# Revised Risk Reduction Plan for Aerocraft Heat Treating Co., Inc.

## (SCAQMD Facility ID No. 23752)

**MAY 17, 2018**

ToxStrategies

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AEROCRAFT
HEAT TREATING CO., INC.

May 17, 2018

Jillian Wong Ph.D.
Planning and Rules Manager
Planning, Rule Development & Area Sources
South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, California 91765-4182

**Re: Aerocraft Heat Treating Co., Inc.**
**Rule 1402 Revised Risk Reduction Plan**

Dear Dr. Wong:

In a letter dated February 9, 2018, SCAQMD requested revisions to the Air Toxics Inventory Report (ATIR), Health Risk Assessment (HRA), and Risk Reduction Plan (RRP) that had been submitted by Aerocraft in May and June of 2017 and represented facility operations in 2016. The Revised ATIR was submitted on March 29, 2018. This letter and the attached report constitute submittal of the Revised RRP. The Revised HRA was submitted under separate cover. It is important to consider that the earlier risk reduction measures included used of temporary baghouses such that facility emissions are currently being controlled. This final RRP includes construction of permanent baghouses with ULPA filtration.

As you will see, our planned measures result in a substantial reduction in emissions and risk. Although we disagree with the characterization of the risk posed by our facility, we agree that it is beneficial to find ways to minimize emissions resulting from facility operations. Even with the very conservative assumptions incorporated into the District's risk assessment process, implementation of our RRP will reduce the risk posed by Aerocraft to a level orders of magnitude below the action level. The RRP results in an estimated maximum individual cancer risk of 0.0084 in one million as compared to the action level of 25 in one million.

We have included a schedule for implementation of all risk reduction measures described herein which is designed to complete the projects as quickly as feasible. Our schedule is date specific, and dictated by two steps, the amount of time to construct the equipment and then the amount of time to install the equipment. As the equipment has been ordered, our schedule is underway.

Certification of the buildings as Permanent Total Enclosures (PTEs) will occur after installation; however, as described in our schedule, source testing of the system will occur thereafter. To our knowledge, there is no requirement to source test prior to PTE certification. We note that this

schedule is well in advance of the deadline imposed by Rule 1402(i)(2) which requires that the RRP be fully completed within two years of the date that the RRP is approved by the District. We will promptly inform your staff if anything occurs that could call into question our ability to meet the schedule provided herein.

Please let me know if you have any questions about the enclosed Rule 1402 Risk Reduction Plan.

Sincerely,

Gabriel Moreno
Operations Manager

Attachments

cc (by email):
Greg Stonick, Carlos Ruiz
James Wright
Deborah Proctor
Peter Serrurier
Tom Wood

**CERTIFICATION**

**I certify that this Revised Risk Reduction Plan meets the requirements for such plans set forth in South Coast Air Quality Management District Rule 1402(f)(3) and that I am officially responsible for the process and operations of the Aerocraft Heat Treating Company in Paramount, California.**

Gabriel Moreno

5-16-18

**Gabriel Moreno** **Date**

# Revised Risk Reduction Plan for Aerocraft Heat Treating Co., Inc.

## (SCAQMD Facility ID No. 23752)

**MAY 17, 2018**

**PREPARED FOR:**
Aerocraft Heat Treating Co., Inc.
15701 Minnesota Avenue
Paramount, California

**PREPARED BY:**
ToxStrategies, Inc.
20532 El Toro Road
Suite 206
Mission Viejo, California

Deborah Proctor
Principal Health Scientist

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**APPENDIXES**

# Executive Summary

As requested by the South Coast Air Quality Management District (SCAQMD) in letters dated February 9, 2018 and April 24, 2018, the Risk Reduction Plan (RRP) submitted on June 13, 2017 has been revised on behalf of the Aerocraft Heat Treating Co., Inc., (Aerocraft) for their facility in Paramount, California. This Revised RRP demonstrates that Aerocraft's risk reduction measures, many of which were implemented more than a year ago, will reduce the facility's estimated residential risk at maximum production to 0.0083 in one million, which is well below the action level of 25 in one million.

Aerocraft is located at 15701 Minnesota Avenue in Paramount, California (SCAQMD Facility ID No. 23752). In a December 14, 2016 letter, the SCAQMD designated Aerocraft as a potentially high-risk-level facility under SCAQMD Rule 1402 and required preparation of an RRP within 180 days of receipt of the letter. The letter also requested that an Air Toxics Inventory Report (ATIR) for 2016 be submitted within 150 days, and a Health Risk Assessment (HRA) report within 180 days. The ATIR for facility emissions in 2016 was prepared and submitted on May 16, 2017. The 2016 ATIR served as the basis for estimating potential exposure in the HRA submitted on June 13, 2017, concurrently with the RRP (ToxStrategies, 2017a and b).

After a series of correspondence from SCAQMD and replies by Aerocraft and further discussions between the parties, a revised ATIR was submitted on March 29, 2018 and a Revised HRA was submitted on May 18, 2018.

Aerocraft is a commercial heat treater of steel, titanium, and high-temperature materials. Founded in 1959, Aerocraft processes forgings, castings, bar, plate, and rough-machined parts. The process requires heating metal to temperatures from 450 to 2250 ºF for 2 to more than 24 hours, to achieve specific alloy properties. In 2016, heated parts were cooled in a variety of ways, including oil quench, water quench, outdoor fan cool,[1] ambient cool, and oven cool. Parts are moved around the facility on large stainless-steel racks, which are repaired and welded on site. Furnaces were housed in four buildings; only two of the four buildings currently have operating furnaces. Limited grinding operations are also performed as part of inspecting treated parts, and a plasma arc cutter was used periodically to build and repair heat-treat racks. Plasma arc cutting is no longer conducted at Aerocraft.

Aerocraft has already implemented numerous risk reduction measures, which have resulted in reduced emissions from the facility. Furthermore, additional risk reduction measures are planned, which include building enclosures and permanent baghouses equipped with ultra-low penetration air (ULPA) filtration.

This risk reduction plan uses the data available from the ATIR process and the control measures discussed herein to estimate the levels of exposure for future conditions when the facility is operating at a higher production level than current conditions. Specifically, this plan evaluates emissions from four or five furnaces, operating continuously, in each of three

[1] Outdoor fan cool is no longer performed at Aerocraft.

buildings (total of 14 furnaces in Buildings 1, 2, and 3, see Table 2 for details). To ensure that emissions are captured effectively, all three buildings will be certified as permanent total enclosures (PTEs) by EPA Method 204 and will be equipped with permanent baghouses with ULPA filtration. ULPA filtration achieves better than 99.999% control of hexavalent chromium particulate emissions @ 0.1 μm, which is the highest reliable particulate control available.

Air dispersion modeling based on the risk reduction measures shows significant reduction in future risk surrounding the facility as a result of the measures outlined in this Revised RRP. Specifically, the predicted hexavalent chromium concentration at the maximum exposed individual resident (MEIR) ($1.5x10^{-8}$ $\mu g/m^3$) results in an estimated risk of 0.0084 in one million ($0.0084x10^{-6}$), which is well below the action level of $25x10^{-6}$. A schedule for completing the risk reduction measures is included, and Aerocraft is committed to completing the measures as quickly as feasible.

# 1 Introduction

On behalf of Aerocraft Heat Treating Co., Inc. (Aerocraft), ToxStrategies, Inc. (ToxStrategies), has prepared this revised risk reduction plan (Revised RRP) for the Aerocraft facility located at 15701 Minnesota Avenue, in Paramount, California (SCAQMD Facility ID No. 23752). As requested by the South Coast Air Quality Management District (SCAQMD) in letters dated February 9, 2018 (SCAQMD, 2018a) and April 24, 2018 (SCAQMD, 2018b), the Risk Reduction Plan (RRP) submitted on June 13, 2017 has been updated to reflect the use of ultra-low penetration air (ULPA) filtration and to respond to other requests from SCAQMD. In addition, based on SCAQMD's comments, the Health Risk Assessment (HRA) was revised (Revised HRA) and submitted under separate cover on May 18, 2018.

In a letter dated December 14, 2016, SCAQMD designated Aerocraft as a potentially high-risk-level facility under SCAQMD Rule 1402 and required preparation of an RRP within 180 days of receipt of the letter (SCAQMD, 2016). The letter also requested that an Air Toxics Inventory Report (ATIR) for 2016 be submitted within 150 days, and a Health Risk Assessment (HRA) report within 180 days. The ATIR for facility emissions in 2016 (2016 ATIR) was prepared and submitted on May 16, 2017 (Associates Environmental, 2017). The 2016 ATIR served as the basis for estimating potential exposure in the risk assessment, although 2016 emissions are not reflective of current and future facility operations, which are and will be significantly different from those in 2016. In preparing the 2016 ATIR, Aerocraft worked closely with District staff to identify an approach that best characterizes emissions from the unique sources that constitute the facility. Due to the complex nature of the emissions and the limited time available, many assumptions were made that likely cause the 2016 ATIR to overstate actual 2016 emissions. If the 2016 ATIR overestimates 2016 emissions, then the risk estimates presented in the HRA, and that form the basis for this RRP, will be similarly overestimated. As a result, while the risk estimates underlying this RRP can be used to demonstrate the relative decrease in risk associated with the existing and proposed

site improvements, they are not necessarily an accurate portrayal of the actual risk posed by the facility in 2016.

A series of correspondence and discussions between SCAQMD and Aerocraft led to the completion of this Revised RRP.

- In a February 9, 2018 letter, SCAQMD requested revisions to the ATIR, HRA and RRP (SCAQMD, 2018a).
- In letters dated February 16 and February 27. 2018, ToxStrategies, Inc. on behalf of Aerocraft provided responses to SCAQMD's comments (ToxStrategies, 2018a and b).
- After a discussion between representatives of Aerocraft and SCAQMD on March 7, 2018, ToxStrategies on behalf of Aerocraft proposed a schedule for submittal of the Revised ATIR, Revised HRA and Revised RRP in a letter dated March 16, 2018 (ToxStrategies, 2018c). The Revised ATIR was submitted consistent with that schedule on March 29, 2018 (Associates Environmental, 2018).
- On April 24, 2018, SCAQMD provided a response to Aerocraft's March 16, 2018 submittal that agreed with the changes to the ATIR but indicated that the ATIR was still being reviewed (SCAQMD, 2018b). SCAQMD also provided some additional comments relevant to the HRA and RRP and requested that the Revised HRA and Revised RRP be provided by May 11, 2018.
- Aerocraft responded in a letter dated April 30, 2018 (Aerocraft, 2018) that it was not appropriate to prepare the HRA until the ATIR was approved, and that the SCAQMD's website indicated that the meteorology data used in the HRA (Compton meteorology station) was no longer considered appropriate because it does not include 5 years of meteorological data.
- In a letter dated May 9, 2018, SCAQMD indicated that the ATIR was approved and that continued use of the Compton meteorological data consistent with the 2016 HRA was acceptable (SCAQMD, 2018c). The letter set a deadline for submittal of the Revised HRA and RPP of May 18, 2018. A Revised HRA was submitted under separate cover on May 18, 2018 (ToxStrategies, 2018d).

## 1.1 Facility Operations

Aerocraft is a commercial heat treater of steel, titanium, and high-temperature materials. Founded in 1959, Aerocraft processes forgings, castings, bar, plate, and rough-machined parts. Aerocraft provides services for engine and structural components relating to aircraft manufacture and maintenance. In 2016, operations were performed in 17[2] custom-built, batch-type, gas-fired furnaces with temperature ranges from 450 °F to 2250 °F. In 2016, the furnaces were located throughout four main operations buildings (Buildings 1–4). Currently, eight furnaces are operated in Buildings 2 and 3, and the furnaces in Buildings 1 and 4 have

[2] Aerocraft had 18 furnaces in 2016, but Furnace 13 in Building 1 has not been used in more than 13 years.

been taken out of service. General practice was to place parts on racks constructed of stainless steel, which are placed into the furnaces along with the metals to be heated. The treated parts and racks were then cooled in one of five ways: submerged in an oil-quench tank, submerged in a water-quench tank, fan cooled, oven cooled, or ambient air cooled. In 2016, the facility operated three water-quench tanks, two oil-quench tanks, and one fan cooling station. Fan-cool operations are not occurring currently, and water quench operations are limited to Building 2, which is a PTE with a baghouse. Aerocraft also used a caustic tank to remove oil from parts after oil quench. The water-quench tanks were cooled by direct contact in cooling towers, and the return discharge was reintroduced into the cooling bath. The direct contact cooling towers for the water quench tank are no longer in use. The oil-quench tank was cooled by heat exchangers, with indirect cooling from cooling towers using municipal water. A small wet sweeper/vacuum vehicle is used to mitigate dust from the various processes. In separate buildings across the street, grinding of treated parts to check for hardness, and plasma cutting to build and repair racks, also occurred. Plasma cutting has not been performed since June 2016; however, typically, it had only been used intermittently to repair and build racks and did not pose a significant risk in 2016. Aerocraft currently conducts welding to repair the stainless-steel racks in Building 2. Several natural gas-fired water and space heaters are located throughout the facility, which were included in the 2016 and Revised HRA but were not significant.

### 1.2 Completed Risk Reduction Measures

Aerocraft has taken numerous risk reduction measures since 2016, including reducing operations, removing furnaces from Buildings 1 and 4, enclosing Building 2, adding exhaust ports and two baghouses to Building 2, adding exhaust and a baghouse to Building 3 and taking other actions that are documented in the Early Risk Reduction Report (see Appendix A). Therefore, current conditions are very different from those modeled for 2016 for the HRA. As described in the HRA, the concentrations currently measured by SCAQMD at monitors near Aerocraft are significantly lower than those measured in 2016.

## 2 Risk Characterization

### 2.1 Revised HRA Based on 2016 Conditions

Given the significant modifications to the facility and operating procedures, the Revised HRA presents an assessment of potential conditions in 2016 that do not currently exist. Aerocraft was required to prepare an HRA that reflected estimated impacts associated with estimated emission rates that reflected operations in 2016. Current conditions (that do not yet include baghouses with ULPA filtration described in this RRP) result in emissions that are significantly lower than 2016 emissions. Based on an assessment of 2016 conditions,

Table 1 presents cancer risk and hazard indices for key locations based on the Revised HRA.

**Table 1. Cancer risk, acute and chronic hazard indices, and locations for the MEIR, MEIW, and PMI**

| Location | Receptor ID | UTM E (m) | UTM N (m) | Result |
|---|---|---|---|---|
| **Cancer Risk** | | | | |
| MEIR | 5135 | 392200 | 3750700 | 1.9E-03 |
| MEIW | 4895 | 392050 | 3750600 | 3.5E-04 |
| PMI | 20 | 392105 | 3750632 | 1.3E-02 |
| **Chronic Noncarcinogenic Hazard Index** | | | | |
| MEIR | 5135 | 392200 | 3750700 | 0.10 |
| MEIW | 4895 | 392050 | 3750600 | 0.15 |
| PMI | 17 | 392081 | 3750679 | 0.56 |
| **8-hour. Chronic Non-carcinogenic Hazard Index** | | | | |
| MEIW | 4895 | 392050 | 3750600 | 0.0030 |
| **Acute Noncarcinogenic Hazard Index** | | | | |
| MEIR | 5135 | 392200 | 3750700 | 1.2 |
| MEIW | 5074 | 392150 | 3750700 | 1.7 |
| PMI | 34 | 392175 | 3750677 | 2.9 |

Abbreviations:
MEIR – Maximum exposed individual resident
MEIW – Maximum exposed individual worker
PMI – Point of maximum impact (off-site)

# 3 Sources Requiring Risk Reduction

## 3.1 Identification of Each Source for Risk Reduction to Achieve a Facility-Wide Risk below Rule 1402 Action Risk Levels

Aerocraft has already expended considerable effort to identify sources of hexavalent chromium emissions and to implement modifications to reduce emissions. These changes, some of which are already complete, have and will reduce facility emissions such that modeled future risk beyond the fence line is substantially less than the action level.

Based on the results of the HRA, estimated emissions of hexavalent chromium for 2016 from the four buildings and rack welding operations are the primary sources of hexavalent chromium emissions at the facility, which result in risks and hazard indices that exceeded SCAQMD's action levels ($2.5 \times 10^{-5}$). The primary source of hexavalent chromium within the buildings is estimated to be emissions from the furnaces and the cooling tower in Building 2. In 2016, 17 furnaces operated in four buildings and rack welding occurred in facility buildings across the street. All other sources and chemicals resulted in predicted risks and hazard indices below the action levels.

# 4 Completed Early Risk Reduction Measures

Aerocraft has implemented numerous measures to reduce hexavalent chromium concentrations measured at monitoring stations near the facility. As discussed in Section 1.2, the measures taken by Aerocraft have proven effective, as demonstrated by the decreased concentrations of hexavalent chromium measured over the past year at the SCAQMD monitoring stations near Aerocraft, as compared to those measured in 2016.

Measures implemented as of March 2017 are summarized in the Revised Early Action Risk Reduction Plan dated March 13, 2017 (revised May 4, 2017) (Appendix A) and are presented below.

## 4.1 Risk Reduction Measure # 1: Clean grinding building

Aerocraft hired a third-party contractor to pressure wash and clean the Grinding Building/area (formally known as the Inspection Department).

Completion date: November 28, 2016Ta

## 4.2 Risk Reduction Measure # 2: Discontinue dry sweeping

Aerocraft discontinued the use of dry sweeping and began using a wet mobile sweeper daily across the entire facility.

Completion date: November 30, 2016

## 4.3 Risk Reduction Measure # 3: Limit use of compressed air for non-essential activities

Aerocraft discontinued the use of compressed air for non-essential processing activities.

Completion date: December 2, 2016

## 4.4 Risk Reduction Measure # 4: Grinding Building enclosure

Aerocraft installed plastic flaps and enclosed the Grinding Building/area (formally known as the Inspection Department).

Completion date: December 5, 2016. Appendix B contains documentation of Total Permanent Enclosure of the grinding building.

## 4.5 Risk Reduction Measure # 5: Clean fan-cool area

Aerocraft cleaned and HEPA vacuumed the fan-cool processing area.

Completion date: December 6, 2016.

## 4.6 Risk Reduction Measure # 6: Clean storage racks

Aerocraft cleaned and HEPA vacuumed the heat-treat (XYZ) storage racks.

Completion date: December 6, 2016. Aerocraft no longer uses heat-treat storage racks. Areas where parts are stored are wet cleaned and HEPA vacuumed daily.

## 4.7 Risk Reduction Measure # 7: HEPA vacuum furnaces

Aerocraft HEPA vacuumed all processing heat-treat furnaces.

Completion date: December 9, 2016.

## 4.8 Risk Reduction Measure # 8: Clean Heat-Treating department

Aerocraft hired a third-party contractor to pressure wash and clean the Heat-Treating department.

Completion date: December 9, 2016.

## 4.9 Risk Reduction Measure # 9: Routine HEPA vacuuming

Aerocraft implemented the use of HEPA vacuum cleaning after each shift in areas where fugitive metal dust has the potential to accumulate.

Completion date: December 15, 2016 and ongoing.

## 4.10 Risk Reduction Measure # 10: Scarify facility floor

Aerocraft hired a third-party contractor to scarify the facility floor(s) in various processing areas.

Completion date: December 21, 2016.

### 4.11 Risk Reduction Measure # 11: Employee training

Training was conducted for all affected employees on housekeeping and fugitive metal dust minimization (emphasizing the prohibition of compressed air and dry/broom sweeping).

Completion date: First initiated January 6, 2017, and training of employees is ongoing.

### 4.12 Risk Reduction Measure # 12: Housekeeping SOP

Developed a standard operating procedure (SOP) specific to housekeeping and fugitive dust mitigation.

Completion date: January 9, 2017.

### 4.13 Risk Reduction Measure # 13: Clean plasma cutter area

Aerocraft cleaned the maintenance building area that houses the plasma cutter and HEPA vacuumed the plasma cutter equipment.

Completion date: January 13, 2017.

## 5 Supplemental Early Risk Reduction Measures

Aerocraft has implemented additional measures to reduce hexavalent chromium concentrations, which are summarized in the Revised Early Action Risk Reduction Plan dated March 13, 2017 (revised May 4, 2017) and presented below.

### 5.1 Risk Reduction Measure # 14: Enclosure of Building 2

Aerocraft enclosed heat-treat Building 2 to create a PTE and installed baghouses as controls on the building ventilation exhaust.

Originally Risk Reduction Measure # 14 applied to both Buildings 1 and 2, but Building 1 is no longer used for heat-treating activities, and therefore no longer maintained as a PTE. Prior to Building 1 being brought into operation in the future, it will be certified as a PTE.

Completion date: February 8, 2017 for Building 2. Documentation of Building 2 as a PTE is provided in Appendix B.

### 5.2 Risk Reduction Measure # 15: Wind breaks

Aerocraft installed wind breaks within the facility boundaries between Buildings 1 and 2, to reduce the potential for dust resuspension.

Completion date: February 8, 2017.

## 5.3 Risk Reduction Measure # 16: Monitoring of water-quench tanks

Monthly monitoring of water-quench tank hexavalent chromium levels is conducted, and the water is periodically dosed with ferrous sulfate to reduce hexavalent chromium to trivalent chromium.

Completion date: Ongoing

## 5.4 Risk Reduction Measure # 17: Discontinue outdoor fan cooling

In the past, heated parts were cooled outdoors using fans. This practice has been discontinued. Going forward, a small portion of heat-treated parts are expected to require fan cooling, which will be conducted only indoors in one of the buildings that has ULPA filtration. In the future, parts may be cooled within a room within one of the buildings or within a closed building. All fan cooling activities will be conducted in a PTE with ULPA filtration. The closed building/room envelope and ULPA filtration will mitigate emissions that might be associated with any future operation of fans. Furthermore, the floor surface in the area of the fans will be cleaned using HEPA vacuuming daily after each day fans are used. HEPA vacuuming in general is described above as a separate risk reduction measure.

Completion date: Outdoor fan cooling operations were stopped as of January 15, 2017. Fan cooling within an enclosed building or room with ULPA filtration will commence as the business need arises. No start or completion date for the possible future use of fan cooling is currently available.

## 5.5 Risk Reduction Measure # 18: Reduced forklift traffic

Aerocraft has minimized the level of forklift traffic moving from facility buildings on the west side of Minnesota Avenue to buildings on the east side of Minnesota Avenue.

Completion date: Mid-December 2016.

## 5.6 Risk Reduction Measure # 19: Cleaning of cooling towers

The water tank cooling towers, which are in Buildings 1 and 2, were cleaned to remove residual hexavalent chromium in the water. The inner parts of the cooling towers were replaced to remove Cr(VI) from surfaces, and the outside surfaces were cleaned.

Completion date: January 27, 2017 Water tank cooling towers were taken out of service on February 13, 2017. The cooling tower for the Building 2 water tank has been removed, and the water tanks for Buildings 1 and 3 have been drained. Water quench will only be conducted in the future in water tanks enclosed in a PTE certified building with baghouses and ULPA filtration. Only closed loop cooling towers will be used in the future.

## 5.7 Risk Reduction Measure # 20: Building 3 curtains

Aerocraft added curtains to Building 3 to reduce air flow.

Completion date: Curtains were installed on February 8, 2017.

## 5.8 Risk Reduction Measure # 21: Compressed air use limited to wet or enclosed environments

Use of compressed air for essential processing activities was limited to either wet activities or dry activities conducted in an enclosure.

Completion date: Ongoing.

## 5.9 Risk Reduction Measure # 22: Cleaning with air pollution controls

Air pollution controls will be operated while conducting housekeeping or any cleaning activities in buildings with air pollution controls.

Completion date: Ongoing.

## 5.10 Risk Reduction Measure # 23: Annual furnace cleaning

Clean interior of each operating furnace a minimum of annually. Cleaning involves remove all debris from inside the furnace floor.

Completion date: Ongoing.

## 5.11 Risk Reduction Measure # 24: Thermal imaging

Thermal imaging was performed on Buildings 2 during a period of normal operation to ensure that the buildings are leak free.

Completion date: May 26, 2017 (Building 2).

## 5.12 Risk Reduction Measure # 25: Temporary baghouses with stack extensions

Operate baghouses with stack extensions.

Completion date: Ongoing

### 5.13 Risk Reduction Measure # 26: Decommissioned furnaces in Buildings 1 and 4

All furnaces in Buildings 1 and 4 were decommissioned. Aerocraft is currently not operating any furnaces in Buildings 1 and 4. Once Building 1 is equipped with a permanent baghouse and ULPA filtration, furnace operations will resume. Furnace operations in Building 1 will not occur until the building is a PTE with ULPA filtration. Building 4 will no longer have any furnace operations but will be used for storage and maintenance.

Completion date: Furnaces in Buildings 1 and 4 were decommissioned on February 18, 2017. The reopening of Building 1 will be based on business decisions, and the start and completion dates for this work are currently not known. While a permit for installation of permanent baghouses with ULPA filtration has been submitted for Buildings 2 and 3, a permit has not been submitted for Building 1.

# 6 Evaluation and Specification of Available Risk Reduction Measures, and Proposed Schedule

Aerocraft proposes the following risk reduction measures to permanently reduce hexavalent chromium emissions from the facility while bringing operations up to future expected production levels. The exact schedule for increasing production, and the start and completion of some of these measures, will be based on business decisions and is not currently known, as described below.

To facilitate management of housekeeping measures, a list of measures from Sections 4, 5, and 6 as well as the December 21, 2016 Order for Abatement are included in Appendix C.

### 6.1 Risk Reduction Measure # 27: Permanent total enclosure of Buildings 1, 2, and 3

Aerocraft has installed a certified PTE on Building 2 (see Appendix B). Permanent ULPA filtration-equipped baghouses will be installed on Buildings 2 and 3, and Building 3 will be enclosed and certified as a PTE as part of this measure. Aerocraft will ensure that the vendor provides a baghouse/ULPA filtration system designed to achieve 99.999% control efficiency at 0.1 µm. The schedule (Appendix D) provides details regarding installation of the new equipment on Buildings 2 and 3, and PTE of Building 3.

Building 1 is not currently used for heat treating; prior to it being used for such, the building will be certified as a PTE and permanent baghouses with ULPA filtration will be added. The schedule for this work is dictated by business decisions and currently undefined.

Table 2 provides additional information regarding the proposed baghouses.

Building 2 is currently a PTE controlled by two temporary baghouses. A component of this Risk Reduction Plan is to install new permanent baghouses (with ULPA filters) to replace

the two temporary baghouses. Once the permanent baghouses are installed, the permanent total enclosure status of Building 2 will be recertified by a qualified third party. A schedule for implementation is included as Appendix D.

A further component of this Risk Reduction Plan is to further enclose Building 3 and verify it as a PTE. A schedule for implementation is included as Appendix D.

**Table 2. Proposed baghouse details***

| Building | Number of Furnaces | Baghouse ID | Universal Transverse Mercator Coordinates (m) | Baghouse Flow Rate (cfm) | Stack Height** (m/feet) | Flow Rate (m/s / ft/min) | Stack Diameter (m/inches) |
|---|---|---|---|---|---|---|---|
| 1 | 5 | BH_1_1 | 392077, 3750660 | 35,000 | 6.1/20 | 15.41/3043 | 1.17/46 |
| | | BH_1_2 | 392086, 3750660 | 35,000 | 6.1/20 | 15.41/3043 | 1.17/46 |
| 2 | 4 | BH_2_1 | 392072, 3750640 | 35,000 | 9.37/30.7 | 15.41/3043 | 1.17/46 |
| | | BH_2_2 | 392081, 3750640 | 35,000 | 9.37/30.7 | 15.41/3043 | 1.17/46 |
| 3 | 5 | BH_3_1 | 392038, 3750664 | 35,000 | 4.27/14 | 15.41/3043 | 1.17/46 |
| | | BH_3_2 | 392038, 3750673 | 35,000 | 4.27/14 | 15.41/3043 | 1.17/46 |

Abbreviations:
cfm = cubic feet per minute
m = meters

Notes:
* Continuous planned operation throughout the year. Emissions assumed to be at ambient temperature.
** Stack height set to top of awning for Buildings 1 and 2; stack height for Building 3 assumed awning would no longer be present in the area of the baghouses.

With the conversion of Buildings 2 and 3 (and potentially Building 1 in the future) to PTEs, emissions from all furnace operations will be routed through permanent ULPA-equipped baghouses. Furthermore, all oil-quench or water-quench events will take place within a PTE because those quench tanks are inside the three buildings.

There are currently no plans to use Building 4 for heat treating operations.[3] Building 4 will be used for storage and maintenance activities. Building 4 operations will include operations such as:

- Forklift maintenance shop
- Hazardous materials and waste storage (in accordance with relevant regulations)
    - Baghouse dust
    - Dust from sweeping
    - Used filters

[3] Furnace #16 remains in Building 4, but it is non-operational and is proposed to be moved to Building 3.

There are no parts or rack stored in Building 4. Given the different use of Building 4, as compared to the other three buildings, it will not be equipped with a baghouse and is not considered a significant source of emissions. As described for Buildings 2 and 3, in the event business dictates the use of Building 4 for any activity that may potentially generate hexavalent chromium emissions, Building 4 will be modified to a fully enclosed building (PTE) and will have a permanent baghouse similar in design and specifications as Building 2 and 3.

Estimated completion date: Building 2 is already a permanent total enclosure. Building 1 is not certified as a PTE and is currently not operating furnaces. Buildings 2 and 3 will be fitted with a permanent system equipped with ULPA filtration and both buildings certified (or recertified in the case of Building 2) as permanent total enclosures according to the attached schedule (Appendix D). Building 1 will also be enclosed and controlled by a baghouse with ULPA filters and certified as a permanent total enclosure when and if the business climate supports increasing operations.

## 6.2 Risk Reduction Measure # 28: Fan cooling limited to an enclosed building or room

In the past, heated parts were cooled outdoors using fans. This practice has been discontinued. Going forward, a small portion of heat-treated parts may require fan cooling, and this activity will be conducted only indoors, in a PTE certified building, or room within a building, with ULPA filtration. Doors or other building or room openings will remain closed during the entirety of a fan-cooling operation. The closed building/room envelope will mitigate emissions that might be associated with the operation of fans. Furthermore, the floor in the area of the fans will be cleaned using HEPA vacuuming at the end of each day on which fan cooling is conducted. HEPA vacuuming in general is described above as a separate risk reduction measure.

Estimated completion date: Outdoor fan cooling was last performed on January 15, 2017. In the future, fan cooling within a closed building or room within a building will commence as needed once the building or room is fully enclosed with a permanent baghouse fitted with ULPA filtration. The exact date for implementing these measures will be dictated by business decisions, and there is currently no planned start date for conducting indoor fan cooling.

## 6.3 Risk Reduction Measure # 29: Cooling towers converted to closed-loop water

The cooling towers servicing the water-quench tanks contained the same water as in the quench tanks in 2016. The use of a direct cooling loop for the water-quench tanks created the potential for hexavalent chromium drift from the cooling towers. The last water-quench cooling tower to be used was that in Building 2 and it has not been operated since February 13, 2017. These cooling towers have been removed from service. New closed-loop cooling systems may be installed for use in the future. These upgrades will ensure that the water in the cooling towers will contact neither the water in the quench tanks used for to cool

production parts. Therefore, such cooling towers can be located outdoors and will not emit hexavalent chromium.

Estimated completion date: The water-quench tanks have already been drained and cleaned and are being maintained as cleaned, as described in Section 5.3. Activities are in progress to convert all the water-quench tanks and associated cooling towers to closed-loop systems. The exact date for implementing these measures will be dictated by business decisions; no water-quench cooling tower will be used until it has been converted to a closed loop system (i.e., indirect cooling).

## 6.4 Risk Reduction Measure # 30: Rack welding conducted with emissions controls

Rack welding is currently conducted in Building 2, and emissions from rack welding are currently being modeled through the stacks of Building 2. In the future, rack welding may be conducted in any building which is a PTE and has ULPA filtration. This will not affect risk estimates because the sources are relatively close together compared to the distance to the off-site resident, and emissions controlled by ULPA filtration are significantly below any action level (Section 7.0). Thus, if welding is moved to Buildings 1 or 3 in the future, it will have a negligible impact on hexavalent chromium emissions and associated risk estimates.

Completion date: December 2017.

## 6.5 Risk Reduction Measure # 31: Cleaning of heat-treat storage racks

Heat-treat storage racks were used in 2016 and had the potential to collect dust or debris from heat-treated parts. These racks are currently not being used (Risk Reduction measure #6). In the future, should it be necessary to use these racks, they will be subject to a cleaning program whereby they are HEPA vacuumed at least once daily when used. By cleaning the racks with a HEPA vacuum every day that the racks are used, the potential for dust that falls on the racks to become airborne is greatly reduced. If used again to store parts, the heat treat storage racks will be stored in one of the three buildings certified as a PTE with an ULPA filtration system.

Estimated completion date: Already completed; part storage areas are currently being cleaned daily with HEPA vacuuming and storage racks are not currently being used.

The future risk reduction measures are summarized in Table 3. A detailed schedule is provided in Appendix D.

**Table 3. Summary of future risk reduction measures for Aerocraft**

| Measure Number | Measure | Details | Completion Date |
|---|---|---|---|
| 27 | PTE Building 1 | Temporary Baghouse | Not applicable[1] |
| | | Permanent Baghouse | Dependent on business climate |
| | PTE Building 2 | Temporary Baghouse | April 2017 |
| | | Permanent Baghouse Installed | November 2018 |
| | | PTE Certification and Source Testing Completed | January 2019 |
| | PTE Building 3 | Temporary Baghouse | July 2017 |
| | | Permanent Baghouse Installed | November 2018 |
| | | PTE Certification and Source Testing Completed | January 2019 |
| 28 | Fan Cool in Building | | To Be Determined[2] |
| 29 | Water Cooling Closed Loop | | To Be Determined[2] |
| 30 | Rack welding under HEPA filtration | Operation moved to Building 2—which will have at least ULPA filtration | December 2017 |
| 31 | Cleaning heat-treat storage racks | Storage racks are not currently used | To Be Determined[2] |

PTE = Permanent Total Enclosure

[1] Aerocraft does not currently plan to install a temporary baghouse on Building 1. A permanent baghouse will be installed when the building is ready to resume operations.

[2] These measures will be implemented prior to operating fan cool or water quench, or storing heat-treat parts on racks. The need for these operations will be dictated by business decisions, and a specific start and completion date cannot be determined at this time.

# 7 Estimation of Post-Implementation Risk

Risk reduction measures are planned for future hexavalent chromium furnace emissions and the rack welding operations. The emissions for the sources under future operating conditions consistent with the permit application were evaluated using an air dispersion and predicted risks were calculated using the estimated air concentration of hexavalent chromium. The predicted concentration of hexavalent chromium at the MEIR ($1.53 \times 10^{-8}$ µg /$m^3$) results in

an estimated risk of 0.0084 in one million ($0.0084x10^{-6}$), which is well below the action level of $25x10^{-6}$.

### 7.1 Health Risk Assessment

To evaluate the potential off-site risks following implementation of risk reduction measures, U.S. EPA's AERMOD air dispersion model (version 18081) was run for the six main sources of hexavalent chromium emissions under planned future operating conditions: two baghouses on each of Buildings 1, 2, and 3 designed to control furnace emissions. In addition, rack welding operations were assumed to occur in Building 2, which considered together with the furnace emissions and controlled by the same baghouses in Building 2 for the purpose of modeling.

Future planned operations assume that four to five furnaces will operate in each of Buildings 1, 2, and 3 (i.e., a total of 14 furnaces) for 24 hours per day, seven days per week (Table 2). Other assumptions regarding meteorological data and model settings were consistent with those used in the Revised HRA (ToxStrategies, 2018). Emission rates from future furnace operations in each building were assessed using the maximum measured hexavalent chromium emission rate for a single furnace[4] from the stack testing performed in April 2017 (Appendix D of the ATIR; Associates Environmental, March 29, 2018). The maximum emission rate was used so that other operations with lower emission rates (e.g., empty furnace or non-chromium part, etc.) would be covered by the emission estimate and modeling. In this way, the operations at Aerocraft would not be limited. Tables 4 and 5 present the emission rates from controlled furnace and rack welding operations, respectively.

**Table 4. Estimated emissions of hexavalent chromium from each building under planned future operating conditions**

| Building | Maximum Cr(VI) Emission Rate from Source Tests (lb/hour) | Number of Furnaces per Building | Cr(VI) Flow into Baghouse per Building (lb/hour) | ULPA Baghouse Control Efficiency | Controlled Emissions per Building (lb/hour) | Total Hours | Controlled Emissions per Building (lb/year) |
|---|---|---|---|---|---|---|---|
| 1 and 3 | $1.76x10^{-05}$ | 5 | $8.80x10^{-05}$ | 99.999% | $8.80x10^{-10}$ | 8760 | $7.71x10^{-06}$ |
| 2 | $1.76x10^{-05}$ | 4 | $7.04x10^{-05}$ | 99.999% | $7.04x10^{-10}$ | 8760 | $6.17x10^{-06}$ |

[4] The maximum emission rate resulted from the low-temperature furnace operation when a chromium part was being heated.

**Table 5. Estimated emissions of hexavalent chromium from rack welding under planned future operating conditions**

| Maximum Cr(VI) Emission Rate from Rack Welding (unfiltered)[1] (lb/year) | ULPA Baghouse Control Efficiency | Controlled Emissions (lb/year) |
|---|---|---|
| $8.08x10^{-02}$ | 99.999% | $8.08x10^{-08}$ |

Note:

1. Emission rates for rack welding in the ATIR assumed that the emissions were controlled at 90% efficiency. The unfiltered emission rate was used to estimate emissions through an ULPA Baghouse.

The air dispersion model included six sources run at a unit emission rate (1 g/s). The emission rates from Tables 4 and 5 were applied to air dispersion modeling results for each of the sources, and the results were summed across all sources to estimate the hexavalent chromium air concentration at the MEIR (Appendix E). As indicated previously, the predicted risk of 0.0084 in one million was well below the action level of 25 in one million. Rack welding emissions were considered in Building 2 in this analysis. Because the predicted emissions are much lower than furnace emissions and the total predicted risk is very low, rack welding can be performed in any building without significantly changing the results of this assessment.

**Table 6. Estimated hexavalent chromium air concentration and predicted risk at point of maximum impact at the Aerocraft fence line**

| Concentration of Hexavalent Chromium ($ng/m^3$) | Predicted Lifetime Excess Cancer Risk |
|---|---|
| $1.53x10^{-05}$ | $8.43x10^{-09}$ |

Note:

1. Predicted Lifetime Excess Cancer Risk was calculated using Hot Spots Analysis and Reporting Program software (ADMRT), and included the same exposure pathways and assumptions as the Revised HRA.

# 8 References

Aerocraft Heat Treating Co., Inc. 2018. Response to the District's Comments Dated April 24, 2018 SCAQMD Facility ID: 023752. Letter to Dr. Jillian Wong. April 30.

Associates Environmental. 2017. South Coast Air Quality Management District Air Toxics Inventory Report covering Aerocraft Heat Treating Co., Inc., Paramount facility, Facility ID 023752, May 16.

Associates Environmental. 2018. South Coast Air Quality Management District Air Toxics Inventory Report covering Aerocraft Heat Treating Co., Inc., Paramount facility, Facility ID 023752, March 29.

South Coast Air Quality Management District, 2016. Notice of Designation of Aerocraft Heat Treating Company, Inc. (Facility ID 23752) as a Potentially High Risk Level Facility. December 14.

South Coast Air Quality Management District, 2018a, SCAQMD Comments on the Air Toxics Inventory Report (ATIR), Health Risk Assessment (HRA), and Risk Reduction Plan (RRP) for
Aerocraft Heat Treating Company (SCAQMD Facility ID: 023752). Letter to Gabriel Moreno. February 9.

South Coast Air Quality Management District, 2018b, Follow-up on SCAQMD Comments on the Air Toxics Inventory Report, Health Risk Assessment, and Risk Reduction Plan for Aerocraft Heat Treating Company (SCAQMD Facility ID: 023752). Letter to Gabriel Moreno. April 24.

South Coast Air Quality Management District, 2018c, Approval of the Air Toxics Inventory Report and Follow-up Comments on Health Risk Assessment and Risk Reduction Plan for
Aerocraft Heat Treating Company (Facility ID: 023752). Letter to Gabriel Moreno. May 9.

ToxStrategies, Inc. 2017a. Air Toxics Health Risk Assessment for Aerocraft (SCAQMD Facility ID No. 23752), June 13.

ToxStrategies, Inc. 2017b. Risk Reduction Plan for Aerocraft Heat Treating Company, Inc., (SCAQMD Facility ID No. 23752), June 13.

ToxStrategies, Inc. 2018a. Initial Responses to the District's Comments Dated February 9, 2018, on the Air Toxics Inventory Report (ATIR), Health Risk Assessment (HRA), and Risk Reduction Plan (RRP) for Aerocraft Heat Treating Company (SCAQMD Facility ID: 023752), February 16.

ToxStrategies, Inc. 2018b. Additional Responses to the District's Comments dated February 9, 2018, on the Air Toxics Inventory Report (ATIR), Health Risk Assessment (HRA), and Risk Reduction Plan (RRP) for Aerocraft Heat Treating Company (SCAQMD Facility ID: 023752). Letter to Dr. Jillian Wong. February 27.

ToxStrategies, Inc. Follow-up to March 7, 2018c, discussion regarding the District's comments, dated February 9, 2018, on the Air Toxics Inventory Report (ATIR), Health Risk Assessment (HRA), and Risk Reduction Plan (RRP) for Aerocraft Heat Treating Company (SCAQMD Facility ID: 023752). Letter to Dr. Jillian Wong. March 16

ToxStrategies, Inc. 2018d. Revised Air Toxics Health Risk Assessment for Aerocraft (SCAQMD Facility ID No. 23752), May 18.

APPENDIX A

# Early Action Risk Reduction Plan Dated March 13, 2017

# EARLY ACTION RISK REDUCTION PLAN
## SCAQMD Rule 1402(g)(2)


**March 13, 2017**
**(Revised May 4, 2017)**

## Introduction

By letter dated December 14, 2016, the South Coast Air Quality Management District ("District") designated Aerocraft Heat Treating Co., Inc. ("Aerocraft") as subject to the Potentially High Risk Facility requirements under Rule 1402(g). While Aerocraft does not believe that it poses a high risk, it acquiesced in bregards to coverage under the program. Rule 1402(g)(2) requires that Aerocraft submit an Early Action Risk Reduction Plan ("Plan") to the District. This Plan was submitted to the District on March 13, 2017. District comments on the Plan were received by Aerocraft on April 26, 2017. This revised version of the Plan was prepared in response to the April comment letter.

## Facility Information

Consistent with the requirements of Rule 1402(g)(2)(A)(i), the following facility information is being provided:

| | |
|---|---|
| Name: | Aerocraft Heat Treating Co., Inc. |
| Address: | 15701 Minnesota Ave.<br>Paramount, CA 90723 |
| SCAQMD Facility Identification No.: | 023752 |

## Identification of Key Health Risk Drivers

Rule 1402(g)(2)(A)(ii) requires that Aerocraft's Plan identify the devices or processes that are the key health risk drivers. Based on the company's process knowledge of likely causes of risk, Aerocraft believes that metal particulate will be the primary driver of acute and chronic risk. Metal particulate has not been historically associated with the heat treat furnaces and water quench systems, but based on samples taken in previous months we will focus our efforts in these areas. Therefore, this Plan has focused on measures that will reduce the direct emissions of metal particulate as well as fugitive emissions including emissions resulting from the re-suspension of metal particulate from on and off site sources.

## Early Action Risk Reduction Measures and Schedule

Rule 1402(g)(2)(A)(iii) and (iv) require that Aerocraft's Plan identify "Risk reduction measure(s) that can be implemented by the owner or operator that includes but are not limited to procedural changes, process changes, physical modifications, and curtailments," and "A schedule for implementing the specified risk reduction measures." The remainder of this Plan addresses these two requirements.

On December 16, 2016, Aerocraft agreed to stipulate to a list of such early actions to reduce risk. Those actions, and their current implementation status, are provided below in Table 1.

**Table 1. Initial List of Early Action Measures to Reduce Facility-Wide Risk**

| Location | Risk Reduction Measure | Date Completed |
|---|---|---|
| Grinding Building (Inspection Department) | Aerocraft hired a third party contractor to pressure wash and clean the Grinding building/area (formally known as the Inspection Department). | November 28th 2016 |
| Entire Facility | Aerocraft discontinued the use of dry sweeping and began using wet mobile sweeper daily | November 30th 2016 |
| Entire Facility | Aerocraft discontinued the use of compressed air for non-essential processing activities. | December 2nd 2016 |
| Grinding Building (Inspection Department) | Aerocraft installed plastic flaps and enclosed the Grinding building/area (formally known as the Inspection Department). | December 5th 2016 |
| Fan Cool | Aerocraft cleaned and HEPA vacuumed the fan cool processing area. | December 6th 2016 |
| Heat Treating | Aerocraft cleaned and HEPA vacuumed the Heat Treat (XYZ) storage racks. | December 6th 2016 |
| Heat Treating | Aerocraft HEPA vacuumed all processing Heat Treat furnaces | December 7th 2016 – December 9th 2016 |
| Heat Treating | Aerocraft hired third party contractor to pressure wash and clean the Heat Treating department | December 9th 2016 |
| Entire Facility | Aerocraft implemented the use of HEPA vacuum cleaning after each shift in areas where fugitive metal dust has the potential to accumulate | December 15th 2016 |
| Entire Facility | Aerocraft hired a third party contractor to scarify the facility floor(s) in various processing areas | December 21st 2016 - present |
| Entire Facility | Training was conducted for all affected employees on housekeeping and fugitive metal dust minimization (emphasizing the prohibition of compressed air and dry/broom sweeping). | January 6, 2017 |
| Entire Facility | Developed a SOP specific for housekeeping and fugitive dust mitigation. | January 9, 2017 |
| Grinding Building (Inspection Department) | Aerocraft hired a third party to pressure wash and clean the maintenance building area that houses the plasma cutter | January 13, 2017 |

In addition to the measures in Table 1, Aerocraft has identified the supplementary measures identified in Table 2 to further reduce facility-wide risk. For those measures that have been completed, the completion date is provided; for those measures in the process of being completed, the anticipated completion date is provided.

**Table 2. Supplementary List of Early Action Measures to Reduce Facility-Wide Risk**

| Location | Risk Reduction Measure | Date Completed of Expected to be Completed |
|---|---|---|
| Heat Treat Buildings 1 and 2 | Aerocraft enclosed these buildings to create temporary total enclosures and installed baghouse controls on building ventilation exhaust | February 8, 2017 |

| Location | Risk Reduction Measure | Date Completed of Expected to be Completed |
|---|---|---|
| Between Heat Treat Buildings 1 and 2 | Installation of wind breaks within the facility boundaries to reduce potential for dust re-suspension | February 8, 2017 |
| Water Quench System | Monthly monitoring of water quench tank Cr+6 levels and periodic dosing with ferrous sulfate to reduce Cr+6 to Cr+3 | Ongoing |
| Forced Air Cooling | Forced air cooling of parts outside of a total enclosure was discontinued | Approximately January 15, 2017 |
| Dust Trackout Minimization | Minimization of forklift traffic moving from portion of facility on west side of Minnesota Ave to portion of facility on east side of Minnesota Ave | Mid-December 2016 |
| Heat Treat Buildings 1 and 2 | Cleaning of cooling towers | January 27, 2017 |
| Heat Treat Building 3 | Added curtains to reduce air flow | February 8, 2017 |
| Entire Facility | Use of compressed air for essential processing activities limited to either wet activities or dry activities conducted in an enclosure. | Ongoing |
| Entire Facility | Training of all new affected employees on housekeeping and fugitive metal dust minimization (emphasizing the prohibition of compressed air and dry/broom sweeping). | Ongoing |
| | | |
| Plasma Cutter | HEPA vacuum cleaning of the area around the plasma cutter in the Grinding Building after each shift when the plasma cutter is used. | Ongoing |
| Entire Facility | Operate the air pollution controls while conducting housekeeping or any cleaning activities in buildings with air pollution controls. | Ongoing |
| Heat Treat Furnaces | Clean interior of each operating furnace a minimum of annually. | Ongoing |
| Heat Treat Buildings 1 and 2 | Thermal imaging to be performed on the outside of building during a period of normal operation to ensure that the building is leak free | May 26, 2017 (Building 2)<br>Within 30 days of next period of normal operations (Building 1) |

| Location | Risk Reduction Measure | Date Completed of Expected to be Completed |
|---|---|---|
| | | |
| Heat Treat Buildings 1 and 2 | Operate baghouses with stack extensions | Ongoing (Building 2)<br>Within 30 days of next period of normal operations (Building 1) |

The effectiveness of each of the measures identified above is being constantly assessed. If one or more measures do not appear to be reducing the potential for emissions, then the measure will be suspended after written notice to the District.

Aerocraft believes that the measures identified above will substantially reduce the potential for metal emissions from its processes. As metals are expected to be the predominant source of risk under the facility's Rule 1402 Health Risk Assessment, these measures are appropriately targeting metal dust emission sources.

APPENDIX B

# Documentation of PTE of Grinding Building and Building 2

# ENGINEERING TEST REPORT

# AEROCRAFT HEAT TREATING INSPECTION BUILDING BAGHOUSE

**Source Location:**

**Aerocraft Heat Treating**
**15701 Minnesota Ave**
**Paramount, California 90723**

**Test Date: February 15, 2017**
**Issue Date: March 8, 2017**

**Prepared for:**

**Aerocraft Heat Treating**
**15701 Minnesota Ave**
**Paramount, California 90723**

**Prepared by:**

**AirKinetics, Inc.**
**1308 S. Allec Street**
**Anaheim, California 92805**
**(714) 254-1945 Fax: (714) 956-2350**
**AKI No.: 14714**

AirKinetics, Inc.
EMISSIONS CHARACTERIZATION AND TESTING SERVICES

March 8, 2017

Mr. Greg Stonick
Aerocraft Heat Treating
15701 Minnesota Ave
Paramount, California 90723

AirKinetics, Inc.
EMISSIONS CHARACTERIZATION
AND TESTING SERVICES

**AKI No.: 14714**

Dear Mr. Stonick:

AirKinetics, Inc. conducted emissions testing at Aerocraft Heat Treating in Paramount, California on February 15, 2017. Testing was performed on Inspection Building Baghouse. The test objective was to conduct Verification of A Permanent Total Enclosure. Test results are summarized in Table 1 and all supporting data are attached.

**TABLE 1**

**PERMANENT TOTAL ENCLOSURE (PTE) RESULTS**

| Test Location | Average Differential Pressure (in. $H_2O$) | Satisfied PTE Limit of > 0.007 in. $H_2O$ |
|---|---|---|
| Inspection Building Baghouse | 0.0103 | Yes |

If you should have any questions concerning this test protocol, please do not hesitate to call me at (800) 899-3687.

Sincerely,

Morgan Nguyen
Project Supervisor

Attachment A – Field Data

**ATTACHMENT A**

**FIELD DATA**

## EPA METHOD 204 - VERFICIATION OF A PERMANENT TOTAL ENCLOSURE

Aerocraft Heat Treating 3/6/17

| | | | |
|---|---|---|---|
| Client | ~~Carlton Forge Works~~ | Job No. | 14714 |
| Plant Name | ~~Carlton Forge Works~~ Aerocraft Heat Treating | Test Date. | 2/15/2017 |
| City/State | Paramount, CA | Tester Signature | |
| Sampling Location | Inspection Building Baghouse | | |

PTE # Inspection Building

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| M204-1 | 0 1142 | -0.0093 |
| | 5 1147 | -0.015 |
| | 10 1152 | -0.0113 |
| | 15 1157 | -0.0087 |
| | 20 1202 | -0.0094 |
| | 25 1207 | -0.0098 |
| | 30 1212 | -0.0106 |
| | 35 1217 | -0.0085 |
| | 40 1222 | -0.0115 |
| | Average | |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| | 45 1227 | -0.0122 |
| | 50 1232 | -0.0078 |
| | 55 1237 | -0.0088 |
| | 60 1242 | -0.0116 |
| | Average: | -0.0103 |
| | | |
| | | |
| | | |
| | | |
| | Average | |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | Average | |

Reviewer

AirKinetics, Inc.

# SOURCE TEST REPORT

# AEROCRAFT HEAT TREATING BUILDING 2

**Source Location:**

**Aerocraft Heat Treating**
**15701 Minnesota Ave**
**Paramount, California 90723**
**Facility ID: 023752**

**Test Date: April 26-28, 2017**
**Issue Date: June 13, 2017**

**Prepared for:**

**Aerocraft Heat Treating**
**15701 Minnesota Ave**
**Paramount, California 90723**

**Prepared by:**

**AirKinetics, Inc.**
**1308 S. Allec Street**
**Anaheim, California 92805**
**(714) 254-1945 Fax: (714) 956-2350**
**AKI No.: 14715B**

AirKinetics, Inc.
EMISSIONS CHARACTERIZATION
AND TESTING SERVICES

June 13, 2017

Mr. Gregory Stonick
Aerocraft Heat Treating
15701 Minnesota Ave
Paramount, California 90723

AKI No.: 14715C

AirKinetics, Inc.
EMISSIONS CHARACTERIZATION AND TESTING SERVICES

Dear Mr. Stonick:

AirKinetics, Inc. conducted source testing at Aerocraft Heat Treating facility in Paramount, California on April 26-28, 2017. Testing was performed on Building 2. The test objective was to conduct verification on Building 2 permanent total enclosure in accordance with EPA Method 204. Test Results are summarized in Table 1 and all supporting data are attached.

**TABLE 1**

**PERMANENT TOTAL ENCLOSURE RESULTS**

| Parameter | Units | Results | Limit |
|---|---|---|---|
| Distance from NDO to Closest Emitting Point<br>No NDO's Observed | | 5.52 | >4 |
| Ratio of Total Area (NDOs) to Surface Area of Enclosure | % | 0.377 | <5 |
| Face Velocity[a] | Inches Water | -0.0426 | >0.007[a] |
| All Access Doors Not Included in the NDOs are Closed During Normal Operations | | Yes | |
| All Emission are Captured and Contained for Discharge Through Baghouse | | Yes | |

NDO – Natural Draft Opening

NA – No NDO's Observed

a – Face Velocity Alternative (a measurement of pressure differences was taken at North, South, and West Door and the Degrease Tank)

If you should have any questions concerning this test report, please do not hesitate to call me at (800) 899-3687

Sincerely,

Morgan Nguyen
Project Supervisor

**ATTACHMENT**

Test Date: April 26-28, 2017
Test Location: Aerocraft Bulidng 2 Baghouse 1 and 2
PERMANENT TOTAL ENCLOSURE

| PROCESS | # OF | NDO | Length/Diameter (in.) (A) | Width (in.) (B) | NDOs (sq. in.) © | TOTAL NDOs (sq. in.) © x # of | Equivalent Diameters (in.) (D) |
|---|---|---|---|---|---|---|---|
| Degrease Tank | 1 | 1 | 120 | 10 | 1200 | 1200.0 | 39.10 |
| | | | | | TOTAL | 1200.0 sq. in. | |
| | | | | | | 8.33 sq. ft. | |

Where: © = (A) x (B)
© = π x ((A) /2 )^2 for circular vent

**1) Distance from Each NDO to the Nearest VOC Emitting Point**

| | | Equivalent Diameters (in.) (D) | Distance to Nearest VOC Emitting Point (in.) (E) | Equivalent Diameters (F) | Limit |
|---|---|---|---|---|---|
| Degrease Tank | 1 | 39.10 | 216 | 5.52 | >4 |

Where: (F) = (E) / (D)
NA - Distance not applicable since there is no VOC emitting point.

**2) Ratio of Total Area (NDOs) to Surface Area of Enclosure**

| | Total Area NDOs (sq. in.) (G) | Surface Area of Enclosure (sq. in.) (H) | Ratio of NDOs to Surface Area (%) (I) | Limit |
|---|---|---|---|---|
| Degrease Tank | 1,200 | 3,823,488 | 0.0314 | <5% |

**3) Face Velocity (Pressure Differences)**

| | Face Velocity (Inches H2O) (K) | Limit |
|---|---|---|
| | -0.0426 | >0.007 in. H2O |

**4) All Access doors not included in the NDOs are closed during normal operations**

**5) All emissions are captured and contained for discharge through the baghouses.**

## EPA METHOD 204 - VERFICIATION OF A PERMANENT TOTAL ENCLOSURE

| | | | |
|---|---|---|---|
| Client | Aerocraft Heat Treating | Job No. | 14715 |
| Plant Name | Aerocraft Heat Treating | Test Date. | 4-26-17 |
| City/State | Paramount, CA | Tester Signature | |
| Sampling Location | Degrease tank | | |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2 Degrease - M204-1 | 0:00 | 0.0320 |
| | 5:00 | 0.0412 |
| | 10:00 | 0.0374 |
| | 15:00 | 0.0386 |
| | 20:00 | 0.0423 |
| | 25:00 | 0.0389 |
| | 30:00 | 0.0418 |
| | 35:00 | 0.0442 |
| | 40:00 | 0.0377 |
| | 45:00 | 0.0361 |
| | 50:00 | 0.0389 |
| | 55:00 | 0.0378 |
| | 60:00 | 0.0391 |
| | Average | 0.0389 |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2 Degrease - M204-2 | 0:00 | 0.0369 |
| | 5:00 | 0.0314 |
| | 10:00 | 0.0372 |
| | 15:00 | 0.0386 |
| | 20:00 | 0.0423 |
| | 25:00 | 0.0453 |
| | 30:00 | 0.0389 |
| | 35:00 | 0.0413 |
| | 40:00 | 0.0368 |
| | 45:00 | 0.0394 |
| | 50:00 | 0.0382 |
| | 55:00 | 0.0371 |
| | 60:00 | 0.0414 |
| | Average | 0.0376 |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A - B2 Degrease - M204-3 | 0:00 | 0.0468 |
| | 5:00 | 0.0415 |
| | 10:00 | 0.0446 |
| | 15:00 | 0.0423 |
| | 20:00 | 0.0382 |
| | 25:00 | 0.0389 |
| | 30:00 | 0.0372 |
| | 35:00 | 0.0432 |
| | 40:00 | 0.0387 |
| | 45:00 | 0.0371 |
| | 50:00 | 0.0467 |
| | 55:00 | 0.0394 |
| | 60:00 | 0.0368 |
| | Average | 0.0409 |

Reviewer COR

## EPA METHOD 204 - VERFICIATION OF A PERMANENT TOTAL ENCLOSURE

| | | | |
|---|---|---|---|
| Client | Aerocraft Heat Treating | Job No. | 14715 |
| Plant Name | Aerocraft Heat Treating | Test Date. | 4-26-17 |
| City/State | Paramount, CA | Tester Signature | |
| Sampling Location | North Door | | |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2-M204-1 | 0:00 | 0.0458 |
| A-B2 North-M204 | 5:00 | 0.0425 |
| -1 | 10:00 | 0.0427 |
| | 15:00 | 0.0416 |
| | 20:00 | 0.0426 |
| | 25:00 | 0.0425 |
| | 30:00 | 0.0418 |
| | 35:00 | 0.0429 |
| | 40:00 | 0.0432 |
| | 45:00 | 0.0399 |
| | 50:00 | 0.0406 |
| | 55:00 | 0.0436 |
| | 60:00 | 0.0410 |
| | Average | 0.0424 |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2North-M204 | 0:00 | 0.0432 |
| -2 | 5:00 | 0.0413 |
| | 10:00 | 0.0427 |
| | 15:00 | 0.0431 |
| | 20:00 | 0.0419 |
| | 25:00 | 0.0407 |
| | 30:00 | 0.0421 |
| | 35:00 | 0.0440 |
| | 40:00 | 0.0415 |
| | 45:00 | 0.0429 |
| | 50:00 | 0.0437 |
| | 55:00 | 0.0452 |
| | 60:00 | 0.0413 |
| | Average | 0.0425 |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2North-M204 | 0:00 | 0.0426 |
| -3 | 5:00 | 0.0453 |
| | 10:00 | 0.0421 |
| | 15:00 | 0.0433 |
| | 20:00 | 0.0431 |
| | 25:00 | 0.0422 |
| | 30:00 | 0.0446 |
| | 35:00 | 0.0437 |
| | 40:00 | 0.0402 |
| | 45:00 | 0.0397 |
| | 50:00 | 0.0417 |
| | 55:00 | 0.0421 |
| | 60:00 | 0.0432 |
| | Average | 0.0426 |

Reviewer COR

## EPA METHOD 204 - VERFICIATION OF A PERMANENT TOTAL ENCLOSURE

| | | | |
|---|---|---|---|
| Client | Aerocraft Heat Treating | Job No. | 14715 |
| Plant Name | Aerocraft Heat Treating | Test Date. | 4-27-17 |
| City/State | Paramount, CA | Tester Signature | |
| Sampling Location | South Door | | |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2South-M204 -1 | 0:00 | 0.0496 |
| | 5:00 | 0.0470 |
| | 10:00 | 0.0457 |
| | 15:00 | 0.0450 |
| | 20:00 | 0.0465 |
| | 25:00 | 0.0451 |
| | 30:00 | 0.0449 |
| | 35:00 | 0.0453 |
| | 40:00 | 0.0460 |
| | 45:00 | 0.0454 |
| | 50:00 | 0.0467 |
| | 55:00 | 0.0475 |
| | 60:00 | 0.0478 |
| | Average | 0.0461 |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2South-M204 -2 | 0:00 | 0.0473 |
| | 5:00 | 0.0484 |
| | 10:00 | 0.0459 |
| | 15:00 | 0.0443 |
| | 20:00 | 0.0452 |
| | 25:00 | 0.0477 |
| | 30:00 | 0.0487 |
| | 35:00 | 0.0462 |
| | 40:00 | 0.0467 |
| | 45:00 | 0.0451 |
| | 50:00 | 0.0468 |
| | 55:00 | 0.0471 |
| | 60:00 | 0.0482 |
| | Average | 0.0467 |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2South-M204-3 | 0:00 | 0.0413 |
| | 5:00 | 0.0487 |
| | 10:00 | 0.0493 |
| | 15:00 | 0.0476 |
| | 20:00 | 0.0485 |
| | 25:00 | 0.0471 |
| | 30:00 | 0.0471 |
| | 35:00 | 0.0467 |
| | 40:00 | 0.0445 |
| | 45:00 | 0.0471 |
| | 50:00 | 0.0474 |
| | 55:00 | 0.0468 |
| | 60:00 | 0.0482 |
| | Average | 0.0469 |

Reviewer COR

## EPA METHOD 204 - VERFICIATION OF A PERMANENT TOTAL ENCLOSURE

| | | | |
|---|---|---|---|
| Client | Aerocraft Heat Treating | Job No. | 14715 |
| Plant Name | Aerocraft Heat Treating | Test Date. | 4-28-17 |
| City/State | Paramount, CA | Tester Signature | |
| Sampling Location | West Door | | |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2West-M204 | 0:00 | 0.0437 |
| -1 | 5:00 | 0.0434 |
| | 10:00 | 0.0430 |
| | 15:00 | 0.0410 |
| | 20:00 | 0.0426 |
| | 25:00 | 0.0394 |
| | 30:00 | 0.0418 |
| | 35:00 | 0.0412 |
| | 40:00 | 0.0427 |
| | 45:00 | 0.0411 |
| | 50:00 | 0.0422 |
| | 55:00 | 0.0415 |
| | 60:00 | 0.00432 |
| | Average | 0.0421 |

PTE # _____

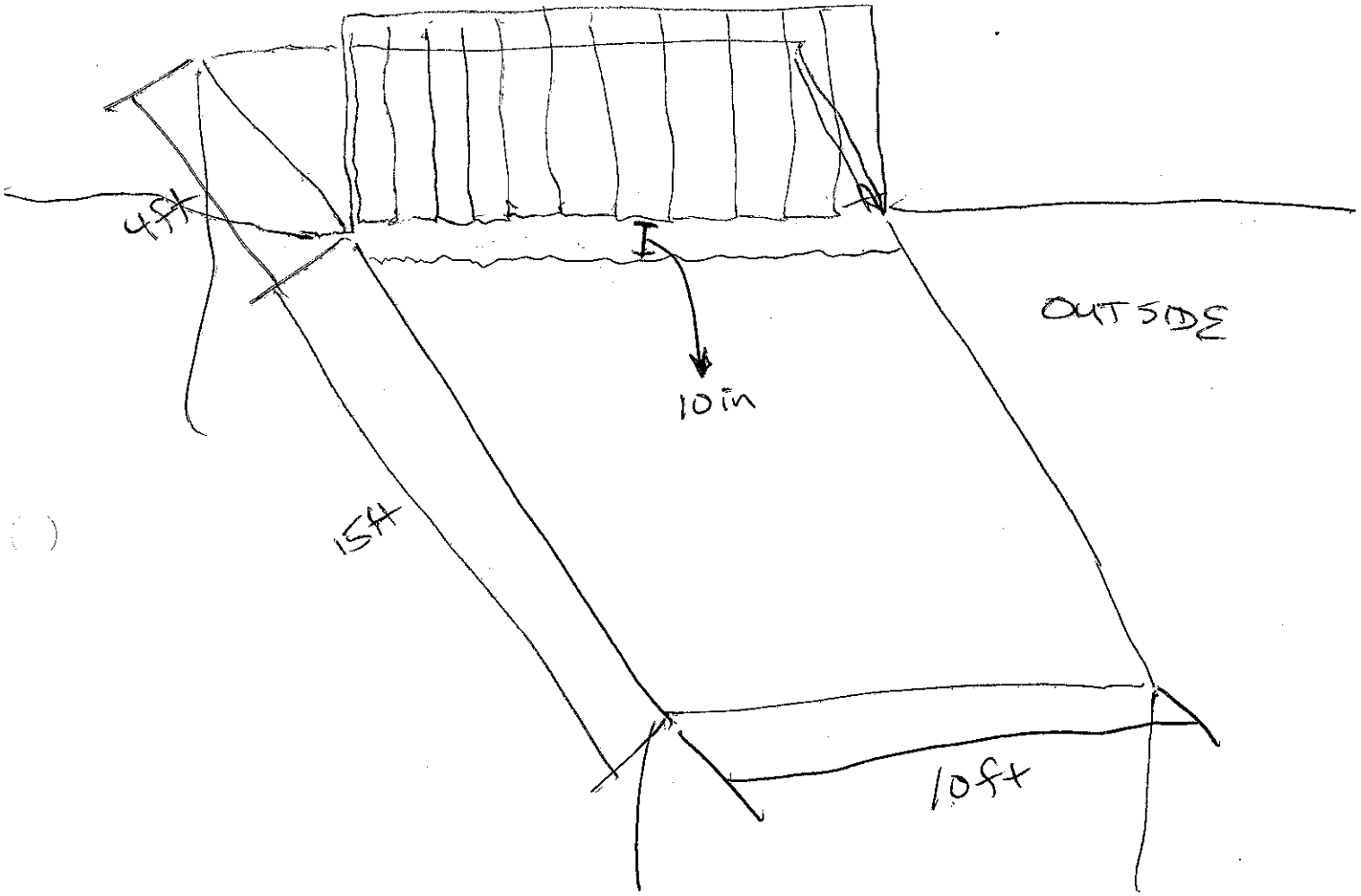
| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2West-M204 | 0:00 | 0.0421 |
| -2 | 5:00 | 0.0437 |
| | 10:00 | 0.0432 |
| | 15:00 | 0.0431 |
| | 20:00 | 0.0427 |
| | 25:00 | 0.0426 |
| | 30:00 | 0.0415 |
| | 35:00 | 0.0421 |
| | 40:00 | 0.0418 |
| | 45:00 | 0.0407 |
| | 50:00 | 0.0413 |
| | 55:00 | 0.0409 |
| | 60:00 | 0.0432 |
| | Average | 0.0422 |

PTE # _____

| Run No. | Time | ADM Reading (inches H2O) |
|---|---|---|
| A-B2West-M204 | 0:00 | 0.0431 |
| -3 | 5:00 | 0.0426 |
| | 10:00 | 0.0403 |
| | 15:00 | 0.0414 |
| | 20:00 | 0.0423 |
| | 25:00 | 0.0427 |
| | 30:00 | 0.0415 |
| | 35:00 | 0.0437 |
| | 40:00 | 0.0448 |
| | 45:00 | 0.0462 |
| | 50:00 | 0.0413 |
| | 55:00 | 0.0427 |
| | 60:00 | 0.0431 |
| | Average | 0.0427 |

Reviewer CDR

# ENCLOSURE

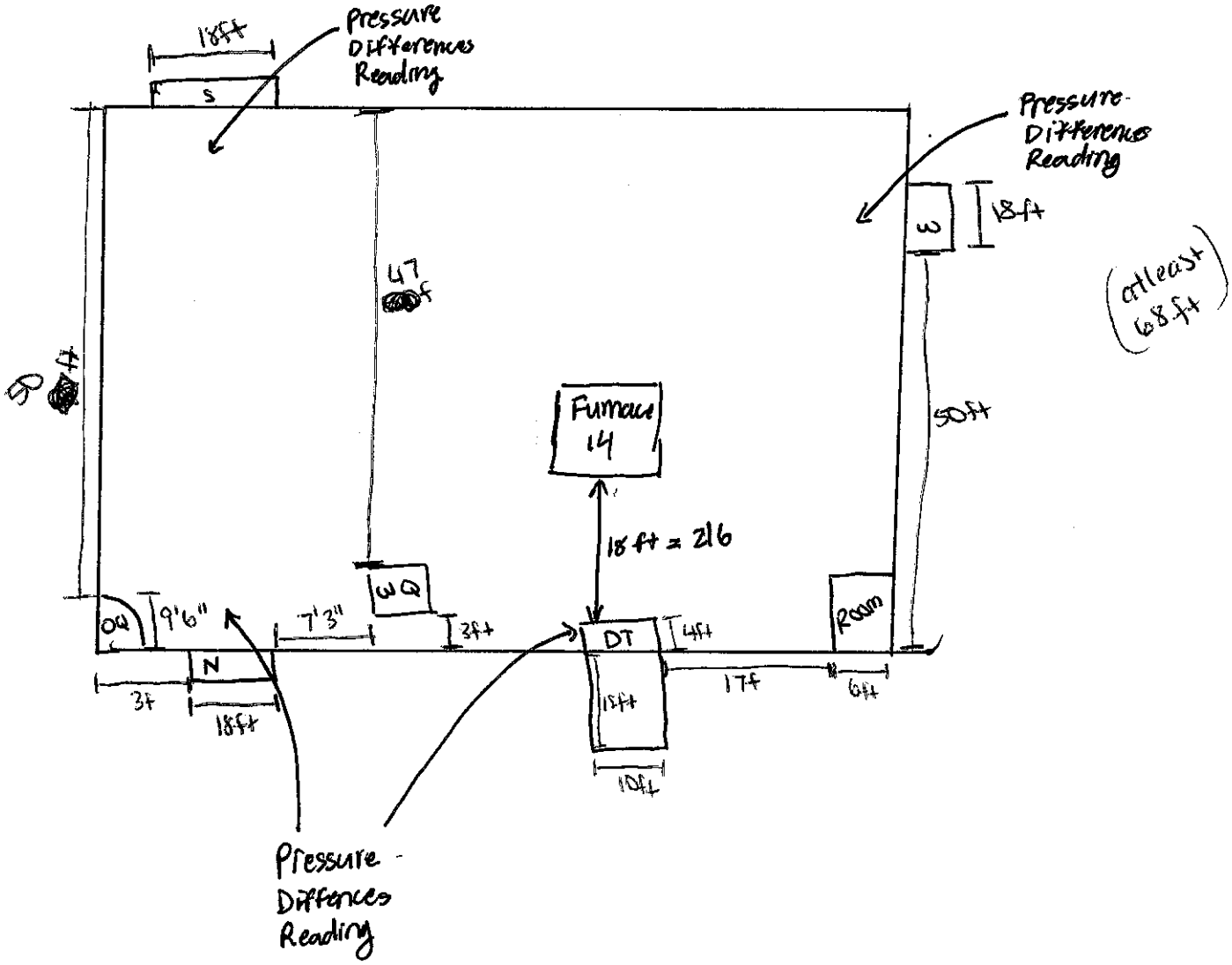



DEGREASER TANK DIAGRAM

$= 10'' \times 120'' = 1200\ in^2$

$NDO = 1200\ in^2$

NDO = 1200 in²


18ft
Pressure Differences Reading
S
Pressure Differences Reading
W
18ft
47
(atleast 68.ft
50ft
Furnace 14
18 ft = 216
WD
3ft
OD
9'6"
7'3"
DT
4ft
Room
N
3ft
18ft
17f
6ft
15ft
10ft
Pressure Differences Reading

## Catalina Del Real

**om:** Ruiz, Juan <jruiz@dicksontesting.com>
**ent:** Tuesday, May 23, 2017 12:38 PM
**To:** Catalina Del Real
**Cc:** Jason Mai; Morgan Nguyen; Tony Wong
**Subject:** RE: Dimensions of Building 2 (AKI No.: 14715B)

Hi Catalina,

Building 2
L: 120'
W: 65'

Thanks,

*Juan Carlos Ruiz*
**EHS Coordinator**
Office: (562) 862-8378 x332
Cell: (562) 412-2434
jruiz@dicksontesting.com

**From:** Catalina Del Real [mailto:DelRealC@airkineticsinc.com]
**Sent:** Monday, May 22, 2017 8:20 AM
**To:** Ruiz, Juan <jruiz@dicksontesting.com>
**Cc:** Jason Mai <maij@airkineticsinc.com>; Morgan Nguyen <nguyenm@airkineticsinc.com>; Tony Wong <wongt@airkineticsinc.com>
**Subject:** FW: Dimensions of Building 2 (AKI No.: 14715B)

Hi Carlos

Would you be able to provide me with the dimensions of Building 2 from your facility (refer to dimensions desired below)? I need this for the PTE and the final report is due to the district by this Friday so please let me know as soon as you can. I would greatly appreciate it.

Thank you,

Catalina Del Real

**From:** Catalina Del Real
**Sent:** Thursday, May 18, 2017 11:43 AM
**:** 'jruiz@dicksontesting.com'
**:** Morgan Nguyen (nguyenm@airkineticsinc.com); Jason Mai (maij@airkineticsinc.com)
**Subject:** Dimensions of Building 2 (AKI No.: 14715B)

## Catalina Del Real

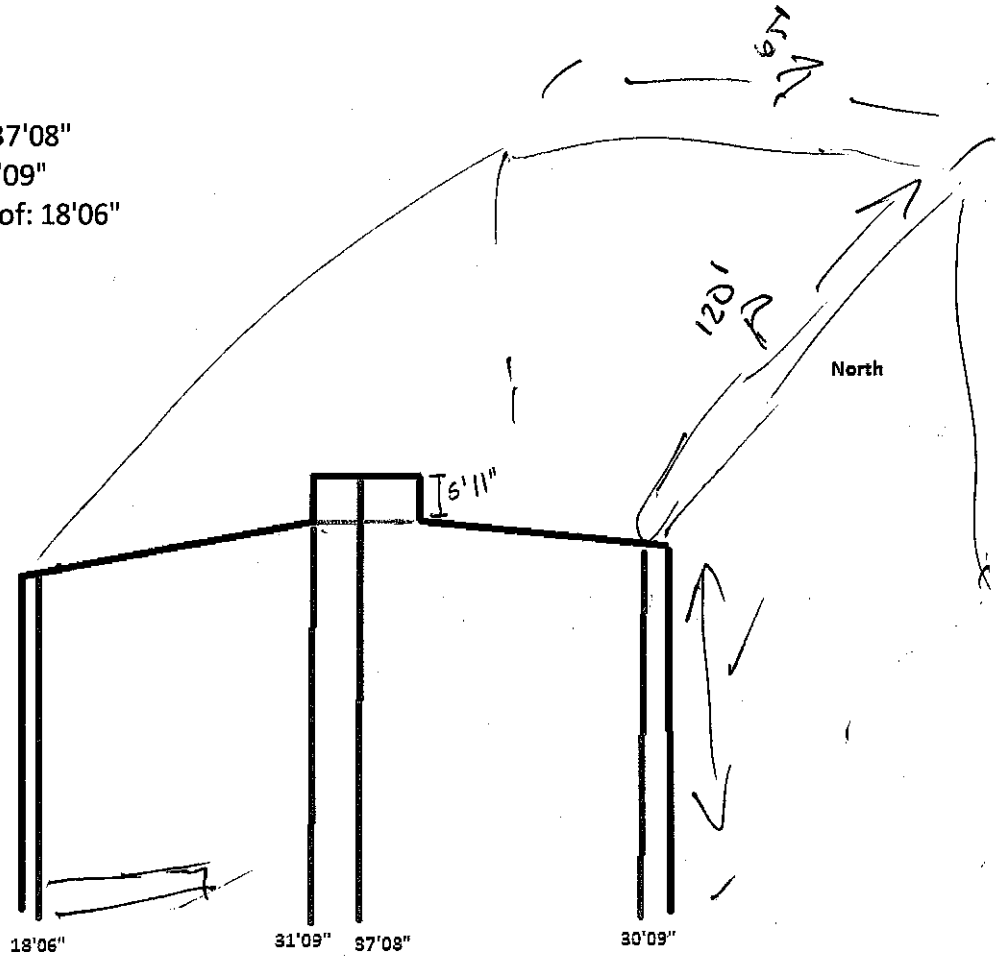
**From:** Ruiz, Juan <jruiz@dicksontesting.com>
**Sent:** Monday, May 22, 2017 9:09 AM
**To:** Catalina Del Real
**Cc:** Jason Mai; Morgan Nguyen; Tony Wong
**Subject:** RE: Dimensions of Building 2 (AKI No.: 14715B)

Catalina,

Please see below. I have also included a rough sketch showing the dimension. I will work on getting L and W.

Thanks,

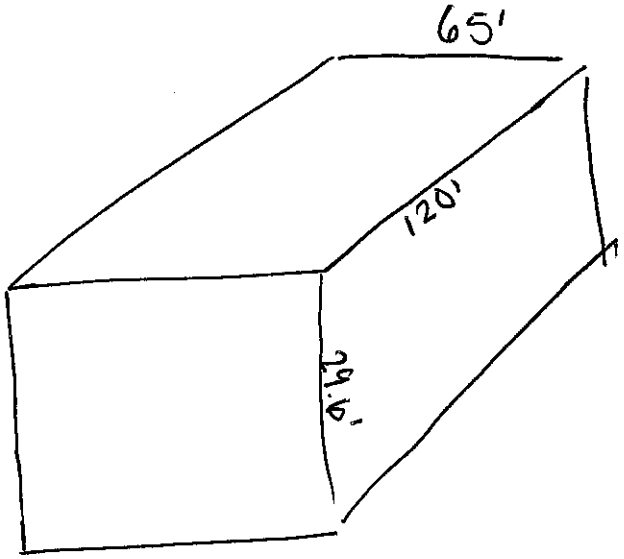
Building 2:
Top of Doghouse: 37'08"
Top of Building: 31'09"
South section of roof: 18'06"
North Side: 30'09"




< 5% NDD/surface

25' x 50' x 150' ~~11'~~ 120 x 10 = 1200 in²
< 10 ft²

Juan Carlos Ruiz
**EHS Coordinator**
Office: (562) 862-8378 x332
: (562) 412-2434
jruiz@dicksontesting.com




Height

222"
381"
452"
369"

Avg

356" → 29.6 ft

Total SA

$2(29.6 \times 120) = 7104\ ft^2$

$2(29.6 \times 65) = 3848\ ft^2$

$2(65 \times 120) = \frac{15,600}{7800}\ ft^2$

~~18,752~~ 26552 $ft^2$

NDO

$10" \times \frac{120"}{1200"} = 1200\ in^2$

$= 8.33 ft^2$

$Ratio = \frac{8.33 ft^2}{\frac{18,752}{26552}} \times 100 = 0.0444\% \rightarrow 0.0314\%$

Total Surface Area ($ft^2$) = 26,552

($inches^2$) = 3,823,488

APPENDIX C

# Housekeeping Practices at Aerocraft

**APPENDIX C**
**SUMMARY OF ON-GOING HOUSEKEEPING ACTIVITIES**

| Risk Reduction Measure (Order for Abatement ID) | Description of RRP Measure | Description Measure in Order for Abatement | Frequency |
|---|---|---|---|
| 2 | Use wet mobile sweeper across the facility | Use a mobile wet sweeper to minimize potential for fugitive metal dust emissions | Daily |
| 9 (f) | Use HEPA vacuuming cleaning in areas where fugitive metal dust may accumulate. | Perform wet cleaning or cleaning with a HEPA vacuum inside the grinding enclosure and within 40-feet of each entry or exit point from the grinding enclosure. | After each shift |
| 11 (l.) | Train employees. on housekeeping and fugitive metal dust minimization | Train employees to minimize fugitive metal dust emissions, including the prohibition of the use of compressed air or brooms for cleaning in any area where scale or metal dust have the potential to accumulate. | On-going |
| 16 | If in use, monitor water-quench tank for hexavalent chromium concentrations | | Monthly |
| 17 | Vacuum floor surfaces in the vicinity of fan cooling using a HEPA vacuum if fan-cooling is occurring. | | Daily |
| 22 | Operate air pollution controls while conducting housekeeping or cleaning. | | As appropriate |
| 23 | Clean dust and loose material from the interior of each operating furnace. | | Annual |
| 31 | Use a HEPA vacuum to clean heat-treat storage racks, if used. | | Daily |

**APPENDIX C**
**SUMMARY OF ON-GOING HOUSEKEEPING ACTIVITIES**

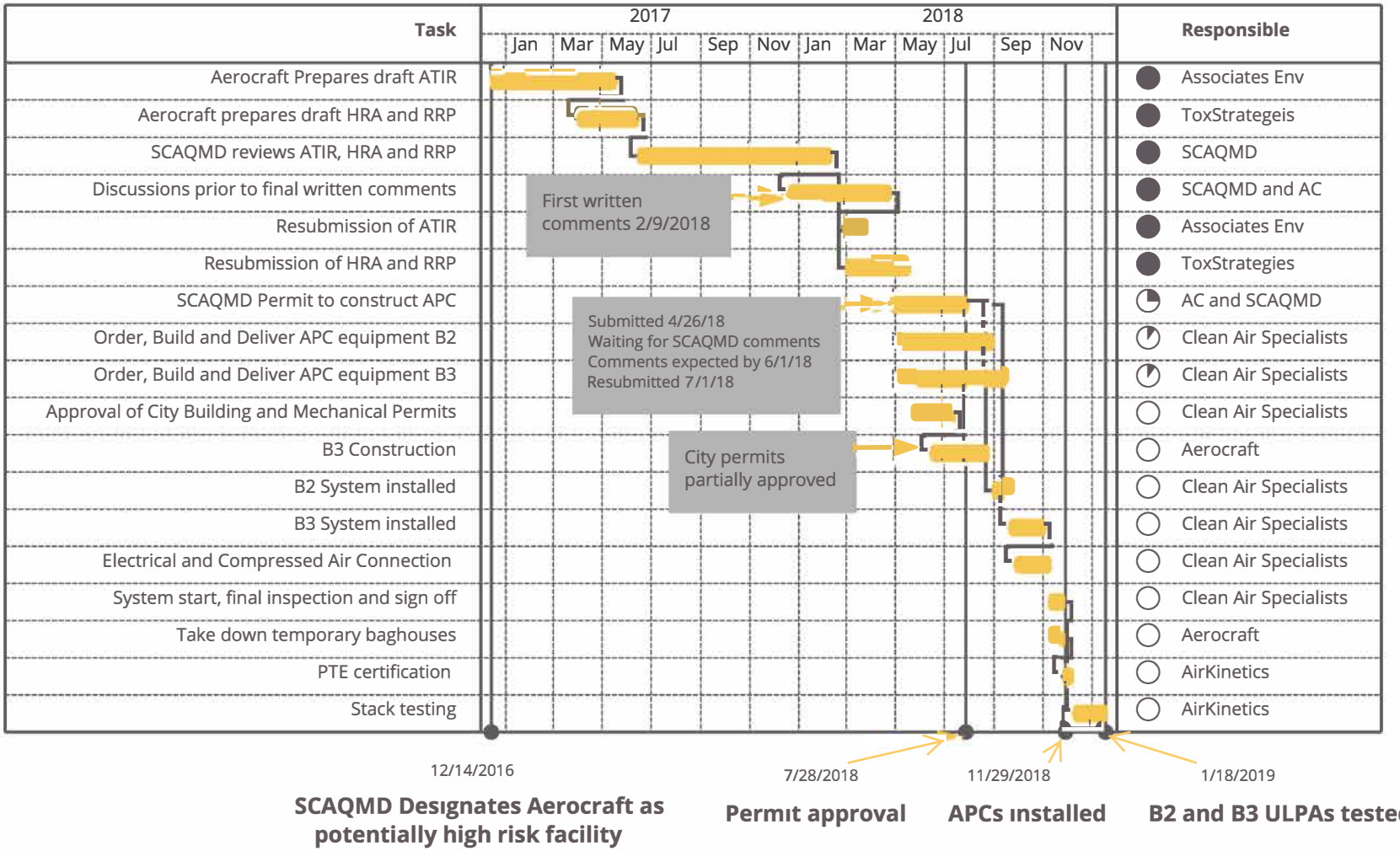
| Risk Reduction Measure (Order for Abatement ID) | Description of RRP Measure | Description Measure in Order for Abatement | Frequency |
|---|---|---|---|
| (h.) | | Inspect grinding enclosure to identify potential sources of fugitive metal dust emissions. Address any sources within 72 hours or as soon as materials required for repair are available. | Monthly |
| (m.) | | Require a wet or HEPA vacuum cleaning within one hour of completion of any maintenance or repair activity to a furnace, heat treating equipment, or grinding enclosure. Cover the floor area within 20 feet of where the maintenance or repair activity took place, where reasonably safely accessible. | As necessary |
| (o.) | | Wet cleaning or HEPA vacuuming of all equipment and materials used for maintenance or repairs and potentially contaminated with metal dust immediately after completion of the work | As necessary. |
| (s.) | | Perform smoke tests on the grinding enclosure during any calendar quarter where the controlled process occurs | Quarterly |

APPENDIX D

# Schedule for PTE Certification and ULPA Filtration System Installation

# Aerocraft Risk Reduction Schedule

**(May 18, 2018-subject to extenuating circumstances)**




CEQA schedule to be submitted to SCAQMD by 6/1/2018
B3 = Building 3, B2 = Building 2, APC = Air Pollution Control, PTE = Permanent Total Enclosure

APPENDIX E

# Electronic Files for Air Dispersion Modeling for Risk Reduction Plan

(Provided on CD)