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 operates under a Class II air quality permit. It is a true minor source for all regulated air pollutants.

This TSD was updated for the renewal of the permit. The renewal application was received on April 13, 2021. The renewal includes information from three equipment change notifications received after the application was submitted. The first equipment change notification was for replacement of the existing 40 HP, Parker Boiler, serial number 28524 with a 70 HP, Parker Boiler, serial number 64762. The second notification was for the replacement of the Encon Evaporators with an R.E. Darling made Evaporator. The third notification was the removal of the Delta batch vapor degreaser, ID 203, from service.

C. Attainment Classification

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

II. SOURCE DESCRIPTION

A. Process Description (Provided by R.E. Darling Co.)

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 facility has fuel-fired natural gas boilers and surface coating operations where the rubber molding and metal parts are coated with adhesives. There is one Trichloroethylene (TCE) solvent degreaser operating and an abrasive blasting operation where the components are blasted in preparation for adhesive bonding operations. The TCE vapor degreaser is used to clean the miscellaneous structural metal rocket/aircraft parts. For the surface coating operations, the Company primarily applies the adhesive by hand and brushes. On rare occasions depending on contract requirements, the Company may apply adhesive coatings with spray equipment.

The pollution process at the facility are surface coating operations, abrasive blasting, and halogenated solvent cleaning. The primary air pollutants emitted from the source are VOC's and HAP's from the halogenated solvent cleaning operation and surface coating operations. The pollutants of concern are TCE from solvent cleaning operations, as well as adhesives, thinners and reducers from the surface coating operations. PM10 is emitted from the abrasive blasting operations and spray adhesive operations.
B. Operating Capacity and Schedule

The facility operates 4836 hrs/yr.

C. Air Pollution Control Equipment

Control devices include a chiller for fume control, bag house, and enclosed abrasive 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 facility's potential and controlled emissions.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Potential Plant Emissions (tons/yr)</th>
<th>Average Actual Plant Emissions 2016 - 2021 (tons/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual HAPs (TCE only)</td>
<td>6.5</td>
<td>3.5</td>
</tr>
<tr>
<td>HAPs (Total)</td>
<td>11.44</td>
<td>6.2</td>
</tr>
</tbody>
</table>

The facility is limited to not use more than 8,849 (lbs) per year (732 gals) of TCE in the solvent vapor degreaser per 12-month period (based on the 3-month rolling average monthly emission limitation) and the facility is limited to not use more than 18,000 lbs per year (1,490 gals) of TCE total for all facility operations combined. 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.

Actual plant emissions of TCE and combined HAPs were based on the average annual material usage over the past six years, 2016 through 2021. The Potential Plant Emissions were calculated by multiplying the average actual plant emissions of all HAP usage, except the TCE used in the batch vapor cleaning machine, by a factor of 1.81 to represent 8760 operating hours per year and adding the 12-month TCE usage limit to calculate total HAP and total TCE potential to emit.

Based on R.E. Darling Co.’s, actual annual emissions over the past six years and scaling up to operating 8,760 hours per year their potential emissions for all regulated air pollutants are below major source levels. These reported emissions are supported with the monitoring and recordkeeping requirements of the permit. As a result of removing the Delta batch vapor degreaser, ID 203, from service, R.E. Darling’s potential emissions for TCE and total HAP have been reduced to below major source thresholds. The facility is a true minor source for regulated air pollutants.
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

17.11.010 Statutory Authority
17.11.020 Planning, Constructing, or Operating Without a Permit
17.13.090 Reporting requirements
17.11.160 Test methods and procedures
17.11.210 Performance tests
17.11.060 Permit Display or Posting

Article II – Individual Source Permits

17.13.010 Permit application processing procedures for Class II and Class III permits
17.13.020 Permit contents for Class II and Class III permits
17.11.190 Permits containing synthetic emission limitations and standards
17.13.100 Facility Changes that require a permit revision
17.13.110 Procedures for certain changes that do not require a permit revision Class II or Class III
17.13.130 Minor Permit Revision
17.13.140 Significant Permit Revision
17.13.150 Permit Reopenings – Revocation and reissuance – Termination
17.11.120 Material permit condition

Article VI – Individual Source Permits

17.13.050 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

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, 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 the applicable provisions from 40 CFR Part 63 Subpart T: National Emission Standards for Halogenated Solvent Cleaning that apply to the operations at RE Darling. RE Darling has a single batch vapor cleaning machine (Equipment ID: 581) that uses TCE as the solvent. RE Darling has elected to comply with the Alternative Standard in 63.464 of Subpart T. Permit conditions in this section of the previous permit that were not applicable to the operations of the batch vapor solvent cleaning machine, equipment ID 581, were not included in this permit.

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. The provisions in the Alternative Standard in 63.464 of Subpart T is a pollution prevention regulation that reduces solvent usage in the batch vapor solvent cleaning machine, equipment ID 58, by limiting the amount of TCE that can be used over a three month rolling average monthly emission limit and a rolling 12-month period.

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

This Section incorporates primarily local regulatory conditions for surface coating (including paint spraying operations.

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 JJJJJ. 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 mass). [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 JJJJJ.

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](chart.png)

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$_2$ 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$_2$, and assuming 100% of the sulfur in the fuel forms SO$_2$, this would yield 0.92 lb SO$_2$ per 1MMBtu. Thus, low sulfur fuel oil will produce 0.92 lbs of SO$_2$ per million BTU of heat input. This is roughly 8% less than the prescribed 1.0 pound SO$_2$ 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.