

TECHNICAL SUPPORT DOCUMENT (TSD)

I. GENERAL COMMENTS:

A. Company Information

1. Tucson Iron & Metal
2. Source Address 4484 East Tennessee Street, Tucson, Arizona 85701
Mailing Address P.O. Box 28898, Tucson, Arizona 85726

B. Background

Tucson Iron and Metal (TIM), historically known as AMCEP, AMCEP Inc., Bob's Airpark, Airmet Corporation and Kolar Inc., have been permitted since May 1973.

TIM operates an Aluminum Sweat Furnace as part of its metal recycling operations as well as a contraband incinerator at the above referenced source address.

On September 9, 2014, TIM submitted an application to renew the permit. At that time PDEQ determined that the application was administratively complete. However, PDEQ became aware of an EPA compliance determination made for a similar contraband incinerator unit finding the unit subject to NSPS standards for other solid waste incineration (OSWI) units, Subparts EEEE or FFFF depending on date of commencement or reconstruction. On April 22, 2015, PDEQ requested an updated permit application from TIM to reflect the finding of NSPS for "Other Solid Waste Incinerator" applicability to the permitted contraband incinerator.

An updated Title V (Part 70) Air Quality Permit application was submitted on August 24, 2015. TIM proposed to upgrade and supplement the unit with a Trona® sodium carbonate sorbent injection system for the control of specific air acid gas contaminants, namely sulfur dioxide (SO₂), and hydrogen chloride (HCL) in order to meet the NSPS Subpart EEEE emission limitations. The sodium carbonate injection system is an alternative control system that requires a petition with proposed operating parameter limits (OPL's) for approval by the EPA. TIM submitted the petition on September 10, 2015, and the EPA approved the site specific alternative control system on September 27, 2016 along with the OPL's, contingent upon performance testing to demonstrate compliance with the NSPS, Subpart EEEE standards.

As an area source of HAPs, the facility is also subject to National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production (Part 63 Subpart RRR) and Title 17 of the Pima County Code.

C. Attainment Classification

TIM is located in a region that is designated as attainment for all criteria pollutants.

II. SOURCE DESCRIPTION

A. Process Description

TIM is a metal recycling facility. The significant process activities which generate air emissions include the operation of a secondary aluminum sweater and a contraband incinerator.

The secondary aluminum sweat furnace is used exclusively to reclaim aluminum scrap, while the incinerator is used to destroy material limited to: marijuana, cocaine, heroin, methamphetamine, pharmaceuticals, wood, paper, burlap/fabric and associated wrapping.

For the purposes of the permit, "pharmaceutical" means any chemical product, vaccine or allergenic (including any product with the primary purpose to dispense or deliver a chemical product, vaccine or allergenic), not containing a radioactive component, that is intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease or injury in man or other animals; or any chemical product, vaccine or allergenic (including any product with the primary purpose to dispense or deliver a chemical product, vaccine or allergenic), not containing a radioactive component, that is intended to affect the structure or function of the body in man or other animals. This definition includes products such as transdermal patches, and oral delivery devices such as gums or lozenges. This definition does not include sharps or other infectious or biohazardous waste, dental amalgams, medical devices not used for delivery or dispensing purposes, equipment, contaminated personal protective equipment or contaminated cleaning materials.

[Definition of pharmaceuticals comes from EPA's Proposed Universal Waste Rule (Federal Register: December 2, 2008 (Volume 73, Number 232)), Proposed 40 CFR 273.9].

B. Air Pollution Control Equipment

The contraband incinerator utilizes an integrated and approved set of (OPLs) including O&M procedures as a means to control the pollution levels below the standards established by NSPS, Subpart EEEE. The OPL's established by performance testing include the contraband feed rates, the monitored CO and O₂ gas concentrations, the afterburner temperature, the sodium carbonate dry sorbent flue gas injection rate, and the pressure drop across the baghouses.

All the emissions from the secondary aluminum sweater are controlled by maintaining and operating the unit according to the manufacturer's recommendations and established National Emission Standards for Hazardous Air Pollutants (NESHAP) permit conditions which provide for the maintenance of a minimum residence time and afterburner temperature to control emissions.

C. Operating Capacity and Schedule

The operating schedule for the contraband incinerator is limited to operation between the hours of sunrise to sunset in accordance with PCC 17.16.170 and SIP Rule 313, otherwise there are no limits on the facilities hours of operation.

III. REGULATORY HISTORY

A. Testing & Inspections

The facility has been permitted since May 8, 1973 and has undergone regular compliance inspections. Enforcement actions since the air quality permit was previously issued are identified below:

- April 25, 2017 (NOV 1704-087)

A Notice of Violation was issued to TIM for failing to demonstrate compliance with the performance testing requirements in NSPS, Subpart EEEE within 180 days following the approval issued from the US EPA for the proposed alternate dry sorbent flue gas injection system which was conditional upon successful completion of the performance testing. TIM conducted performance testing on February 7th and 9th within the 180 days period but failed to demonstrate compliance with the SO₂ limit using the proposed sorbent and injection rate. TIM in consultation with the Control Officer modified the proposed sorbent feed system and injection rate, and conducted subsequent performance tests demonstrating compliance with the NSPS Subpart EEEE standards on June 5th and 6th. TIM is in the process of completing a compliance schedule to finalize the reconfiguration of the sorbent feed hopper with a larger capacity day tank, submitting documentation establishing the operating parameter limits (OPL's), and developing an operation and maintenance plan incorporating the monitoring and recordkeeping procedures for approval prior to issuance of the Title V (Part

70) permit.

- October 14, 2016 (NOV 1610-065)

A Notice of Violation was issued to TIM for failing to inspect the Al Sweater furnace afterburner after 2011 in accordance with requirements in NESHAP, Subpart RRR for Secondary Aluminum Production and for failure to file a semiannual report by the permit required due date. TIM responded to the violation and the case was closed and a letter of compliance was issued on November 29, 2016.

- May 25, 2012 (NOV 1201-105)

A Notice of Violation was issued to Tucson Iron and Metal (TIM) for introducing used fuel absorbents as combustion materials into the incinerator which were determined to be a material not allowed to be combusted in the unit. TIM upon learning of the violation took timely remedial action to achieve compliance and on September 4, 2012 the case was closed and a letter of compliance was issued. The permit was reopened and the language revised to clarify the allowable wastes that can be combusted in the incinerator.

B. Excess Emissions

With the exception of not demonstrating compliance with the NSPS, Subpart EEEE SO₂ concentration limit during performance testing on February 7th and 9th, there has been no Notice of Violations or excess emissions.

IV. EMISSIONS ESTIMATES

The following table summarizes TIM's annual potential to emit air pollutants:

Controlled Facility-Wide Potential Emissions of Pollutants ¹										
Conventional or Criteria Air Pollutants (TPY)									HAPs	
Emission Source	PM _{2.5}	PM ₁₀	PM	NO _x	VOC	CO	SO ₂	Lead	Total	Single
Al Sweater ²	0.16	0.16	0.16	2.14	0.12	1.80	0.01	0.01	0.04	< 0.04
Contraband Incinerator (Normal Operations – 3660 hrs.) ³	1.38	1.38	1.38	7.04	1.24	2.32	0.41	0.01	1.16 HCL +Metals	< 1.13 HCL
Contraband Incinerator (Cold Start and Shutdown – 730 hrs.) ⁴	0.03	0.03	0.03	0.47	0.06	11.57	0.03	Negligible	0.22	< 0.22
Facility-Wide PTE	1.57	1.57	1.57	9.65	1.42	15.69	0.48	0.02	1.42	1.39

¹ Based on hourly Emission Factors presented in Title V application dated 8/25/2015, normalized to a maximum of 12 hours/day (SIP Limitation) for contraband incinerator operation.

² Based on – 8760 hours/year maximum operation using AP-42 factors for Small Nat Gas Boilers Table 1.4-1 through 4 and 5 MM Btu capacity

³ Based on – 3660 hours/year (12 hours/day minus cold start and shutdown periods), /w NSPS limits as applicable and 6776 dscf/min@7% O₂

⁴ Based on max burn hours (4380) /6 or 2 hour per day – 730 hours/year, /w AP-42 factors for wood waste plus natural gas fuel.

Based on the above PTE estimates, TIM is a true minor source for all pollutants.

V. APPLICABLE REQUIREMENTS

40 CFR, Part 60 Standards of Performance for New Stationary Sources

Subpart A	General Provisions
Subpart EEEE	NSPS for Other Solid Waste Incineration (OSWI) Units for which construction is commenced after December 9, 2004, or for Which Modification or Reconstruction is Commenced on or After June 16, 2006
Appendix A	Test Methods

40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants for Source Categories

Subpart A	General Provisions
Subpart RRR	NESHAP for Secondary Aluminum Production

Pima County Code Title 17, Chapter 17.11 – General Provisions

Article I – Scope and Authority

17.11.010	Statutory authority
17.11.020	Planning, constructing, or operating without a permit (SIP Rule 301)

Article II – General Provisions for Stationary Source Permits

17.11.060	Permit display or posting
17.11.120	Material permit condition
17.11.160	Test methods and procedures
17.11.210	Performance tests

Pima County Code Title 17, Chapter 17.12 – Individual Permits and Permit Revisions for Class I Permits

Article I – Application Processing and Procedures

17.12.010	Permit application processing procedures for Class I permits
17.12.040	Permit contents for Class I permits

Article II – Permit Revisions, Renewal and Transfers for Class I Permits

17.12.090	Facility Changes allowed without permit revisions Class I
17.12.100	Administrative permit amendments
17.12.110	Minor permit revisions
17.12.120	Significant permit revision
17.12.130	Permit reopenings – Revocation and reissuance – Termination

Article III – Emissions for Class I Sources

17.12.160	Annual emissions inventory questionnaire for Class I permits
17.12.170	Reporting requirements (SIP Rule 622)

Article V – Fees for Class I Permits

17.12.220	Fees related to Class I permits
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**Pima County Code Title 17, Chapter 17.16 – Emission Limiting Standards
(Includes State Implementation Plan, SIP Rules)**

Article I – General Provisions

- 17.16.010 Local rules and standards; Applicability of more than one standard
- 17.16.020 Noncompliance with applicable standards (SIP Rule 302)
- 17.16.030 Odor limiting standards (SIP Rule 344)

Article II – Visible Emission Standards

- 17.16.040 Standards and applicability (includes NESHAP) (SIP Rule 321)
- 17.16.050 Visibility limiting standard (SIP Rule 343)

Article III – Emissions from Existing and New Nonpoint Sources

- 17.16.060 Fugitive dust producing activities (SIP Rule 224)
- 17.16.070 Fugitive dust emissions standards for motor vehicle operation
- 17.16.080 Vacant lots and open spaces (SIP Rule 318)
- 17.16.090 Roads and streets (SIP Rule 315)
- 17.16.100 Particulate materials (SIP Rule 316)
- 17.16.110 Storage piles (SIP Rule 316.D)

Article IV – New and Existing Stationary Source Performance Standards

- 17.16.130 Applicability
- 17.16.170 Incinerators (SIP Rule 313)
- 17.16.430 Standards of performance for unclassified sources
- 17.16.510 Standards of performance for incinerators (SIP Rule 313)

Pima County Code Title 17, Chapter 17.20 – Emissions Source Testing and Monitoring

- 17.20.010 Source sampling, monitoring and testing
- 17.20.040 Concealment of emissions (SIP Rule 722)

Pima County Code Title 17, Chapter 17.24:

- 17.24.020 Recordkeeping for compliance determination (SIP Rule 611)
- 17.24.050 Reporting as a permit requirement (SIP Rule 622)

VII. IMPACTS TO AMBIENT AIR QUALITY

The source is an existing minor source of criteria pollutants and has not triggered the requirement to perform modeling to determine impacts to ambient air quality.

VIII. CONTROL TECHNOLOGY DETERMINATION

No control technologies needed to be determined. This facility is in an area of attainment and is not a new major source.

IX. PREVIOUS PERMIT CONDITIONS

The previous permit conditions for the Al Sweater furnace have remained unchanged and are organized in a separate permit Section. The previous permit conditions for the contraband incinerator now include the applicable provisions of NSPS, Subpart EEEE. As required by the rule, the facility is now required to obtain a Title V (Part 70) – Class I permit.

X. INSIGNIFICANT ACTIVITIES

None identified by TIM.

XII. MISCELLANEOUS COMMENTS:

Sweat furnace Afterburner Operating Conditions:

Residence time means the duration of time required for gases to pass through the combustion zone of the afterburner. This may be determined by dividing the volume (cubic feet) of the combustion zone of the afterburner by the volumetric flow rate of the gas stream in actual cubic feet per second (acfs);

For example, an afterburner with a volume of 300 cubic feet and a flow rate of 200 acfs would have a residence time of:

$$\frac{300 \text{ cubic feet}}{200 \text{ acfs}} = 1.5 \text{ sec}$$