results. These actions shall be implemented immediately unless notified by OAM that they are acceptable. The Permittee shall minimize emissions while the corrective actions are being implemented.

(e) Whenever the results of the stack test performed exceed the level specified in this permit, a second test to demonstrate compliance shall be performed within 120 days. Failure of the second test to demonstrate compliance may be grounds for immediate revocation of this permit to operate the affected facility.

Malfunction Condition

8. That pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

(a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.

(b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAM, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

(c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

(d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

Annual Emission Reporting

9. That pursuant to 326 IAC 2-6 (Emission Reporting), the Permittee must annually submit an emission statement for the source. This statement must be received by July 1 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. A copy of this rule is enclosed. The annual statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

The annual emission statement covers the twelve (12) consecutive month time period starting January 1 and ending December 31.

Opacity Limitations

10. Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

(c) This condition supersedes Operation Condition No. 5 of CP 169-1887, issued December 21, 1990.

11. Particulate Matter (PM) Limitation

(a) That pursuant to 326 IAC 6-3 (Process Operations), the baghouse shall be in operation at all times when any of the three (3) oxygen furnaces are in operation, and shall not exceed the allowable particulate matter (PM) emission rate of 12.1 pounds per hour. This limitation will also make 326 IAC 2-2 not applicable.

(b) That pursuant to 326 IAC 6-3 (Process Operations), the baghouse shall be in operation at all times when any part of the aluminum dross and salt cake sizing line is in operation, and shall not exceed the allowable particulate matter (PM) emission rate of 5.0 pounds per hour. This limitation will also make 326 IAC 2-2 not applicable.

(c) Any change or modification which may increase potential PM emissions to 100 tons per year or greater from the equipment covered in this permit shall obtain a PSD permit pursuant to 326 IAC 2-2 before such change may occur.

(d) This condition supersedes Operation Condition No. 6 of CP 169-1887, issued December 21, 1990.

Baghouse Operating Condition

12. That the two (2) baghouses exhausting through Stacks S1 and S4 shall be operated at all times when the any of the three (3) oxygen furnaces and any part of the aluminum dross and salt cake sizing line are in operation.

(a) The permittee shall take readings of the total static pressure drop across the baghouses, at least per shift. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 0.5 and 10.0 inches of water. The Preventive Maintenance Plan for these baghouses shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of this range for any one reading.

(b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the pressure drop across the baghouses or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm$ 2 percent of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection shall be performed each calendar quarter of all the baghouses. Defective bags shall be replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

(e) In the event that a bag's failure has been observed:

(i) The affected compartments will be shut down immediately until the failed units have been replaced.

(ii) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.

(f) This condition supersedes Operation Conditions Nos. 8 and 9 of CP 169-1887, issued December 21, 1990.

Visible Emission Notations

13. That visible emission notations of all exhaust to the atmosphere from the two (2) baghouses controlling the PM emissions from the three (3) oxygen furnaces and the aluminum dross and salt cake sizing line shall be performed once per shift. A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, 80 percent of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility's specific condition prescribing visible emissions.

(c) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

Fugitive Dust Emissions

14. That pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), the Permittee shall be in violation of 326 IAC 6-4 (Fugitive Dust Emissions) if any of the criteria specified in 326 IAC 6-4-2(1) through (4) are violated. Observations of visible emissions crossing the property line of the source at or near ground level must be made by a qualified representative of IDEM. [326 IAC 6-4-5(c)].

Open Burning

15. That the permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6.

Emergency Reduction Plans

16. Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

within 180 calendar days from the issuance date of this permit.

(c) If the ERP is disapproved by IDEM, OAM, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, IDEM, OAM, shall supply such a plan.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

(f) Upon direct notification by IDEM, OAM, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate level. [326 IAC 1-5-3]

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
FAX NUMBER - 317 233-5967

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE: IT HAS POTENTIAL TO EMIT 25 LBS/HR PARTICULATES ?_____, 100 LBS/HR VOC ?_____, 100 LBS/HR SULFUR DIOXIDE ?_____ OR 2000 LBS/HR OF ANY OTHER POLLUTANT ?_____ EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION _____.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _____ OR, PERMIT CONDITION # _____ AND/OR PERMIT LIMIT OF _____

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: S & R Enterprises, Incorporated PHONE NO. 219 - 563 - 2409

LOCATION: (CITY AND COUNTY) Wabash / Wabash

PERMIT NO. 169-10043 AFS PLANT ID: 169-00035 AFS POINT ID: _____ INSP: _____

CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON: _____

DATE/TIME MALFUNCTION STARTED: _____/_____/ 19____ _____ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION: _____

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE_____/_____/ 19____ _____ AM/PM

TYPE OF POLLUTANTS EMITTED: TSP, PM-10, SO2, VOC, OTHER: _____

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _____

MEASURES TAKEN TO MINIMIZE EMISSIONS: _____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE ESSENTIAL* SERVICES: _____

CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS: _____

CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT: _____

INTERIM CONTROL MEASURES: (IF APPLICABLE) _____

MALFUNCTION REPORTED BY: _____ TITLE: _____
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _____ DATE: _____ TIME: _____

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. The requirements of this rule (326 IAC 1-6) shall apply to the owner or operator of any facility which has the potential to emit twenty-five (25) pounds per hour of particulates, one hundred (100) pounds per hour of volatile organic compounds or SO2, or two thousand (2,000) pounds per hour of any other pollutant; or to the owner or operator of any facility with emission control equipment which suffers a malfunction that causes emissions in excess of the applicable limitation.

326 IAC 1-2-39 "Malfunction" definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. (Air Pollution Control Board; 326 IAC 1-2-39; filed Mar 10, 1988, 1:20 p.m.: 11 IR 2373)

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

_____

_____

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for New Construction and Operation and Enhanced New Source Review

Source Background and Description

Source Name:	S & R Enterprises, Incorporated
Source Location:	State Road 15 and Dimension Avenue, Wabash, Indiana 46992
County:	Wabash
Construction Permit No.:	CP 169-10043-00035
SIC Code:	3341
Permit Reviewer:	Frank P. Castelli

The Office of Air Management (OAM) has reviewed an application from S & R Enterprises, Incorporated relating to the construction and operation of three (3) oxygen furnaces and one (1) aluminum dross and salt cake sizing line, consisting of the following equipment:

(a) Three (3) natural gas-fired oxygen furnaces, rated at 6.0 million British thermal units per hour each, equipped with one (1) existing baghouse exhausting through Stack S1, capacity: 3.5 tons per hour of aluminum dross and salt cake each.

(b) One (1) sizing line consisting of one (1) grizzley feeder, one (1) primary crusher, five (5) conveyors and one (1) primary screen, capacity: 25 tons per hour of aluminum dross and salt cake, each, as well as two (2) hoppers and one (1) secondary crusher, capacity: 25 tons of aluminum dross and salt cake per hour, each, all equipped with one (1) baghouse, exhausting through Stack S4.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{E}F)
S4	Sizing Line	33.0	4.0	44,000	68

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Information, unless otherwise stated, used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on August 19, 1998, with additional information received on September 3, 1998.

Emissions Calculations

See pages 1 through 8 of 8 of Appendix A (Emissions Calculation Spreadsheets) for detailed calculations.

Total Potential and Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Allowable Emissions (tons/yr)	Potential Emissions (tons/yr)
Particulate Matter (PM)	242	773
Particulate Matter (PM_{10})	242	771
Sulfur Dioxide (SO_2)	0.047	0.047
Volatile Organic Compounds (VOC)	0.418	0.418
Carbon Monoxide (CO)	2.13	2.13
Nitrogen Oxides (NO_x)	0.035	0.035
Single Hazardous Air Pollutant (HAP)	0.00	0.00
Combination of HAPs	0.00	0.00

(a) Allowable PM emissions are determined from the applicability of rule 326 IAC 6-3. See attached spreadsheets for detailed calculations on page 1 of 8 for both the furnaces and the sizing line.

(b) The allowable PM emissions based on the rules cited are less than the potential emissions, therefore, the allowable emissions are used for the permitting determination.

(c) Allowable emissions (as defined in the Indiana Rule) of PM and PM_{10} are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.

County Attainment Status

(a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_X) are precursors for the formation of ozone. Therefore, VOC and NO_X emissions are considered when evaluating the rule applicability relating to the ozone standards. Wabash County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_X emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Fugitive Emissions

Since this type of operation is one of the 28 listed source categories under 326 IAC 2-2 the fugitive PM emissions are counted toward determination of PSD applicability.

Source Status

Existing Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (tons/yr)
PM	55.3
PM_{10}	2.5
SO_2	1.00
VOC	1.00
CO	1.00
NO_x	3.00

(a) This existing source is **not** a major stationary source because even though it is one of the 28 listed source categories, it does not emit 100 tons per year or greater of any regulated pollutants.

(b) These emissions were based on the Technical Support Documents for CP 169-1887 issued December 21, 1990 and CP 169-5377 issued August 12, 1996.

Proposed Modification

PTE from the proposed modification (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Pollutant	PM (tons/yr)	PM_{10} (tons/yr)	SO_2 (tons/yr)	VOC (tons/yr)	CO (tons/yr)	NO_x (tons/yr)
Proposed Modification	74.9	74.9	0.047	0.418	2.13	0.035
PSD Threshold Level	100	100	100	100	100	100

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source has submitted their Part 70 (T-169-7107-00035) application on November 7, 1996. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

This status is based on all the air approvals issued to the source. This status has been verified by the OAM inspector assigned to the source.

Federal Rule Applicability

(a) There are no New Source Performance Standards (326 IAC 12) and 40 CFR Part 60 applicable to these facilities

The aluminum dross and salt cake sizing line is not subject to the requirements of the New Source Performance Standard 326 IAC 12 and 40 CFR 60.670 through 60.676, Subpart OOO since aluminum dross and salt cake are not one of the materials listed in 40 CFR 60.671.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs) 40 CFR 63 applicable to this source.

State Rule Applicability

326 IAC 2-2 (Prevention of Significant Deterioration (PSD))

In order for this modification to an existing minor PSD source to be considered a minor modification, the potential PM emissions after controls from the three (3) oxygen furnaces and one (1) aluminum dross and salt cake sizing line can not exceed one hundred (100) tons per year since this source is one of the 28 listed source categories under 326 IAC 2-2. Therefore, the allowable PM emissions pursuant to 326 IAC 6-3 have been truncated to those requested by the applicant, namely 12.1 pounds per hour for the three (3) oxygen furnaces and 5.0 pounds per hour for the aluminum dross and salt cake sizing line. The limited allowable PM emission rate for the modification is 17.1 pounds per hour (74.9 tons per year).

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because it has the potential to emit more than one hundred (100) tons per year of PM_{10} in Wabash County. Pursuant to this rule, the owner/operator of the source must annually submit an emission statement for the source. The annual statement must be received by July 1 of each year and contain the minimum requirement as specified in 326 IAC 2-6-4. The submittal should cover the period defined in 326 IAC 2-6-2(8) (Emission Statement Operating Year).

326 IAC 5-1 (Visible Emissions Limitations)

Pursuant to 326 IAC 5-1-2 (Visible Emissions Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), visible emissions shall meet the following, unless otherwise stated in this permit:

(a) Visible emissions shall not exceed an average of forty percent (40%) opacity in twenty-four (24) consecutive readings as determined by 326 IAC 5-1-4,

(b) Visible emissions shall not exceed sixty percent (60%) opacity for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) in a six (6) hour period.

326 IAC 6-3-2 (Particulate Emission Limitations)

(a) Pursuant to this rule the particulate matter (PM) emissions from the three (3) oxygen furnaces at a process weight rate of 7,000 pounds per hour each will be limited by the following:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E =rate of emission in pounds per hour and
P =process weight rate in tons per hour

For a total process weight rate of 21,000 pounds per hour (10.5 tons per hour) for the three (3) furnaces combined vented to a common baghouse stack, the PM limit, E, is 19.8 pounds per hour (86.7 tons per year). The controlled total PM emission rate from the three (3) oxygen furnaces is 0.768 tons per year and thus these three (3) furnaces comply with this rule.

(b) Pursuant to this rule the particulate matter (PM) emissions from the aluminum dross and salt cake sizing line will be limited by the following:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E =rate of emission in pounds per hour and
P =process weight rate in tons per hour

For a process weight rate of 50,000 pounds per hour (25 tons per hour), the PM limit, E, is 35.4 pounds per hour (155 tons per year). The controlled total PM emission rate from the sizing line is 0.181 tons per year and thus the sizing line complies with this rule.

(c) The allowable PM emissions pursuant to 326 IAC 6-3 have been truncated to those requested by the applicant, namely 12.1 pounds per hour for the three (3) oxygen furnaces and 5.0 pounds per hour for the aluminum dross and salt cake sizing line. The limited allowable PM emission rate for the modification is 17.1 pounds per hour (74.9 tons per year). These limited allowable PM emission rate will also avoid the applicability of 326 IAC 2-2.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 187 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

None of these listed air toxics will be emitted from this proposed construction.

Conclusion

The construction of this three (3) oxygen furnaces and one (1) aluminum dross and salt cake sizing line will be subject to the conditions of the attached proposed **Construction Permit No. CP 169-10043-00035.**

Indiana Department of Environmental Management
Office of Air Management

Addendum to the
Technical Support Document for New Construction and Operation

Source Name: **S & R Enterprises, Incorporated**
Source Location: **State Road 15 and Dimension Avenue, Wabash, Indiana 46992**
County: **Wabash**
Construction Permit No.: **169-10043-00035**
SIC Code: **3341**
Permit Reviewer: **Frank P. Castelli**

On October 28, 1998, the Office of Air Management (OAM) had a notice published in the Wabash Plain Dealer, Wabash, Indiana, stating that S & R Enterprises, Incorporated, had applied for a construction permit to construct and operate three (3) furnaces and one (1) sizing line with two (2) baghouses for particulate matter control. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On November 9, 1998, Jack C. Hampton, Jr., S & R Enterprises, submitted comments on the proposed Construction Permit. The comments are as follows: The permit language is changed to read as follows (deleted language appears as ~~strikeouts~~, new language is **bolded)**:

Comment 1:

Operation Condition 10, page 5: Please add a condition that reads as follows:

"(c) This condition supersedes Operation Condition 5 of CP 169-1887, issued December 21, 1990."

Reason: The oxygen furnaces completely replace the rotary furnaces that CP 169-1887 covers. Further, that old condition exceeded the authority granted in 326 IAC 5-1.

Response 1:

Operation Condition No. 10 has been revised as follows to update to the current wording of the rule and to follow your suggestion:

Opacity Limitations

10. Pursuant to 326 IAC 5-1-2 (~~Visible Emissions~~ **Opacity** Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), ~~visible emissions~~ opacity shall meet the following, unless otherwise stated in this permit:

    (a) ~~Visible emissions~~ **Opacity** shall not exceed an average of forty percent (40%) ~~opacity~~ in ~~twenty-four (24) consecutive readings~~, any one (1) six (6) minute averaging period as ~~determined~~ in 326 IAC 5-1-4.

(b) ~~Visible emissions~~ **Opacity** shall not exceed sixty percent (60%) ~~opacity~~ for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) **as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor** in a six (6) hour period.

(c) This condition supersedes Operation Condition No. 5 of CP 169-1887, issued December 21, 1990.

Comment 2:

Operation Condition 11, pages 5 and 6: Please add a condition that reads as follows:

"(d) This condition supersedes Operation Condition 6 of CP 169-1887, issued December 21, 1990."

Reason: The oxygen furnaces completely replace the rotary furnaces that CP 169-1887 covers. Further, the process weight rate of the new furnaces is higher, obsolescing the existing condition.

Response 2:

Operation Condition No. 11 has been revised as follows:

11. Particulate Matter (PM) Limitation

(a) That pursuant to 326 IAC 6-3 (Process Operations), the baghouse shall be in operation at all times when any of the three (3) oxygen furnaces are in operation, and shall not exceed the allowable particulate matter (PM) emission rate of 12.1 pounds per hour. This limitation will also make 326 IAC 2-2 not applicable.

(b) That pursuant to 326 IAC 6-3 (Process Operations), the baghouse shall be in operation at all times when any part of the aluminum dross and salt cake sizing line is in operation, and shall not exceed the allowable particulate matter (PM) emission rate of 5.0 pounds per hour. This limitation will also make 326 IAC 2-2 not applicable.

(c) Any change or modification which may increase potential PM emissions to 100 tons per year or greater from the equipment covered in this permit shall obtain a PSD permit pursuant to 326 IAC 2-2 before such change may occur.

(d) This condition supersedes Operation Condition No. 6 of CP 169-1887, issued December 21, 1990.

Comment 3:

Operation Condition 12(d), page 6: Please delete this condition in its entirety.

Reason: Condition 12(a), 12(b), and 12(c) assure continuous compliance with Condition 11(a) and 11(b). If the parameters of compliance are within limits, there is no reason to suspect that the bags would be defective. If there is no reason to suspect defective filter media, any requirement that the bags be inspected imposes a needless and expensive requirement that serves no environmental purpose. In order to inspect the baghouses associated with either process, it will be necessary to shut down the process. In the case of the oxygen furnaces, a shutdown risks damage to the refractory material in the furnaces. In the case of the sizing line, idling the sizing line to inspect bags necessarily idles the furnaces as well. In either case, the company will suffer considerable financial hardship. To impose this hardship without doing anything to further assure compliance with conditions 11(a) and 11(b) is onerous and burdensome.

Response 3:

Operation Condition No. 12 part (d) which is as follows cannot be deleted as requested because a quarterly inspection may detect problems that would not be apparent in the parametric monitoring. Quarterly inspections are not onerous and may eliminate excessive PM emissions.

(d) An inspection shall be performed each calendar quarter of all the baghouses. Defective bags shall be replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

Comment 4:

Operation Condition 12, page 6: Please add a condition that states as follows:

"(e) This condition supersedes Operation Conditions 8 and 9 of CP 169-1887 issued December 21, 1990."

Reason: The oxygen furnaces completely replace the rotary furnaces that CP 169-1887 covers. Further, the temperature of the flue gases entering the baghouse has absolutely nothing to do with the mass emission rate of this equipment. To allow continued existence of this useless condition is to continue imposing a needless burden on the company.

Response 4:

Operation Condition No. 12 has been revised as follows:

Baghouse Operating Condition

12. That the two (2) baghouses exhausting through Stacks S1 and S4 shall be operated at all times when the any of the three (3) oxygen furnaces and any part of the aluminum dross and salt cake sizing line are in operation.

(a) The Permittee shall take readings of the total static pressure drop across the baghouses, at least per shift. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 0.5 and 10.0 inches of water. The Preventive Maintenance Plan for these baghouses shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of this range for any one reading.

(b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the pressure drop across the baghouses or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm$ 2 percent of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection shall be performed each calendar quarter of all the baghouses. Defective bags shall be replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

(e) In the event that a bag's failure has been observed:

(i) The affected compartments will be shut down immediately until the failed units have been replaced.

(ii) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.

(f) This condition supersedes Operation Conditions Nos. 8 and 9 of CP 169-1887, issued December 21, 1990.

Comment 5:

Operation Condition No. 13: Please delete this condition in its entirety.

Reason: Operation Conditions 12(a), 12(b), 12(c), and 12 (e) assure continuous compliance with Operation Conditions 11(a) and 11(b). This condition is redundant and unnecessary. To impose a redundant and unnecessary condition imposes an onerous and burdensome condition on the company without adding any environmental benefit.

Response 5:

Visible emissions notations are required so that the source will be alerted to the possibility that compliance with the opacity limits specified in Operation Condition No. 10 may be in jeopardy.

On November 16, 1998, Paul McKnight through Larry C. Thrush, Attorney at Law, submitted comments on the proposed Construction Permit. The comments are as follows:

Comment 6:

As this letter is being written, a blue-ish, gray stream of pollution is hanging over what once was a beautiful country lane. Yesterday, when I walked to the goldfish pond, I tasted familiar metallic pollutants, and once again found the goldfish pond covered with dust. The day before, Saturday, November 14, 1998, there was huge release of pollution that came out the north side of the building, that virtually covered all but the corners of the plant and then was caught by the wind and driven over my house and my neighbors. The acidity in the air from the plant has eaten the fixtures on my house. And so it has gone for some eight years. I have complained to your office about air pollution, I have complained to the city council about air pollution, and I have complained to S & R Enterprises about air pollution.

How is it possible to even consider additional permits to a company who is so obviously a blight on the air in this community? How is it possible to even consider expanding an operation that is still leaving material out in the rain, that they know they are required to keep covered, allowing that material to breathe out it's toxins? The stories that have been told about the material that is incinerated after sundown are plentiful. Is this not like a mugger, after having beat you up, then ask politely for a personal check? What makes them so sure of the state's approval of the expansion, that it is already under way??

Every time a new expansion is in the works we start hearing about all the advantages to the community, and they conveniently leave out the downside. I oppose any permits given to S & R Enterprises until they have proven for a year that they have changed their polluting ways. If they have actually changed their ways they would offer a public apology to those they have abused. The people that would have had a cookout in their back yard, but were driven back inside by either the noise or air pollution. The elderly neighbors who also were forced back inside, the children that were playing basketball at the F.O.P. Lodge and finding it hard to breathe because of S & R's pollution. The people's houses who are filled with dust from their plant and on and on.

Not only would they apologize, they would compensate, if they truly have changed their ways. In every other past issue of this nature, whether it be a permit that they need or a tax abatement or there is heat of some kind, they tidy up a bit and wait, then go back to being the exploiters that they really are. What would make this expansion any different? After the fact, and these or new problems arise, how will they be dealt with? Will we again be told to call S & R Enterprise and try to work with them, because of limited staff with the O.A.M. Why not avoid all of that? Tell them NO WAY!!

This letter is only to address the air issues, however, as I have told you, they also have some real problems in the area of noise pollution. Ground water pollution is going to be an issue also. I can't help but wonder if the people that were supposed to protect us in any one of these three areas, would have done their job, would the other two still be a problem?

S & R Enterprises can work all the algebraic line equations they want, you can file all the forms and permits and paperwork that is required, and the bottom line will be, that if they are given permit to expand, a company that has done nothing but pollute (air, noise, water) since they started, will be given permission and license to just continue on full speed with the state's blessing and at the states residents and taxpayer's expense. Again, I respectfully ask you tell them, NO WAY!

I wish to receive notice of any future proceedings pertaining to this matter.

Response 6:

Thank you for your interest in the permitting process for the S & R Enterprises modification.

The proposed modification to the existing source is for the addition of three (3) oxygen furnaces to replace the existing three (3) rotary furnaces. All emissions from the new furnaces must comply with the conditions of the proposed Construction Permit.

Particulate matter, sulfur dioxide, ozone, and nitrogen oxides are regulated by the National Ambient Air Quality Standards (NAAQS). PM_{10} is defined as particulate matter with size diameters less than or equal to 10 microns (PM_{10}). Volatile organic compounds (VOC) and oxides of nitrogen are precursors for the formation of ozone. Therefore, VOC and NO_X emissions are considered when evaluating the rule applicability relating to the ozone standards. Wabash County is in attainment with the PM_{10} as well as the ozone, nitrogen oxides and sulfur dioxide NAAQS, which are health-based standards. A margin of safety is incorporated into the NAAQS levels. The PM, PM_{10} and VOC emissions are less than the PSD significant levels and at these levels have been deemed satisfactory by the U.S. EPA.

S & R Enterprises must comply with all of the Construction Permit conditions, and specifically, Condition Nos. 8 and 10 through 15 which address your concerns on the control of fugitive and non-fugitive particulate matter and its transport. These conditions set limits on plume opacity, the amount of particulate matter emitted per hour, require that a record of all malfunctions of air pollution control equipment be made, mandate that the particulate matter pollution control devices (baghouses) must be operated at all times, require that observations of the visible exhausts from the baghouses be made at least once per shift and state that fugitive particulate emissions shall not be in violation of 326 IAC 6-4 that governs the observations of the visible emissions crossing their property lines. These conditions are reiterated from the permit as follows:

Malfunction Condition

8. That pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

(a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.

(b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAM, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

(c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

(d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

Opacity Limitations

10. Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

(c) This condition supersedes Operation Condition No. 5 of CP 169-1887, issued December 21, 1990.

11. Particulate Matter (PM) Limitation

(a) That pursuant to 326 IAC 6-3 (Process Operations), the baghouse shall be in operation at all times when any of the three (3) oxygen furnaces are in operation, and shall not exceed the allowable particulate matter (PM) emission rate of 12.1 pounds per hour. This limitation will also make 326 IAC 2-2 not applicable.

(b) That pursuant to 326 IAC 6-3 (Process Operations), the baghouse shall be in operation at all times when any part of the aluminum dross and salt cake sizing line is in operation, and shall not exceed the allowable particulate matter (PM) emission rate of 5.0 pounds per hour. This limitation will also make 326 IAC 2-2 not applicable.

(c) Any change or modification which may increase potential PM emissions to 100 tons per year or greater from the equipment covered in this permit shall obtain a PSD permit pursuant to 326 IAC 2-2 before such change may occur.

(d) This condition supersedes Operation Condition No. 6 of CP 169-1887, issued December 21, 1990.

Baghouse Operating Condition

12. That the two (2) baghouses exhausting through Stacks S1 and S4 shall be operated at all times when the any of the three (3) oxygen furnaces and any part of the aluminum dross and salt cake sizing line are in operation.

(a) The permittee shall take readings of the total static pressure drop across the baghouses, at least per shift. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range of 0.5 and 10.0 inches of water. The Preventive Maintenance Plan for these baghouses shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of this range for any one reading.

(b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the pressure drop across the baghouses or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within $\pm$ 2 percent of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection shall be performed each calendar quarter of all the baghouses. Defective bags shall be replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

(e) In the event that a bag's failure has been observed:

(i) The affected compartments will be shut down immediately until the failed units have been replaced.

(ii) Based upon the findings of the inspection, any additional corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.

(f) This condition supersedes Operation Conditions No. 8 and 9 of CP 169-1887, issued December 21, 1990.

Visible Emission Notations

13. That visible emission notations of all exhaust to the atmosphere from the two (2) baghouses controlling the PM emissions from the three (3) oxygen furnaces and the aluminum dross and salt cake sizing line shall be performed once per shift. A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, 80 percent of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility's specific condition prescribing visible emissions.

(c) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this facility shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

Fugitive Dust Emissions

14. That pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), the Permittee shall be in violation of 326 IAC 6-4 (Fugitive Dust Emissions) if any of the criteria specified in 326 IAC 6-4-2(1) through (4) are violated. Observations of visible emissions crossing the property line of the source at or near ground level must be made by a qualified representative of IDEM. [326 IAC 6-4-5(c)].

Open Burning

15. That the permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6.

Furthermore, the source is required to show compliance with Condition No. 11 by conducting stack tests as specified in Condition No. 7 which has been abstracted from the permit as follows:

Performance Testing

7. That pursuant to 326 IAC 2-1-3 (Construction and Operating Permit Requirements) compliance stack tests shall be performed for three (3) oxygen furnaces for PM within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up. These tests shall be performed on the existing baghouse Stack S1 according to 326 IAC 3-6 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Commissioner.

(a) A test protocol shall be submitted to the OAM, Compliance Data Section, 35 days in advance of the test.

(b) The Compliance Data Section shall be notified of the actual test date at least two (2) weeks prior to the date.

(c) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing.

(d) Whenever the results of the stack test performed exceed the level specified in this permit, appropriate corrective actions shall be implemented within thirty (30) days of receipt of the test results. These actions shall be implemented immediately unless notified by OAM that they are acceptable. The Permittee shall minimize emissions while the corrective actions are being implemented.

(e) Whenever the results of the stack test performed exceed the level specified in this permit, a second test to demonstrate compliance shall be performed within 120 days. Failure of the second test to demonstrate compliance may be grounds for immediate revocation of this permit to operate the affected facility.

The facilities covered by this Construction Permit cannot be operated until the issuance of this permit. An Interim Permit for this modification (I 169-10043) was issued on September 14, 1998 pursuant to 326 IAC 2-1-3.1. This interim permit allowed S & R Enterprises, Incorporated to begin construction on the proposed modification to its existing permitted source.

OAM will send to you at your attorney's address

Larry C. Thrush
One North Wabash
Wabash, Indiana 46992

all notices of any future proceedings pertaining to CP 169-10043-00035 for this modification of the S & R Enterprises, Incorporated source.

Be assured that OAM will enforce these conditions by conducting inspections. Should any concerns be raised from the operation of this source, please feel free to contact OAM inspector for Wabash County at 317 - 233 - 5674. A copy of your letter will be forwarded to the inspector.

Appendix A: Emission Calculations
Secondary Aluminum Smelting

Company Name: S & R Enterprises, Incorporated
Address City IN Zip: State Road 15 and Dimension Avenue, Wabash IN 46992
CP: 169-10043
Plt ID: 169-00035
Reviewer: Frank P. Castelli

Process Emissions
Three Oxygen Furnaces

Process	Metal Charged tons/hr	PM Control
3-Oxy Furnaces #1, #2 and #3	10.5	99.9%

SCC# 3-04-001-01

	PM*	PM10*
Emission Factors lbs/ton charged	16.7	16.7
Potential Emissions lbs/hr	175.4	175.4
Potential Emissions tons/yr	768.0	768.0
Potential Emissions after controls tons/yr	0.768	0.768

*** PM emission factors from stack test on identical furnaces (Scepter Industries)**

Allowable Rate of Emissions					
Process Rate	Process	Allowable	Allowable		
	Weight Rate	Emissions	Emissions		
(lbs/hr)	(tons/hr)	(lbs/hr)	(tons/yr)		
Furnaces					
21000	10.50	19.8	86.8		
Sizing Line					
50000	25.00	35.4	155.2		
Total PM Allowables		**55.2**	**242.0**	**> 100 TPY**	
Methodology					
Allowable Emissions = 4.10(Process Weight		Rate)^0.67			

Natural Gas Combustion From the Three (3) Oxy Furnaces Rated at 6.0 MMBtu/hr, each

Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr	PM Control
18.0	157.7	99.9%

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
Emission Factor (lbs/MMCF)	12.0	12.0	0.6	0.44	5.3	27.0
Potential Emission (tpy)	0.946	0.946	0.047	0.035	0.418	2.129
Controlled Potential Emission (tpy)	0.001	0.001	0.047	0.035	0.418	2.129

Methodology

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: uncontrolled = 100, Low NOx Burner = 17, Flue gas recirculation = 36 Vendor verified low NOx, oxygen-fired burner = 0.44

Emission Factors for CO: uncontrolled = 21, Low NOx Burner = 27, Flue gas recirculation = ND

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-03-006-03

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Appendix A : Emission Calculations (Stone)

Company Name:	**S & R Enterprises, Incorporated**
Plant Location:	**Wabash, Indiana**
County:	**Wabash**
Date Received:	**August 19, 1998**
CP:	**169-10043**
Plt ID:	**169-00035**
Permit Reviewer:	**Frank P. Castelli**

Sizing Line

* * PM emissions before controls * *

Storage					** see page 2 **					0.00	tons/yr	AP-42 Ch.11.2.3
Transporting					** see page 3 **					0.00	tons/yr	AP-42 Ch.11.2.1
Loading & Unloading			25	ton/hr x	0.0016	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.18	tons/yr	AP-42 Ch.11.2.3
Crushing (primary)	1	no. of units x	25	ton/hr x	0.0007	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	AP-42 Ch.11.19.2
Crushing (secondary)	1	no. of units x	25	ton/hr x	0.0007	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.08	tons/yr	AP-42 Ch.11.19.2
Crushing (tertiary)	0	no. of units x	0	ton/hr x	0.00504	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.00	tons/yr	AP-42 Ch.11.19.2
Screening	1	no .of units x	25	ton/hr x	0.0315	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	3.45	tons/yr	AP-42 Ch.11.19.2
Conveyor Transfer			25	ton/hr x	0.00294	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.32	tons/yr	AP-42 Ch.11.19.2
Total PM emissions before controls:										4.10	tons/yr	

* * PM emissions after controls * *

Storage	0.00	tons/yr x	10%	emitted after controls =	0.00	tons/yr
Transporting	0.00	tons/yr x	50%	emitted after controls =	0.00	tons/yr
Loading & Unloading	0.18	tons/yr x	100%	emitted after controls =	0.18	tons/yr
Crushing (primary)	0.08	tons/yr x	0.1%	emitted after controls =	0.00	tons/yr
Crushing (secondary)	0.08	tons/yr x	0.1%	emitted after controls =	0.00	tons/yr
Crushing (tertiary)	0.00	tons/yr x	0.1%	emitted after controls =	0.00	tons/yr
Screening	3.45	tons/yr x	0.1%	emitted after controls =	0.00	tons/yr
Conveying	0.32	tons/yr x	0.1%	emitted after controls =	0.00	tons/yr
Total PM emissions after controls:					0.181	tons/yr

* * PM fugitive vs. nonfugitive * *

Storage	0.00	tons/yr x	10%	emitted after controls =	0.00	tons/yr
Transporting	0.00	tons/yr x	50%	emitted after controls =	0.00	tons/yr
Loading / Unloading	0.18	tons/yr x	100%	emitted after controls =	0.18	tons/yr
Total PM fugitive emissions:					0.177	tons/yr
Crushing (primary)	0.08	tons/yr x	0.1%	emitted after controls =	0.0001	tons/yr
Crushing (secondary)	0.08	tons/yr x	0.1%	emitted after controls =	0.0001	tons/yr
Crushing (tertiary)	0.00	tons/yr x	0.1%	emitted after controls =	0.0000	tons/yr
Screening	3.45	tons/yr x	0.1%	emitted after controls =	0.0034	tons/yr
Conveying:	0.32	tons/yr x	0.1%	emitted after controls =	0.0003	tons/yr
Total PM nonfugitive emissions:					0.0039	tons/yr

* * storage * *

Storage PM emissions, which result from wind erosion, are determined by the following calculations:

Ef=	1.7*(s/1.5)*(365-p)/235*(f/15)	
=	1.85	lb/acre/day
where s =	1.6	% silt content of material
p =	125	days of rain greater than or equal to 0.01 inches
f =	15	% of wind greater than or equal to 12 mph

Ep (storage) = n)/(43560 sqft/acre)/(25 ft)*(365 day/yr)

	0.00	tons/yr
where sc =	0	,000 tons storage capacity

* * unpaved roads * *

The following calculations determine the amount of PM-10 emissions created by unpaved roads, based on 8760 hours of use and AP-42, Ch 11.2.1.

0 trip/hr x			
0 mile/trip x			
2 (round trip) x			
8760 hr/yr =	0	miles per year	
Ef =	k*5.9*(s/12)*(S/30)*(W/3)^0.7*(w/4)^0.5*((365-p)/365)		
=	5.19	lb/mile	
where k =	0.8	(particle size multiplier)	
s =	4.8	% silt content of unpaved roads	
p =	125	days of rain greater than or equal to 0.01 inches	
S =	10	miles/hr vehicle speed	
W =	38	tons average vehicle weight	
w =	18	wheels	

5.19 lb/mi x miles per year mi/yr = 0 tons/yr
2000 lb/ton

* * aggregate handling * *

The following calculations determine the amount of PM-10 emissions created by truck loading and unloading of aggregate, based on 8760 hours of use and AP-42, Ch 11.2.3.

Ef =	k*(0.0032)* (U/5)^1.3/(M/2)^1.4	
=	0.0016	lb/ton
where k =	0.74	(particle size multiplier)
U =	10	mile/hr mean wind speed
M =	5	% material moisture content

PM-10 emissions before control

Storage					** see page 2 **					0.00	tons/yr	AP-42 Ch.11.2.3
Transporting					** see page 3 **					0.00	tons/yr	AP-42 Ch.11.2.1
Loading & Unloading			25	ton/hr x	0.0016	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.18	tons/yr	AP-42 Ch.11.2.3
Crushing (primary)	1	no. of units x	25	ton/hr x	0.00033	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.04	tons/yr	AP-42 Ch.11.19.2
Crushing (secondary)	1	no. of units x	25	ton/hr x	0.00033	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.04	tons/yr	AP-42 Ch.11.19.2
Crushing (tertiary)	0	no. of units x	0	ton/hr x	0.0024	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.00	tons/yr	AP-42 Ch.11.19.2
Screening	1	no .of units x	25	ton/hr x	0.015	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	1.64	tons/yr	AP-42 Ch.11.19.2
Conveyor Transfer			25	ton/hr x	0.0014	lb/ton	/ 2000 lb/ton x	8760	hr/yr =	0.15	tons/yr	AP-42 Ch.11.19.2
Total PM-10 emissions before controls:										2.05	tons/yr	

* * PM-10 emissions after controls * *

Storage	0.00	tons/yr x	10%	emitted after controls =	0.00	tons/yr
Transporting	0.00	tons/yr x	50%	emitted after controls =	0.00	tons/yr
Loading & Unloading	0.18	tons/yr x	100%	emitted after controls =	0.177	tons/yr
Crushing (primary)	0.04	tons/yr x	0.1%	emitted after controls =	0.00	tons/yr
Crushing (secondary)	0.04	tons/yr x	0.1%	emitted after controls =	0.00	tons/yr
Crushing (tertiary)	0.00	tons/yr x	0.1%	emitted after controls =	0.00	tons/yr
Screening	1.64	tons/yr x	0.1%	emitted after controls =	0.00	tons/yr
Conveying	0.15	tons/yr x	0.1%	emitted after controls =	0.00	tons/yr
Total PM-10 emissions after controls:					0.179	tons/yr

* * PM-10 fugitive vs. nonfugitive * *

Storage	0.00	tons/yr x	10%	emitted after controls =	0.00	tons/yr
Transporting	0.00	tons/yr x	50%	emitted after controls =	0.00	tons/yr
Loading / Unloading	0.18	tons/yr x	100%	emitted after controls =	0.177	tons/yr
Total PM-10 fugitive emissions:					0.177	tons/yr
Crushing (primary)	0.04	tons/yr x	0.1%	emitted after controls =	0.0000	tons/yr
Crushing (secondary)	0.04	tons/yr x	0.1%	emitted after controls =	0.0000	tons/yr
Crushing (tertiary)	0.00	tons/yr x	0.1%	emitted after controls =	0.0000	tons/yr
Screening	1.64	tons/yr x	0.1%	emitted after controls =	0.0016	tons/yr
Conveying:	0.15	tons/yr x	0.1%	emitted after controls =	0.0002	tons/yr
Total PM-10 nonfugitive emissions:					0.002	tons/yr

* * storage * *

Storage PM-10 emissions, which result from wind erosion, are determined by the following calculations:

Ef =	1.7*(s/1.5)*(365-p)/235*(f/15)	
=	0.00	lb/acre/day
where s =	1.6	% silt content of material
p =	125	days of rain greater than or equal to 0.01 inches
f =	0.00	% of wind greater than or equal to 12 mph
Ep(storage) =	Ef*sc*(40 cuft/ton)/(2000 lb/ton)/(43560 sqft/acre)/(25 ft)*(365 day/yr)	
=	0.00	tons/yr
where sc =	0	,000 tons storage capacity

S & R Enterprises, Incorporated
Wabash, Indiana

* * unpaved roads * *

The following calculations determine the amount of PM-10 emissions created by unpaved roads, based on 8760 hours of use and AP-42, Ch 11.2.1.

0 trip/hr x					
0 mile/trip x					
2(round trip) x					
8760 hr/yr =	0	miles per year			
Ef =	k*5.9*(s/12)*(S/30)*(W/3)^0.7*(w/4)^0.5*((365-p)/365)				
=	5.19	lb/mile			
where k =	0.8	(particle size multiplier)			
s =	4.8	% silt content of unpaved roads			
p =	125	days of rain greater than or equal to 0.01 inches			
S =	10	miles/hr vehicle speed			
W =	38	tons average vehicle weight			
w =	18	wheels			
0.00	lb/mi x	miles per year mi/yr =	0.00		tons/yr
	2000	lb/ton			

* * aggregate handling * *

The following calculations determine the amount of PM-10 emissions created by truck loading and unloading of aggregate, based on 8760 hours of use and AP-42, Ch 11.2.3.

Ef =	k*(0.0032)* (U/5)^1.3/(M/2)^1.4	
=	0.0016	lb/ton
where k =	0.74	(particle size multiplier)
U =	10	mile/hr mean wind speed
M =	5	% material moisture content