

**R.E. DARLING CO.**

**AIR QUALITY PERMIT 1618**

**TECHNICAL SUPPORT DOCUMENT (TSD)**

**I. GENERAL COMMENTS:**

**A. Company Information**

1. Source Name: R.E. Darling Co.
2. Source Address: 3749 North Romero Road, Tucson, AZ 85705

**B. Background**

The facility currently operates under a Class II synthetic minor air quality permit. It is considered a synthetic minor source of criteria pollutants and true minor source for all other regulated air pollutants.

This TSD was updated for the renewal of the permit. The renewal application was received on February 21, 2007. The renewal includes information from the minor revision dated March 28, 2007.

**C. Attainment Classification**

The facility is located in an area that is in attainment for all pollutants.

**II. SOURCE DESCRIPTION**

**A. Process Description**

R.E. Darling Co., supplies specialty fabricated rubber and composite products mainly to the aerospace and defense industry. The primary product lines of the Company are rocket motor insulation and exhaust components, oxygen breathing hose and related life support equipment, custom mixed rubber compounds, compression molded rubber components, and non-destructive testing services. Some of the products have structural metal rocket motor/ aircraft parts incorporated into them.

The primary fuel for the boilers is natural gas.

**B. Operating Capacity and Schedule**

The operating schedule at the facility is limited. The facility and equipment is permitted for operation 4836 hrs/yr.

The historical reported hours of operation = 4836 hrs/yr

**C. Air Pollution Control Equipment**

The boilers have no pollution control equipment other than possible oxygen trim systems that optimize the fuel to air ratio for the fuels fired in the boilers.

### III. REGULATORY HISTORY

The facility is currently in compliance with all Title 17 Pima County Code requirements.

### IV. EMISSIONS ESTIMATES

The following table outlines the facilities potential and controlled emissions.

Pollutant	Potential Plant Emissions (tons/yr)	Actual Plant Emissions (tons/yr)
Individual HAPs (TCE only)	9.90	9.90
HAPs (Total)	33.88	18.71
VOC (Total)	33.93	18.73

Potential Emissions from Fuel Burning Equipment (Natural Gas)							
PM <sub>2.5</sub>	PM <sub>10</sub>	PM	CO	NO <sub>x</sub>	SO <sub>2</sub>	VOCs	HAPS
0.14	0.14	0.14	1.53	1.82	0.01	0.10	0.03

The facility is limited to not use more than 19,800 (lbs) per year (1626 gals) of Trichloroethylene (TCE) in the solvent vapor degreaser and parts cleaning process combined per 12-month period. Using any more than this limitation would result in the facility becoming a major source designation and thus subject to more stringent monitoring, recordkeeping and testing requirements.

Furthermore, the facility is limited to consume no more than the following product/constituent per 12 month period.

Product/Constituent	Use (lbs/yr)	Use (gal/yr)
Chemlock 205	1300	162.5
Chemlock 234B(NW)	2270	253.6
Chemlock 234X(NW)	5400	675
Chemlock 238 (NW)	1300	162.5
Chemlock 607	1670	241.0
Chemglaze Z001	20	2.6
Chemlock 402	20	2.0
Methanol	2500	378.2
Toluene	6900	950.4
Xylene	278	34.8

## V. APPLICABLE REQUIREMENTS

### Requirements Specifically Identified as Applicable:

#### Code of Federal Regulations, Title 40 Part 60

Subpart A: General Provisions.

60.7(a)(1), 60.7(a)(3), 60.7(a)(4), 60.7(b), 60.7(f), 60.7(f)(3), 60.8(a), 60.8(b), 60.8(c), 60.8(d), 60.8(e), 60.8(f), 60.11(d), 60.11(g), 60.12, and 60.15

#### Code of Federal Regulations, Title 40 Part 63

Subpart T National Emission Standards for Halogenated Solvent Cleaning  
Appendix A to Subpart T of Part 63 – Test of Solvent Cleaning Procedures

#### **40 CFR, Part 63 Standards of Performance for New Stationary Sources**

Subpart A General Provisions

Appendix A Test Methods

Appendix B General Provisions Applicability to Subpart T

#### **Pima County Code Title 17, Chapter 17.12 – Permits and Permit Revisions**

##### **Article I – General Provisions**

17.12.010 Statutory Authority  
17.12.020 Planning, Constructing, or Operating Without a Permit  
17.12.040 Reporting requirements  
17.12.045 Test methods and procedures  
17.12.050 Performance tests  
17.12.080 Permit Display or Posting

##### **Article II – Individual Source Permits**

17.12.165 Permit application processing procedures for Class II and Class III permits  
17.12.185 Permit contents for Class II and Class III permits  
17.12.190 Permits containing synthetic emission limitations and standards  
17.12.235 Facility Changes that require a permit revision  
17.12.240 Procedures for certain changes that do not require a permit revision Class II or Class III  
17.12.255 Minor Permit Revision  
17.12.260 Significant Permit Revision  
17.12.270 Permit Reopenings – Revocation and reissuance – Termination  
17.12.350 Material permit condition

##### **Article VI – Individual Source Permits**

17.12.520 Fees related to Class II and Class III permits

## **Pima County Code Title 17, Chapter 17.16 – Emission Limiting Standards**

### **Article I – General Provisions**

17.16.010	Local rules and standards; Applicability of more than one standard
17.16.020	Noncompliance with applicable standards
17.16.030	Odor limiting standards

### **Article II – Visible Emission Standards**

17.16.040	Standards and applicability (includes NESHAP)
17.16.050	Visibility limiting standard

### **Article IV – New and Existing Stationary Source Performance Standards**

17.16.130	Applicability
17.16.165	Standards of performance for fossil-fuel fired industrial commercial equipment
17.16.340	Standards of performance for stationary rotating machinery
17.16.430	Standards of performance for unclassified sources

## **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

## **Pima County Code Title 17, Chapter 17.24:**

17.24.020	Recordkeeping for compliance determination
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## **VI. PERMIT CHANGES and APPLICABILITY DETERMINATIONS**

### **A. Permit and Permit Summary**

The Specific Conditions have been organized into permit sections specific to the equipment and source categories.

### **B. General Applicability (Category 1):**

This Section of the permit provides a reference for the applicability of the affected sources and PCC and federal rules that apply to the facility and operations, and to help organize the permit sections. Specific applicability conditions for the permitted facility sources are provided in Category 6.

### **C. Facility-Wide Operations (Category 2):**

This Section incorporates the facility wide provisions applicable to all sources at the facility and is used to streamline provisions applicable to the specific sources and operations in other sections of the permit to include the following: Operating Restrictions, general control standards, materials handling standards, odor limiting standards, opacity standards, visibility limiting standards, and asbestos requirements for demolition and renovation activities. This Section also incorporates the facility-wide provisions for monitoring, recordkeeping, reporting, facility changes, and testing.

#### **D. Halogenated Solvent Cleaning (Category 3):**

This section incorporates national regulations to control toxic air pollutant emissions from solvent cleaning machines that use any of the following halogenated solvents: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1,-trichloroethane, carbon tetrachloride, and chloroform.

Solvent cleaning machines are used to dry materials and remove soils, such as grease, wax, and oil from metal parts (such as nuts, bolts, and springs), circuit boards, sheet metal, assemblies, and other materials. R.E. Darling Co., uses trichloroethylene in their solvent cleaning operations. This regulation is a pollution prevention regulation that reduces solvent usage by requiring the use of good housekeeping practices and efficient, well-controlled cleaning machines.

#### **E. Surface Coating and Solvent Degreasing Activities (Category 4):**

This Section incorporates primarily local regulatory conditions for surface coating (including paint spraying operations). R.E. Darling Co., has accepted enforceable limitations (operational limitations) to limit potential emissions below major source levels. This approach is called accepting a synthetic minor limitation and a demonstration of compliance with this limitation is supported with monitoring and recordkeeping requirements.

#### **F. Fossil Fuel Fired Industrial and Commercial Equipment (Boilers and Heaters) (Category 5):**

This Section incorporates applicable PCC requirements and fuel restrictions for boilers, heaters, and fuel fired equipment to avoid certain requirements in PCC 17.16.165, 40 CFR Part 60, NSPS Subpart Dc and 40 CFR Part 63, NESHAP Subpart JJJJJJ. The specific applicability provisions for the boilers and heaters are included in Section 6 and indicated in the equipment list.

The listed boilers and heaters in the equipment list are limited to firing natural gas; or fuel oil. The specific definition for natural gas is taken from the NESHAP standard and is a broad definition that also includes LPG or Propane for use in temporary boilers or as an alternate fuel if required.

The fuel oils fired in the boilers are limited to distillate fuels No.1 and No.2 which are limited by ASTM fuel standards to contain no more than 0.5% weight Sulfur (5000 ppm<sub>mass</sub>). [ref. 40 CFR 63.11237, distillate fuel oil definition & ASTM D 396]. The permit restricts the boilers to firing this fuel to avoid triggering certain additional federal requirements.

The permit also restricts operation of dual fired boilers to the use of fuel oil only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel to avoid triggering tune up requirements for boilers that are considered oil fired boilers subject to 40 CFR Part 63, Subpart JJJJJJ.

#### **G. Specific Applicability Provisions (Section 6):**

This Section of the permit provides specific conditions that relate the applicability of facility sources, source categories, affected facilities, equipment, emission sources, installations, activities and operations at the facility to applicable standards.

The facility is required to submit a significant revision if the facility desires to fire fuels other than the allowable fuels in Section 3 of the permit.

### **VIII. Periodic Monitoring**

This is a Class II permit and, as such, does not include the mandatory submittal of a semiannual summary report of required monitoring or an annual compliance certification to the Control Officer. The permit requires the facility to maintain the required periodic monitoring records on site and their submittal as requested by the Control Officer in order to demonstrate compliance.

## IX. Control Technology Determination

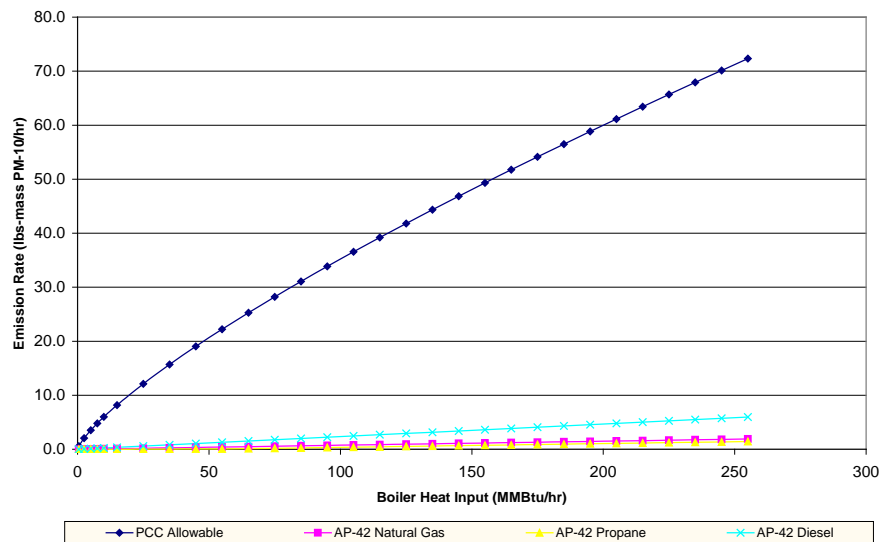
No control technologies needed to be determined; the source is not subject to RACT, BACT or LAER.

## X. Exclusion of PCC Particulate Matter Discharge Rate Standards

The applicable PCC rules for the maximum particulate discharge rates are not normally included for Class II and III area source permits as explained below.

- For particulate matter sources, the calculated maximum particulate matter discharge rate, as provided in Title 17, yields maximum rates that far exceed the emissions expected from most typical area sources. For example a 200 ton/hour process source, which is typical for an average construction aggregate screening operation, would be limited to a maximum particulate matter discharge rate of 40.4 lbs/hour or 177 tons/year. This limit far exceeds estimated emissions from typical sources using EPA AP-42 emission factors and the source is far more likely to exceed opacity and visibility limiting standards well before reaching this limit.
- With regard to fuel burning equipment, PCC 17.16.165.C limits the emissions of particulate matter from commercial and industrial fossil-fuel fired equipment (including but not limited to boilers). This limit is not normally included in permits because allowable emissions are consistently over an entire order of magnitude higher than EPA AP-42 estimated potential emissions. The chart below, illustrates the point.

Comparison of Emissions of PM-10 for Boilers: PCC Allowable vs AP-42 Estimated



Comparative Chart of Allowable Particulate Emissions Under Pima County Code, Title 17, and Estimated Potential Emissions based on EPA AP-42 Estimates for External Combustion Sources. Allowable emissions are consistently over ten times estimated potential emissions. Therefore, it is not necessary to include the standard in the permit explicitly, but by reference in Attachment 1.

## **XI. Exclusion of PCC Sulfur Dioxide Emission Standards**

Compliance with the fuel sulfur limitation requirements in the permit shall ensure compliance with the Sulfur Dioxide Standards of PCC 17.16.165.E and 17.16.340.F; which limit the emission of SO<sub>2</sub> to 1.0 pound per million BTU of heat input when burning low sulfur fuel. The definition of low sulfur fuel (PCC 17.04.340.A. "Low Sulfur Fuel") is fuel oil containing less than 0.9 percent sulfur by weight. "High Sulfur Fuel" is defined as fuel oil containing 0.9% wt. or more Sulfur. In accordance with EPA AP-42 Appendix A, page A-5, the heating value of diesel fuel is estimated at 137,000 BTU per gallon. Thus, 1 million BTU of heat input is equivalent to 7.3 gallons of diesel. At 7.05 lbs per gallon, 51.47 lbs of diesel will produce 1 million BTU. At 0.9% 51.47 lbs of diesel contains 0.46 lbs of sulfur. Combined with Oxygen to form SO<sub>2</sub>, and assuming 100% of the sulfur in the fuel forms SO<sub>2</sub>, this would yield 0.92 lb SO<sub>2</sub> per 1MMBtu. Thus, low sulfur fuel oil will produce 0.92 lbs of SO<sub>2</sub> per million BTU of heat input. This is roughly 8% less than the prescribed 1.0 pound SO<sub>2</sub> per million BTU limit.

Natural gas, gasoline, No. 1 and 2 distillate fuel oils, 1-D and 2-D Diesel, and jet fuels delivered to Pima County consistently show sulfur levels below the 0.5% wt. sulfur level as shown in fuel supplier certifications which verify the sulfur content of the fuel fired. The equipment specific fuel sulfur restrictions in the permit and the prohibition to use high sulfur oil in other fuel fired equipment at the facility allow for the omission of PCC 17.16.165.E and PCC 17.16.340.F. These rules are incorporated by reference in Attachment 1 of the permit.