

SOURCE TEST REPORT

16-334

CONDUCTED AT

Aerocraft Heat Treating Co., Inc. 15701 Minnesota Ave. Paramount, CA 90723

HEXAVALENT CHROMIUM EMISSIONS FROM VARIOUS LOCATIONS

TESTED:
ISSUED:
REPORTED BY:

November 17, 2016

December 9, 2016

William Welch Air Quality Engineer II

REVIEWED BY:

Michael Garibay Supervising Air Quality Engineer

SOURCE TEST ENGINEERING BRANCH

SCIENCE & TECHNOLOGY ADVANCEMENT DIVISION

Cleaning the air that we breathe...¹¹¹

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CALCULATIONS

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Te	st No. <u>16-334</u>	-3-	Date: <u>11/17/16</u>
<u>SI</u>	JMMARY		
a.	Firm	<u>Aerocraft Heat Treating Co., 1</u>	Inc.
b.	Test Location	15701 Minnesota Ave., Paramount, CA 90723	
c.	Unit Tested	<u>Various Metal Treatment Proc</u>	cesses
d.	Test Requested by	Matt Miyasato (DEO), (909) 3 <u>Science & Technology Advan</u>	396-3249, acement
e.	Reason for Test Request	<u>High ambient air monitor reac</u>	lings of Cr ⁺⁶
f.	Date of Test	<u>November 17, 2016</u>	
g.	Source Test Performed by	Mike Garibay, Wayne Stredw <u>Eric Padilla, Bill Welch</u>	ick
h.	Test Arrangements Made Through	Carlos Ruiz <u>Aerocraft Heat Treating (562)</u>	412-2434
i.	Company I.D. No	<u>23752</u>	
j.	Permit No	<u>Various</u>	

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<u>RESULTS</u>		
Table	e 1. Summary of Test Conditions	
Operating Conditions:		

Building #2 Water Quench Tank	Water recirculating through cooling tower; no quenching events
Heat Treat Furnace #3	With Inconel pieces at 2100 °F
Building #2 Oil Quench Tank	Oil recirculating through heat exchanger; one quenching event

Table 2. Summary of Hexavalent Chromium Emission Concentrations

Emissions Source	Cr ⁺⁶ Concentration (ng/m ³)*
Fugitive Emissions from Bldg. #2 Water Quench Tank	638
Fugitive Emissions from Heat Treat Furnace #3	376
Fugitive Emissions from Bldg. #2 Oil Quench Tank	130
Three Run Average	381

* The concentrations are reported in the same units as the recent ambient air monitoring which was 15 ng/m³ - average 11/5/16 through 11/17/16 from Monitor 4219585 located immediately west of the facility heat treating and quenching area.

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Table 3. Process Materials Containing Hexavalent Chromium

Process Material	Cr ⁺⁶ Concentration (ppm)
Solution Sample from Bldg. #2 Water Quench Tank	46
Solution Sample from Bldg. #2 Oil Quench Bath Cooling Tower	0.005
Metal Dust from Intermediate Product Storage	190
Scale Scraping from Treated Titanium Part	0.018

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EXECUTIVE SUMMARY

Source testing was conducted at Aerocraft Heat Treating Company, Inc. in Paramount, CA to identify the specific causes of elevated ambient hexavalent chromium levels measured recently near the facility. The emissions above processes within the facility were measured for hexavalent chromium concentration. The processes were classified into three types: water quench baths, oil quench baths, and furnaces. The emissions testing included one of each of the three classifications of processes that were closest in proximity to the ambient monitor with elevated readings. The results were obtained for purposes of identifying potential sources of the elevated ambient readings and to rank them for their relative potential impacts. Liquid samples were also taken from both the water and quench baths, as well solid samples from the loose oxidized surface material from the heat treated products and product racks.

The average ambient concentration of hexavalent chromium adjacent to the facility was 15 ng/m³ for the period preceding and including the test date. The average measured source concentrations from the processes at the facility was 381 ng/m³. These elevated source concentrations, at 25 times the ambient just outside the facility, are considered as positive identification that the facility is contributing to the nearby elevated ambient concentrations. Of the three types of processes tested, the water quench area was most positively identified as a contributor with a measured emissions concentration of 638 ng/m³. Of the solid and liquid samples taken, the accumulated dust from the intermediate product storage area was most positively identified with a 190 ppm hexavalent chromium content. The other two process types, the furnace and the oil quench, were also positively identified with elevated hexavalent chromium emissions over ambient at 376 ng/m³ and 130 ng/m³ respectively.

Two primary sources of the hexavalent chromium emissions were identified. The first source is from droplets of water from the water quench bath becoming airborne in the water quench cooling towers and the return discharge into the tank. The second source is the dust from oxidized part surfaces, prevalent in the quenching area, becoming airborne when disturbed by forced air cooling and other activities. Either of these primary sources is thought to be produced by heat treating chromium containing products such as stainless steel parts and parts racks, and partial conversion of the solid chromium on the surface of the products under high temperatures encountered during heat treating. It is also thought that the oil quench and furnace samples may have been influenced by emissions from the two primary sources mentioned, but could still be contributors to the emissions.

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INTRODUCTION

On November 17, 2016, Engineers from the South Coast Air Quality Management District (SCAQMD) Source Test Engineering (STE) branch conducted source testing at Aerocraft Heat Treating Co., Inc. in Paramount, CA. The purpose of the testing was to identify the specific causes of elevated ambient hexavalent chromium levels measured very near to the Aerocraft facility. The heat treating subjects chromium containing materials to elevated temperatures, which has the potential to convert small but significant portions of the chromium to the hexavalent state. Other processes were identified that may cause the converted chromium to become airborne. These included heat treating furnaces, oil quench baths, water quench baths, cooling towers for the quench baths, and a forced air cooling process.

For testing, the several potential sources of hexavalent chromium in the heat treating process were classified into four types that have the potential to create emissions:

- 1. Dust from the surfaces of the heat treated products containing chromium which were prevalent in the facility becoming airborne from forced air cooling, wind, or any activities that disturb the dust.
- 2. Water quench bath disturbances including, the direct contact quench water cooling tower, and agitation from the cooling tower return discharge to the cooling bath.
- 3. Oil quenching, which was observed to create visible combustion of the oil and smoke.
- 4. Heat treating furnaces.

Three (3) locations were identified for single run emissions information testing to address Categories 2 - 4 as stated above. The three source testing samples were single tests for purposes of identifying potential causes for the elevated emissions and to rank them for their relative potential impacts. The locations chosen were the exhaust vent of heat treat Furnace #3, fugitive emissions above the water quench tank and below the cooling tower in Building 2, and the fugitive emissions above oil quench tank in Building 2. These locations were chosen in part due to their proximity to SCAQMD ambient monitoring stations that were indicating elevated levels of hexavalent chromium.

Additional samples were taken from the oil quench bath solutions, the water quench bath solutions, metal scrapings from a titanium heat treated part, and metal dust from an intermediate part storage area. The dust from the intermediate part storage area was of particular importance since there was a large amount of this dust accumulated in this area, and it was also representative of dust that was observed at several locations in the heat treating processing and quenching areas.

The facility had grinding and a plasma cutter located across the street from the heat treating buildings, but these processes were not tested since they were not nearest to the ambient monitor

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with elevated readings, and the facility claimed that they had not used the plasma cutter since June 2016.

Sources whose emissions are measured as greater than that of the downwind monitor are considered to be potential contributors to the hexavalent chromium measured by the monitor, with those exhibiting the greater concentrations more positively identified as contributors.

The Discussion/Test Critique section of this report includes conclusions that can be drawn from the results.

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EQUIPMENT AND PROCESS DESCRIPTION

Aerocraft Heat Treating operates 18 custom built, batch type, gas fired, air atmosphere furnaces with temperature ranges from 450 °F to 2250 °F, and working zones as large as 18 ft. x 20 ft. x 7 ft. The company provides commercial heat treating for steel, titanium, and other high temperature materials. The treated parts are placed on racks constructed of high chromium stainless steel which are used to convey the parts into and out of the furnaces and are placed into the furnaces along with the parts while they are heat treated and also during the subsequent quenching. Treated parts can be water or oil quenched, and fan or air-cooled. The facility operates three (3) water quench tanks, two (2) oil quench tanks, and one (1) forced air cooling station. The quench water is cooled in direct contact cooling towers, while the quench oil is cooled by heat exchangers with indirect cooling from fresh water cooling towers. The overall heat treating process is shown in Figure 1.

The chromium in the parts that are stainless steel, and the parts racks constructed from stainless steel have the potential to convert a small but significant portion of the chromium to the hexavalent state, when subjected to elevated temperatures. The surface of the parts and racks after heat treating take on a scaly, rust like appearance indicative of oxidation and chemical change that takes place on the surface of the metal. Hexavalent chromium present in the oxidized chromium can then be dissolved in the water for water quenched parts due to the high solubility in water. Additionally the oxidized metal physically flakes off the parts and racks as they are air cooled and moved about the facility.

Most often when the winds are from the prevailing southwest direction, the emissions from the three heat treating buildings are likely to be funneled through the space between the buildings and directed towards the SCAQMD Monitor 4219585 located on a sidewalk utility pole on Minnesota Avenue. This is one of the two monitors in the area recently with the highest hexavalent chromium readings. The layout of the buildings and placement of the monitor along with the sampling locations are shown in Figure 2.

I addition to heat treating the facility also conducts grinding on the heat treated products and also operates a plasma cutter. Both the grinding and plasma cutting are located in separate buildings across Minnesota Street from the heat treating.

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SAMPLING AND ANALYTICAL PROCEDURES

Three locations were identified for one run at each location for emissions information testing. The three source testing samples were obtained for purposes of identifying potential causes for the elevated emissions and to rank them for their relative potential impacts. Three sources of emissions were selected as those determined to present the greatest potential for causing elevated ambient hexavalent chromium near the facilities. The samples were taken from the air above but very near to the sources as to represent emissions that are transported by air currents that are diluted and move towards the direction of the ambient monitors. Ambient air concentrations were used to determine the average molecular weight of the exhaust gas. For the water quench bath and the oil quench bath, the samples were acquired from a single point located approximately 1 ft. above the surface of the solutions. The sampling locations for the quench baths are shown in Figures 3 and 4. For the furnace exhaust, the sample was drawn from a point approximately six inches from the discharge of a furnace exhaust vent to represent the emissions from the furnace as they are being discharged are directed into that air currents that move towards the ambient monitor.

Solution samples were acquired from the water quench tank and oil quench tank within Building #2. An additional sample of metal dust from the intermediate storage area and the was also taken. These samples were analyzed for hexavalent chromium content. A photograph of the metal dust that was sampled in the intermediate storage area is shown in Figure 4.

Hexavalent Chromium Emission Sampling

Testing was conducted based on California Air Resources Board Method 425 applied to the nonstack open air above the quench baths and furnace, with the procedures of the method specific to stack sampling omitted. Three samples were taken at single non-isokinetic sample points for informational purposes. Each sampling train consisted of a sampling line, which was used to draw the stack sample from the source. The sample was then drawn through two impingers each filled with an aqueous solution of 0.1N NaHCO₃ (per section 21.2), an empty impinger, a 2" filter, and an impinger bubbler filled with tared silica gel. Each sampling train was connected to a leak free vacuum pump, a dry gas meter, and a calibrated orifice. The impingers were contained in an ice bath to condense water vapor and other condensable matter present in the sample stream (see Figure 5).

The samples were extracted using the sampling trains. The pH of the solution in the first impinger was measured after the test, but prior to recovery, at pH 9. The impinger solutions were recovered within 24 hours and the SCAQMD laboratory analyzed the hexavalent chromium in the samples by CARB SOP MLD039. Hexavalent chromium deposited in the filter, sample line and impingers were extracted and analyzed by an Ion Chromatograph equipped with a post-

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column reactor (IC/PCR) and a visible wavelength detector. Moisture content was determined gravimetrically and volumetrically.

Hexavalent Chromium Content of Process Materials

The metal dust sample was extracted in a sodium bicarbonate solution. Aliquots from this solution and the solution samples from the oil and water quench tanks were taken. Samples were analyzed according to SCAQMD Method #0046, *Standard Operating Procedure for the Analysis of Hexavalent Chromium in Ambient Air by Ion Chromatography*.

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DISCUSSION/TEST CRITIQUE

For purposes of interpreting the test results, the typical ambient Los Angeles Basin average for hexavalent chromium measured during the most recent SCAQMD Multiple Air Toxics Exposure Study (MATES) IV study is less than 0.1 ng/m³. While all of the results are substantially higher than the background, it should be noted that it takes a significant volume of air at source concentrations substantially higher than the background to able to affect the ambient air levels and is a function of distance away from the facility due to air dilution. The intent of this test was to identify sources that are at least several times higher than the background levels to identify the major contributors and to provide a focus for potential remediation. The average ambient concentration adjacent to the facility was 15 ng/m³ for the period including and preceding the test date, as comparted to the measured source concentrations from the facility which was 381 ng/m³ as the average of the three tanks tested. These elevated source concentrations at 25 times the ambient, are considered as positive identification that the facility is contributing to the nearby elevated ambient concentrations. Additionally, it is possible that multiple sources in the facility of all three types tested, are all contributing to the nearby elevated ambient concentrations.

The CARB Method 425 sampling method isokinetic requirements could not be met due to the samples being taken in the open space above the tanks/furnace vent and not in a stack of their control devices since there were no control devices present. This resulted in an over isokinetic condition of over 110% as allowed in the method. General isokinetic theory dictates that an over-isokinetic condition results in dilution of the emissions particles and a resulting low bias in the measured emissions. Although a low bias may have occurred, the results are considered to be suitable for purposes of their intended use, since the emissions are certain to be present at concentrations at or above that which was measured during the testing.

Of the three types of sources tested for emissions, the water quench area was most positively identified as a contributor with a measured emissions concentration of 638 ng/m³. From the solid and liquid samples taken, the accumulated dust from the intermediate product storage area was most positively identified with a 190 ppm hexavalent chromium content. For purposes of discussion, it would take only 0.13 mg of the dust that was sampled to be able to cause a 15 ng/m³ reading from the ambient monitor which typically samples 1.7 m³ in 24 hours. Since these ambient samplers typically collect a few milligrams of total suspended particulate matter over a 24 hour period, they could easily be collecting 0.13 mg of dust from the facility. SCAQMD inspectors, Victor Yip and Jeff Lloyd observed that a substantial quantity of this metal dust could be observed suspended in the air during the forced air quenching events that occurred on the test date. Other means of causing this dust to become airborne include wind, forklift traffic, or even sweeping the dust.

Based on the highest ambient air and process source samples, it is thought that the highest contributors to elevated ambient readings near the facility are from the facility dust and water quench tanks/cooling towers. As according to representatives from the facility in a December 1,

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2016 meeting with SCAQMD, Aerocraft is in the process of removing the facility dust and replacing the water quench tank solutions in order to reduce emissions of hexavalent chromium.

The emissions were also high from the heat treat Furnace #3 at 376 mg/m³, but the elevated concentration could have resulted from the water quench bath whose cooling tower fan discharges towards the furnace. The sample from the oil quench at 130 ng/m³ bath yielded a significant Cr^{+6} concentration, but it may actually be reflective of ambient dust in the immediate area. Aerocraft has indicated it will conduct further testing to investigate the emissions from the furnaces and oil quench baths after the dust and water remediation steps have been taken.

The facility uses a small sweeper/vacuum vehicle for mitigating dust from the various processes. It was observed at the facility that after sweeping, a high pressure air hose was used to clean the inner cowling and mechanical parts of the vehicle. This resulted in the generation of a large cloud of dust that vented near the oil quench tank. Based on the laboratory analysis of the metal dust from the intermediate storage area ("XYZ Rack"), it is reasonable to assume that the dust from the sweeper may also contain significant amounts of Cr^{+6} .

The reader of this report may be aware that similar testing was conducted at the nearby Anaplex Corporation the day before this test was conducted. The Anaplex results are reported under a separate cover, SCAQMD Source Test #16-333. When interpreting the significance of the results, the differences in concentrations between the facilities (Aerocraft being much lower that of Anaplex) is misleading and requires further clarification. The sources at Anaplex are relatively small plating and chemical tanks emitting at high concentrations, whereas Aerocraft is a larger facility with larger quench baths and a large dust laden metals processing area that emits at lower concentrations but over a wider emissions surface area. For example, the dichromate seal tank tested at Anaplex was a 658 gallon tank as compared to the Aerocraft quench baths at 37,000 gallons. For this reason, the differences between the two facilities in concentrations measured at the sources, does not reflect the relative differences in total emissions from the two facilities is likely to be more similar than is indicated by the dissimilar concentrations measured at the sources within the facilities. The similarities in total facility emissions is more properly reflected in the similarities in the ambient monitoring readings taken next to both facilities.

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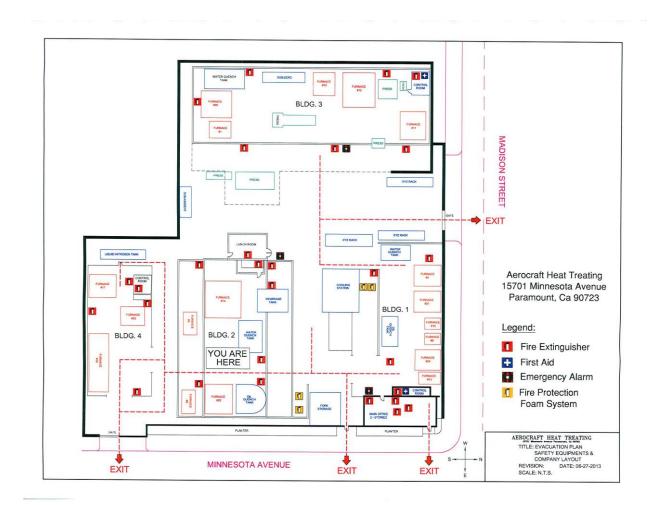
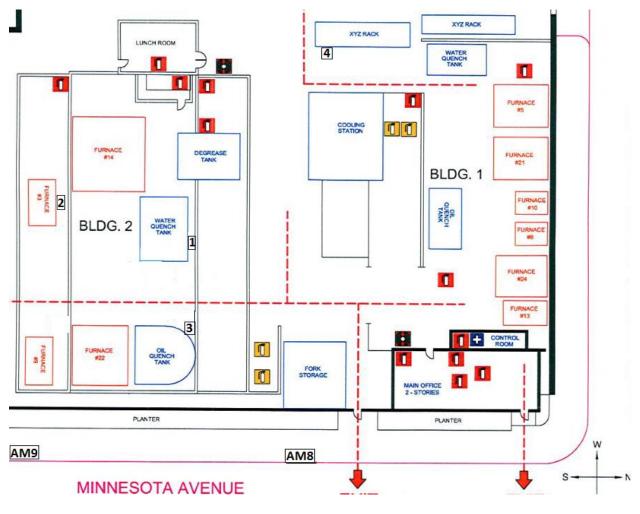


Figure 1: Overall Facility Layout

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1 – Bldg. 2 Water Quench Tank
 2 – Furnace #3
 3 – Bldg. 2 Oil Quench Tank
 4 – Intermediate Storage Area
 AM8 – Air Monitoring Station
 AM9 – Air Monitoring Station

Figure 2: Source Sampling and Air Monitoring Locations

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Figure 3: Bldg. 2 Water Quench Tank

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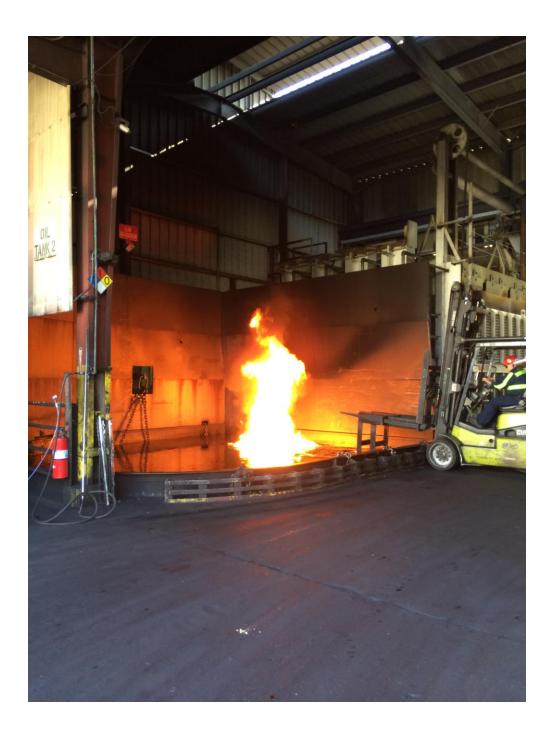


Figure 4: Bldg. 2 Oil Quench Tank

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Figure 5: Intermediate Storage Area ("XYZ Rack") Metal Dust

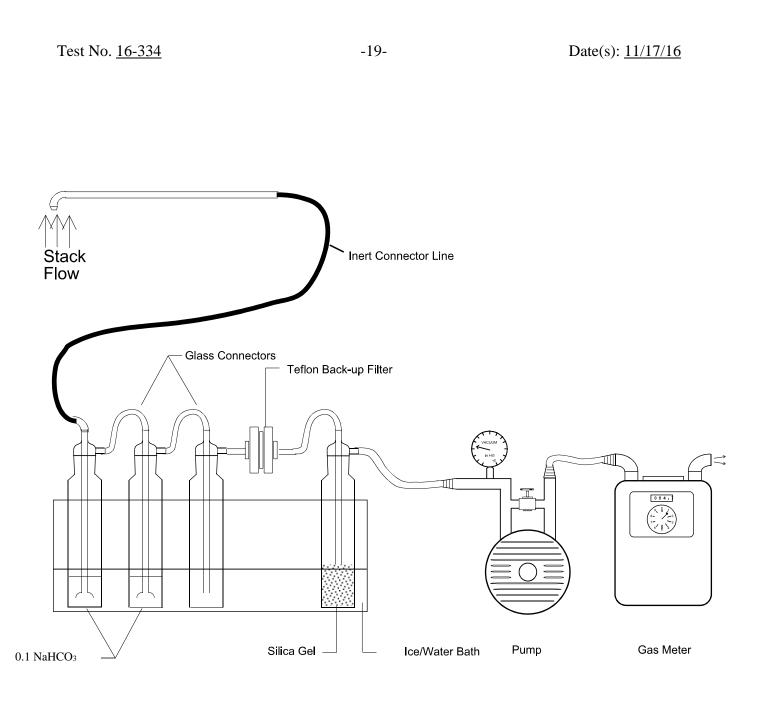


Figure 6: CARB Method 425

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CALCULATIONS

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Test No	. 16-334			11/17/2016	
	SOURCE TE	ST CALCULATIONS			
Sampling Location:	Aerocraft Heat Treating -Above	1.10.00 DO 00.000 DO 00.000 DO			
Sample Train:	18-(Hex-Chrome)		Input by:	W. Stredwi	CK
	locity			#DIV/0!	fps
B. Gas Meter Temperatu	ure (Use 60 deg.F for Temp Comp	. Meters)	<mark></mark>	78.42857	deg F
C. Gas Meter Correction	Factor			1.0292	
D. Average Orifice Press	sure				"H20 inch
 Nozzle Diameter 					mon
-1. Stack Diameter or D	imension #1 inch	M. Pitot Correction Fa		0.84	
	if circular) inch	N. Sampling Time			min
G. Stack Cross Sect. Are		O. Nozzle X-Sect. Area			
	#DIV/0! deg F 	P. Net Sample Collect Q. Net Solid Collection			
. Barometric Pressure J. Gas Meter Pressure (R. Water Vapor Conde			-
K. Static Pressure		S. Gas Volume Metere			dcf
Total Stack Pressure					
	ne [(S x J/29.92) x 520/(460+B) x C	、		27.683	dscf
I. Corrected Gas volum	le [(3 x 3/23.32) x 320(400 · D) x 0				
J. Percent Water Vapo	r in Gas Sample ((4.64 x R)/((0.04	64 x R) + T))		0.53	%
√. Average Molecular \			cular Wt.		% /t./Mole
V. Average Molecular \ Component	Weight (Wet): Vol. Fract. x Moi		cular Wt.	= W	/t./Mole
V. Average Molecular \ Component Water	Weight (Wet): Vol. Fract. x Moi 0.005 1.	st. Fract. x Mole	cular Wt.	= W 0.10 0.00	/t./Mole
V. Average Molecular \ Component Water Carbon Dioxide	Weight (Wet): Vol. Fract. x Moi 0.005 1. 0.000 Dry Basis 0. 0.000 Dry Basis 0.	st. Fract. x Mole 000 18.0 095 44.0 095 28.0	cular Wt.	= W 0.10 0.00 0.00	/t./Mole
V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen	Weight (Wet): Vol. Fract. x Moi 0.005 1.1 0.000 Dry Basis 0.1 0.000 Dry Basis 0.1 0.209 Dry Basis 0.1	st. Fract. x Mole 000 18.0 995 44.0 995 28.0 995 32.0	cular Wt.	= W 0.10 0.00 0.00 6.65	/t./Mole
V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen	Weight (Wet): Vol. Fract. x Moi 0.005 1. 0.000 Dry Basis 0. 0.000 Dry Basis 0. 0.209 Dry Basis 0.	st. Fract. x Mole 000 18.0 095 44.0 095 28.0	cular Wt.	= W 0.10 0.00 0.00	/t./Mole
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/. Average Molecular \ Component Water Carbon Dioxide Carbon Monoxide Dxygen Nitrogen & Inerts	Weight (Wet): Vol. Fract. x Moi 0.005 1.1 0.000 Dry Basis 0.1 0.000 Dry Basis 0.1 0.209 Dry Basis 0.1	st. Fract. x Mole 000 18.0 995 44.0 995 28.0 995 32.0	cular Wt.	= W 0.10 0.00 0.00 6.65 22.19	/t./Mole
V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen Nitrogen & Inerts	Weight (Wet): Vol. Fract. x Moi 0.005 1. 0.000 Dry Basis 0. 0.000 Dry Basis 0. 0.209 Dry Basis 0. 0.791 Dry Basis 0.	st. Fract. x Mole 2000 18.0 295 44.0 295 28.0 295 32.0 395 28.0	cular Wt.	= W 0.10 0.00 0.00 6.65 22.19 28.94	/t./Mole
V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen Nitrogen & Inerts FLOW RATE	Weight (Wet): Vol. Fract. x Moi 0.005 1. 0.000 Dry Basis 0. 0.000 Dry Basis 0. 0.209 Dry Basis 0. 0.791 Dry Basis 0. 0.791 Dry Basis 0.	st. Fract. x Mole 000 18.0 995 44.0 995 28.0 995 32.0 995 28.0	cular Wt.	= W 0.10 0.00 0.00 6.65 22.19 28.94 1.00	/t./Mole
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 V. Average Molecular Molecular Molecular Mater Carbon Dioxide Carbon Monoxide Carbon Monoxide Carbon Monoxide Nitrogen & Inerts FLOW RATE W. Gas Density Correct X. Velocity Pressure Corrected Velocity (X) Z. Flow Rate (V × G × 6 AA. Flow Rate (Standar BB. Dry Flow Rate (AA x) 	Weight (Wet): Vol. Fract. x Moi 0.005 1.1 0.000 Dry Basis 0.1 0.000 Dry Basis 0.1 0.209 Dry Basis 0.1 0.791 Dry Basis 0.1 0.791 Dry Basis 0.1 tion Factor (28.95/V)^5 brrection Factor (29.92/L)^5 A x M x W x X) 0) d) {Z x (L/29.92) x [520/(460+H)]}. x (U/100))	st. Fract. x Mole	cular Wt.	= V 0.10 0.00 0.00 6.65 22.19 28.94 1.00 1.00 #DIV/0! #DIV/0! #DIV/0!	fps cfm scfm
V. Average Molecular M Component Water Carbon Dioxide Carbon Monoxide Oxygen Nitrogen & Inerts FLOW RATE W. Gas Density Correct X. Velocity Pressure Co Y. Corrected Velocity (/ Z. Flow Rate (Y × G × 6 AA. Flow Rate (Standar BB. Dry Flow Rate (AA) SAMPLE CONCENTRA	Weight (Wet): Vol. Fract. x Moi 0.005 1.1 0.000 Dry Basis 0.1 0.000 Dry Basis 0.1 0.000 Dry Basis 0.1 0.209 Dry Basis 0.1 0.791 Dry Basis 0.1 orrection Factor (28.95/V)^^.5 0.1 orrection Factor (29.92/L)^^.5 0.1 o) (2 x (L/29.92) x [520/(460+H)]). x (U/100)) TION/EMISSION RATE	st. Fract. x Mole 000 18.0 095 44.0 095 28.0 095 32.0 095 28.0 095 28.0 005 28.	cular Wt.	= W 0.10 0.00 0.00 6.65 22.19 28.94 1.00 1.00 #DIV/0! #DIV/0! #DIV/0! #DIV/0!	/t./Mole fps cfm scfm ! dscfm
 V. Average Molecular M Component Water Carbon Dioxide Carbon Monoxide Oxygen Nitrogen & Inerts FLOW RATE W. Gas Density Correct X. Velocity Pressure Co Y. Corrected Velocity (/ Z. Flow Rate (Y x G x 6 AA. Flow Rate (Standar BB. Dry Flow Rate (AA : SAMPLE CONCENTRA CC. Sample Concentrat DD. Sample Concentrat 	Weight (Wet): Vol. Fract. x Moi 0.005 1, 0.000 Dry Basis 0, 0.000 Dry Basis 0, 0.209 Dry Basis 0, 0.209 Dry Basis 0, 0.791 Dry Basis 0, 0.	st. Fract. x Mole 000 18.0 095 44.0 095 28.0 095 32.0 095 28.3 095 28.3 095 28.3 095 28.3 095 28.3 095 28.3 005 28.4 005 28.	cular Wt.	= W 0.10 0.00 0.00 6.65 22.19 28.94 1.00 1.00 #DIV/0! #DIV/0! #DIV/0! #DIV/0! 2.79E-07 1.51E-04	/t./Mole fps cfm scfm ! dscfm 7 gr/dscf 4 ppm
V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen Nitrogen & Inerts FLOW RATE W. Gas Density Correct X. Velocity Pressure Co Y. Corrected Velocity (/ Z. Flow Rate (Y x G x 6 AA. Flow Rate (Standar BB. Dry Flow Rate (AA 3) SAMPLE CONCENTRA CC. Sample Concentrat DD. Sample Concentrat	Weight (Wet): Vol. Fract. x Moi 0.005 1.1 0.000 Dry Basis 0.1 0.000 Dry Basis 0.1 0.209 Dry Basis 0.1 0.209 Dry Basis 0.1 0.791 Dry Basis 0.1 0.791 Dry Basis 0.1 wrection Factor (28.95/V)^.5 A x M x W x X) 0) d) {Z x (L/29.92) x [520/(460+H)]}. x (U/100)) TION/EMISSION RATE tion [0.01543 x (P/T)]	st. Fract. x Mole 000 18.0 095 44.0 095 28.0 095 28.0 095 28.1 095 28.1 005 28.	cular Wt.	= V 0.10 0.00 0.00 6.65 22.19 28.94 1.00 1.00 #DIV/0! #DIV/0! #DIV/0! #DIV/0! 2.79E-07 1.51E-04 6.38E+02	fps cfm scfm ! dscfm ? gr/dscf 4 ppm 2 ng/m3

Test No. <u>16-334</u>

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D. Notage Diameter 0.84 F1. Stack Diameter 0.84 F2. Stack Dim #2 (blank if circular) inch N. Sampling Time G. Stack Cross Sect. Area 0.000 ft2 O. Nozzle X-Sect. Area 0.000016 I. Barometric Pressure 29.80 "HgA Q. Net Solid Collection 0.00015 J. Gas Meter Pressure 1420 S. Gas Volume Metered 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.98 "HgA R. Water Vapor Condensed 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.487 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.487 V. Corrected Gas Volume [(S x J/29.92) x 520/(460+B) x C 51.487 51.487 PERCENT MOISTURE/GAS DENSITY U. Percent Water Vapor in Gas Sample ((4.64 x R)/((0.0464 x R) + T)) 0.00 V. Average Molecular Weight (Wet): Component Vol. Fract. x Moist. Fract. x Molecular Wt. = N N Water 0.000 Dry Basis 1.000 18.0 , 0.00 Carbon Dioxide 0.000 Dry Basis	ck fps
Sampling Location: Aerocraft Heat Treating -Above Oil Quench Tank #2 Sample Train: 10-(Hex-Chrome) Input by: W. Stredw SUMMARY A. Average Traverse Velocity	ck fps deg F "H₂0
SUMMARY #DIV/01 B. Gas Meter Temperature (Use 60 deg.F for Temp Comp. Meters). 80.07143 C. Gas Meter Correction Factor. 10.0292 D. Average Orfice Pressure. 2.55 E. Nozzle Diameter. 0.000 ft2 F1. Stack Diameter or Dimension #1. inch N. Pitot Correction Factor. 0.84 F2. Stack Dim #2 (blank if circular). inch N. Sampling Time. 06 G. Stack Cross Sect. Area. 0.000 ft2 O. Nozzle X-Sect. Area. 0.000015 I. Barometric Pressure. 29.80 "HgA R. Water Vapor Condensed. 0.00015 J. Gas Meter Pressure (I+(K/13.6)). 29.80 "HgA S. Gas Volume Metered. 51.847 L. Total Stack Pressure (I+(K/13.6)). 29.80 "HgA S. Gas Volume Metered. 51.487 L. Total Stack Pressure (I+(K/13.6)). 29.80 "HgA S. Gas Volume Metered. 51.487 U. Percent Water Vapor in Gas Sample ((4.64 x R)/((0.0464 x R) + T)). 0.00 0.00 0.00 V. Average Molecular Weight (Wet): Component Vol. Fract. x Moist. Fract. x Molecular Wt. = V Carbon Dioxide 0.000 Dry Basis 1.000 28.0 . 0.00 Oxygen 0.299 Dry Bas	fps deg F "H₂0
A. Average Traverse Velocity. #DI/V01 3. Gas Meter Temperature (Use 60 deg,F for Temp Comp. Meters). 80.07143 2. Gas Meter Correction Factor. 1.0292 D. Average Orifice Pressure. 2.50 E. Nozzle Diameter. 0.000 F1. Stack Diameter or Dimension #1. inch M. Pitot Correction Factor. 0.84 Stack Cross Sect. Area 0.000 ft2 O. Nozzle X-Sect. Area 0.000012 Stack Cross Sect. Area 0.000 ft2 O. Nozzle X-Sect. Area 0.000012 J. Gas Meter Pressure 29.80 "HgA Q. Net Solid Collection 0.00015 J. Gas Meter Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered. 51.847 J. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered. 51.487 T. Corrected Gas Volume [(S x J/29.92) x 520/(460+B) x C. 51.487 51.487 51.487 PERCENT MOISTURE/GAS DENSITY U. Percent Water Vapor in Gas Sample ((4.64 x R)/((0.0464 x R) + T)). 0.00 0.00 V. Average Molecular Weight (Wet): Component Vol. Fract. x Moist. Fract. x Molecular Wt. N Meter Component Vol. Fract. x Moist.	deg ⊦ "H₂0
B. Gas Meter Temperature (Use 60 deg.F for Temp Comp. Meters). 80.0714 C. Gas Meter Correction Factor. 1.0292 D. Average Orifice Pressure. 2.50 E. Nozzle Diameter. 0.000 ft2 F1. Stack Diameter or Dimension #1. inch N. Pitot Correction Factor. 0.84 F2. Stack Diameter or Dimension #1. inch N. Sampling Time. 66 G. Stack Cross Sect. Area. 0.000 ft2 O. Nozzle X-Sect. Area. 0.00001 I. Average Stack Temp. #DIV/01 deg F P. Net Sample Collection. 0.00011 I. Barometric Pressure. 29.80 "HgA Q. Net Solid Collection. 0.00011 J. Gas Meter Pressure (I+(D/13.6)). 29.98 "HgA R. Water Vapor Condensed. 51.847 K. Static Pressure (I+(K/13.6)). 29.80 "HgA S. Gas Volume Metered. 51.847 L. Total Stack Pressure (I=(K x J/29.92) x 520/(460+B) x C. 51.487 51.487 51.487 V. Average Molecular Weight (Wet): Component Vol. Fract. x Moist. Fract. x Molecular Wt. = N Component Vol. Fract. x Moist. Fract. x Molecular Wt. = N Water 0.000	deg ⊦ "H₂0
C. Gas Meter Correction Factor. 1.0292 D. Average Orifice Pressure 2.50 E. Nozzle Diameter. 2.50 F1. Stack Dim #2 (blank if circular). inch N. Sampling Time. 0.64 F2. Stack Dim #2 (blank if circular). inch N. Sampling Time. 0.00001 G. Stack Cross Sect Area. 0.0000 ft2 O. Nozzle X-Sect Area. 0.00001 Barometric Pressure. 29.80 "HgA Q. Net Solid Collection. 0.00015 J. Gas Meter Pressure (I+(D/13.6)). 29.80 "HgA R. Water Vapor Condensed 51.847 L. Total Stack Pressure (I+(K/13.6)). 29.80 "HgA S. Gas Volume Metered. 51.847 L. Total Stack Pressure (I+(K/13.6)). 29.80 "HgA S. Gas Volume Metered. 51.847 L. Total Stack Pressure (I+(K/13.6)). 29.80 "HgA S. Gas Volume Metered. 51.487 PERCENT MOISTURE/GAS DENSITY U. Percent Water Vapor in Gas Sample ((4.64 x R)/((0.0464 x R) + T)). 0.00 0.00 V. Average Molecular Weight (Wet): Component Vol. Fract. x Moist. Fract. x Molecular Wt. N N Water 0.000 Dry Basis 1.000 18.0 0.00 0.00 Carbon Dioxid	"H20
D. Average Orifice Pressure 2.50 E. Nozzle Diameter 0.000 ft2 F1. Stack Diameter or Dimension #1	
E. Nozzle Diameter	inch
F1. Stack Diameter or Dimension #1inch M. Pitot Correction Factor	
1. OldAX Diank if circular)	
2. Outor Din Water 0.000 ft2 0. Nozzle X-Sect. Area 0.000001 Barometric Pressure 29.80 "HgA Q. Net Solid Collection 0.000015 J. Gas Meter Pressure (I+(D/13.6)) 29.98 "HgA R. Water Vapor Condensed 0.00015 J. Gas Meter Pressure (I+(K/13.6)) 29.98 "HgA R. Water Vapor Condensed 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.487 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.487 V. Average Molecular Water Vapor in Gas Sample ((4.64 x R)/((0.0464 x R) + T)) 0.00 0.00 V. Average Molecular Weight (Wet): Component Vol. Fract. x Moist. Fract. x Molecular Wt. N Water 0.000 1.000 18.0 , 0.00 Carbon Dioxide 0.000 Dry Basis 1.000 28.0 , 0.00 Nitrogen & Inerts 0.791 Dry Basis 1.000 28.2 , 22.3' Sum 28.90 y	1000 · 1000
B. Otech for Solar Treedmann #DIV/01 deg F P. Net Sample Collection 0.00015 I. Barometric Pressure 29.80 "HgA Q. Net Solid Collection 0.00015 J. Gas Meter Pressure (I+(D/13.6)) 29.80 "HgA R. Water Vapor Condensed 51.847 L. Total Stack Pressure "Ha0 S. Gas Volume Metered 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered 51.847 L. Total Stack Pressure (I(S x J/29.92) x 520/(460+B) x C 51.487 51.487 51.487 V. Average Molecular Weight (Wet): Component Vol. Fract. x Moist. Fract. x Molecular Wt. = Notecular Wt. =	min
I. Barometric Pressure. 29.80 "HgA Q. Net Solid Collection. 0.00015 J. Gas Meter Pressure (I+(D/13.6)) 29.80 "HgA R. Water Vapor Condensed. 51.847 K. Static Pressure. "Hz0 S. Gas Volume Metered. 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered. 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered. 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered. 51.487 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA S. Gas Volume Metered. 51.487 V. Corrected Gas Volume [(S x J/29.92) x 520/(460+B) x C 51.487 0.000 0.000 0.000 V. Average Molecular Weight (Wet): 0.000 1.000 18.0 0.000 Component Vol. Fract. x Molecular Wt. = Molecular Wt. = </td <td></td>	
J. Gas Meter Pressure (I+(D/13.6))	
X. Static Pressure. "H20 S. Gas Volume Metered. 51.847 L. Total Stack Pressure (I+(K/13.6)) 29.80 "HgA 51.847 T. Corrected Gas Volume [(S x J/29.92) x 520/(460+B) x C. 51.487 PERCENT MOISTURE/GAS DENSITY 51.487 U. Percent Water Vapor in Gas Sample ((4.64 x R)/((0.0464 x R) + T)). 0.00 V. Average Molecular Weight (Wet): 0.00 Component Vol. Fract. x Moist. Fract. x Molecular Wt. = Water 0.000 1.000 18.0 0.00 Carbon Dioxide 0.000 Dry Basis 1.000 28.0 0.00 Carbon Monoxide 0.209 Dry Basis 1.000 28.2 22.3' Sum 28.93	
Total Stack Pressure (I+(K/13.6)) 29.80 "HgA T. Corrected Gas Volume [(S x J/29.92) x 520/(460+B) x C	
T. Corrected Gas Volume [(S x J/29.92) x 520/(460+B) x C	
PERCENT MOISTURE/GAS DENSITY 0.000 U. Percent Water Vapor in Gas Sample ((4.64 x R)/((0.0464 x R) + T))	
PERCENT MOISTURE/GAS DENSITY 0.00 U. Percent Water Vapor in Gas Sample ((4.64 x R)/((0.0464 x R) + T))	dscf
Water 0.000 1.000 18.0 0.000 Carbon Dioxide 0.000 Dry Basis 1.000 44.0 0.000 Carbon Monoxide 0.000 Dry Basis 1.000 28.0 0.000 Oxygen 0.209 Dry Basis 1.000 32.0 6.66 Nitrogen & Inerts 0.791 Dry Basis 1.000 28.2 22.3' Sum 28.95 28.2 22.3' Sum 28.95 28.2 22.3' Sum 28.95 1.000 28.2 1.000 X. Velocity Pressure Correction Factor (28.95/V)^5.5 1.000 1.000 1.000 Y. Corrected Velocity (A x M x W x X) #DIV/01 #DIV/01 #DIV/01 Z. Flow Rate (Y x G x 60) X (L/29.92) x [520/(460+H)]] #DIV/01	/t./Mole
Water 0.000 Dry Basis 1.000 44.0 0.000 Carbon Monoxide 0.000 Dry Basis 1.000 28.0 0.000 Dxygen 0.209 Dry Basis 1.000 32.0 6.69 Nitrogen & Inerts 0.791 Dry Basis 1.000 28.2 22.3' Sum 28.99 FLOW RATE W. Gas Density Correction Factor (28.95/V)^.5. 1.00 X. Velocity Pressure Correction Factor (29.92/L)^.5. 1.00 Y. Corrected Velocity (A × M × W × X). #DIV/0! Z. Flow Rate (Y × G × 60). #DIV/0! AA. Flow Rate (Standard) {Z × (L/29.92) × [520/(460+H)]}. #DIV/0!	
Carbon Monoxide 0.000 Dry Basis 1.000 28.0 0.000 Oxygen 0.209 Dry Basis 1.000 32.0 6.69 Nitrogen & Inerts 0.791 Dry Basis 1.000 28.2 22.37 Sum 28.99 28.99 1.000 28.2 1.000 FLOW RATE V. Gas Density Correction Factor (28.95/V)^5. 1.000 1.000 X. Velocity Pressure Correction Factor (29.92/L)^5. 1.000 1.000 Y. Corrected Velocity (A × M × W × X) #DIV/01 #DIV/01 Z. Flow Rate (Y × G × 60) #DIV/01 #DIV/01 AA, Flow Rate (Standard) {Z × (L/29.92) × [520/(460+H)]} #DIV/01	
Carbon Monoucce 0.000 Dry Basis 1.000 32.0 6.66 Oxygen 0.791 Dry Basis 1.000 28.2 22.33 Sum 28.95 28.95 28.95 FLOW RATE 0.000 Fractor (28.95/V)^5. 1.000 1.000 X. Velocity Pressure Correction Factor (29.92/L)^5. 1.000 1.000 Y. Corrected Velocity (A × M × W × X) #DIV/01 #DIV/01 Z. Flow Rate (Y × G × 60) #DIV/01 #DIV/01 AA, Flow Rate (Standard) {Z × (L/29.92) × [520/(460+H)]}. #DIV/01	
Nitrogen & Inerts 0.791 Dry Basis 1.000 28.2 22.3' Sum 28.95 FLOW RATE W. Gas Density Correction Factor (28.95/V)^.5	
Sum 28.99 FLOW RATE 1.00 X. Velocity Pressure Correction Factor (28.95/V)^.5	
FLOW RATE 1.00 X. Gas Density Correction Factor (28.95/V)^.5	
W. Gas Density Correction Factor (28.95/V)^.5	
X. Velocity Pressure Correction Factor (29.92/L)^.5	
X. Velocity Pressure Correction Factor (29.92/L)^.5	
Y. Corrected Velocity (A x M x W x X)	
Z. Flow Rate (Y x G x 60)	fps
AA. Flow Rate (Standard) {Z x (L/29.92) x [520/(460+H)]} #DIV/0!	cfm
BB. Dry Flow Rate (AA x (U/100)) #DIV/	scfm
	! dscfm
SAMPLE CONCENTRATION/EMISSION RATE	
DD. Sample Concentration [54,143xC 100 (Molecular Wt.)]	3 gr/dscf
EE. Sample Concentration (2288373506.65 X CC)	5 ppm

Test No. <u>16-334</u>

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Test No.	16-334				11/17/2016	
		JRCE TEST	CALCULATION	NS .		
Sampling Location:	Aerocraft Heat Treating					
Sample Train:	15-(Hex-Chrome)			Input by	W. Stredwi	ck
						fnc
A. Average Traverse Vel	ocity re (Use 60 deg.F for Ter	mn Comn M	Neters)		. 89.14286	deg F
C Gas Meter Correction	Factor	np comp. n	<i>Netersy</i>		. 1.0075	
Average Orifice Press	ure				4.20	"H20
E. Nozzle Diameter						inch
1. Stack Diamator or Di	monsion #1	inch	M Pitot Corre	ection Factor	. 0.84	
	mension #1 if circular)			Time		min
G. Stack Cross Sect. Are				Sect. Area		
	#DIV/0!			e Collection		
. Barometric Pressure		"HgA	Carl Anna Streetter Starbourgers	Collection		
. Gas Meter Pressure (I		"HgA		or Condensed	1000	ml
K. Static Pressure	1 11	"H20	S. Gas Volum	ne Metered	34.210	dcf
Total Stack Pressure ((I+(K/13.6)) 29.80	"HgA				
	e [(S x J/29.92) x 520/(46				. 32.843	doof
J. Percent Water Vapor	in Gas Sample ((4.64 x	R)/((0.0464	x R) + T))		. 0.11	%
J. Percent Water Vapor V. Average Molecular V Component	in Gas Sample ((4.64 x	x Moist.	Fract. x	Molecular Wt.		% /t./Mole
J. Percent Water Vapor /. Average Molecular V Component Water	in Gas Sample ((4.64 x Veight (Wet): Vol. Fract.	x Moist.	Fract. x	Molecular Wt.	= W 0.02 0.00	
J. Percent Water Vapor /. Average Molecular V Component 	in Gas Sample ((4.64 x Veight (Wet): Vol. Fract. 0.001 0.000 Dry Basis 0.000 Dry Basis	x Moist. 1.000 0.999 0.999	Fract. x 0 9	Molecular Wt. 18.0 , 44.0 , 28.0 ,	= W 0.02 0.00 0.00	
J. Percent Water Vapor /. Average Molecular V Component 	in Gas Sample ((4.64 x Veight (Wet): Vol. Fract. 0.001 0.000 Dry Basis 0.000 Dry Basis 0.209 Dry Basis	x Moist. 1.000 0.999 0.999 0.999	Fract. x D 9 9	Molecular Wt. 18.0 , 44.0 , 28.0 , 32.0 ,	= W 0.02 0.00 0.00 6.68	
J. Percent Water Vapor /. Average Molecular V Component 	in Gas Sample ((4.64 x Veight (Wet): Vol. Fract. 0.001 0.000 Dry Basis 0.000 Dry Basis	x Moist. 1.000 0.999 0.999	Fract. x D 9 9	Molecular Wt. 18.0 , 44.0 , 28.0 ,	= W 0.02 0.00 0.00	
J. Percent Water Vapor V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen	in Gas Sample ((4.64 x Veight (Wet): Vol. Fract. 0.001 0.000 Dry Basis 0.000 Dry Basis 0.209 Dry Basis	x Moist. 1.000 0.999 0.999 0.999	Fract. x D 9 9	Molecular Wt. 18.0 , 44.0 , 28.0 , 32.0 ,	= W 0.02 0.00 0.00 6.68	
J. Percent Water Vapor V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen Nitrogen & Inerts	in Gas Sample ((4.64 x Veight (Wet): Vol. Fract. 0.001 0.000 Dry Basis 0.000 Dry Basis 0.209 Dry Basis	x Moist. 1.000 0.999 0.999 0.999	Fract. x D 9 9	Molecular Wt. 18.0 , 44.0 , 28.0 , 32.0 , 28.2 ,	= W 0.02 0.00 0.00 6.68 22.28	
 J. Percent Water Vapor V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen Nitrogen & Inerts FLOW RATE W. Gas Density Correct X. Velocity Pressure Co Y. Corrected Velocity (A Z. Flow Rate (Y × G × 64 AA. Flow Rate (Standard 	in Gas Sample ((4.64 x Veight (Wet): Vol. Fract. 0.001 0.000 Dry Basis 0.000 Dry Basis 0.209 Dry Basis	x Moist. 1.00 0.99 0.99 0.99 0.99 0.99 460+H)]}	Fract. x 0 9 9 9	Molecular Wt. 18.0 , 44.0 , 28.0 , 32.0 , 28.2 , , Sum	= W 0.02 0.00 0.00 6.68 22.28 28.98 28.98 . 1.00 . 1.00 . #DIV/0! . #DIV/0!	
J. Percent Water Vapor V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Daygen Nitrogen & Inerts ELOW RATE W. Gas Density Correct X. Velocity Pressure Co Y. Corrected Velocity (A Carbon Rate (Y x G x 60 AA, Flow Rate (Standard BB. Dry Flow Rate (AA >	in Gas Sample ((4.64 x Veight (Wet): 0.001 0.000 Dry Basis 0.000 Dry Basis 0.209 Dry Basis 0.209 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 X W X X. X M x W x X.	x Moist. 1.00 0.99 0.99 0.99 0.99 0.99 460+H)]}	Fract. x 0 9 9 9	Molecular Wt. 18.0 , 44.0 , 28.0 , 32.0 , 28.2 , , Sum	= W 0.02 0.00 0.00 6.68 22.28 28.98 28.98 . 1.00 . 1.00 . #DIV/0! . #DIV/0!	/t./Mole fps cfm scfm
J. Percent Water Vapor V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen Nitrogen & Inerts FLOW RATE W. Gas Density Correct X. Velocity Pressure Co Y. Corrected Velocity (A Z. Flow Rate (Y × G × 60 AA, Flow Rate (Standard BB, Dry Flow Rate (AA × SAMPLE CONCENTRA	in Gas Sample ((4.64 x Veight (Wet): 0.001 0.000 Dry Basis 0.000 Dry Basis 0.209 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 X W S X X M x W x X)	x Moist. 1.00 0.99 0.99 0.99 0.99 0.99 0.99 1.00 1.00 0.99 0.	Fract. x 0 9 9 9	Molecular Wt. 18.0 , 44.0 , 28.0 , 32.0 , 28.2 , Sum	= W 0.02 0.00 0.00 6.68 22.28 28.98 28.98	/t./Mole fps cfm scfm ! dscfm
J. Percent Water Vapor V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen Nitrogen & Inerts FLOW RATE W. Gas Density Correct X. Velocity Pressure Co Y. Corrected Velocity (A Z. Flow Rate (Y × G × 6) AA. Flow Rate (Y × G × 6) BB. Dry Flow Rate (AA > SAMPLE CONCENTRA [*] CC. Sample Concentrati	in Gas Sample ((4.64 x Veight (Wet): Vol. Fract. 0.001 0.000 Dry Basis 0.000 Dry Basis 0.209 Dry Basis 0.209 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 Jry Basis 0.791 Jry Basis 0.791 Jry Basis 0.791 Jry Basis 0.791 Dry Basis	x Moist. 1.00 0.99 0.99 0.99 0.99 0.99 1.00 1.00 0.99 0.	Fract. x	Molecular Wt. 18.0 , 44.0 , 28.0 , 32.0 , 28.2 , Sum	= W 0.02 0.00 0.00 6.68 22.28 28.98 28.98 . 1.00 . #DIV/0! . #DIV/0! . #DIV/0! . #DIV/0! 1.64E-07	/t./Mole fps cfm scfm ! dscfm
 V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Oxygen Nitrogen & Inerts FLOW RATE W. Gas Density Correct X. Velocity Pressure Co Y. Corrected Velocity (A Z. Flow Rate (Y × G × 60 AA. Flow Rate (Y × G × 60 AA. Flow Rate (Standard BB. Dry Flow Rate (AA × SAMPLE CONCENTRA[*] CC. Sample Concentrati DD. Sample Concentrati 	in Gas Sample ((4.64 x Veight (Wet): 0.001 0.000 Dry Basis 0.000 Dry Basis 0.209 Dry Basis 0.209 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 Jry Basis 1.791 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 1.791 Dry Basis 1.791 Dry Basis 0.791 Dry B	x Moist. 1.00(0.99) 0.99) 0.99) 0.99) ^.5. 460+H)]}	Fract. x	Molecular Wt. 18.0 , 44.0 , 28.0 , 32.0 , 28.2 , Sum	= W 0.02 0.00 0.00 6.68 22.28 28.98 28.98 . 1.00 . #DIV/0! . #DIV/0! . #DIV/0! . #DIV/0! . #DIV/0 1.64E-07 . 8.90E-05	fps cfm scfm ! dscfm ? gr/dscf 5 ppm
J. Percent Water Vapor V. Average Molecular V Component Water Carbon Dioxide Carbon Monoxide Daygen Vitrogen & Inerts FLOW RATE W. Gas Density Correct X. Velocity Pressure Co Y. Corrected Velocity (A Z. Flow Rate (Y × G × 64 AA. Flow Rate (Standard BB. Dry Flow Rate (AA × SAMPLE CONCENTRA [*] CC. Sample Concentrati DD. Sample Emission Rate FF. Solid Emission Rate	in Gas Sample ((4.64 x Veight (Wet): 0.001 0.000 Dry Basis 0.000 Dry Basis 0.209 Dry Basis 0.209 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 Dry Basis 0.791 A W S Basis 0.791 Dry Basis 0	x Moist. 1.00 0.99 0.99 0.99 0.99 460+H)]}	Fract. x 0 9 9 9 9	Molecular Wt. 18.0 , 44.0 , 28.0 , 32.0 , 28.2 , Sum	= V 0.02 0.00 0.00 6.68 22.28 28.98 28.98 . 1.00 . #DIV/0! . #DIV/0! . #DIV/0! . #DIV/0! 1.64E-07 8.90E-05 #DIV/0! 	/t./Mole fps cfm scfm ! dscfm ? gr/dscf 5 ppm lb/hr lb/hr

Test No. <u>16-334</u>

-24-

Date(s): <u>11/17/16</u>

APPENDICES

Test No. <u>16-334</u>

-25-

Date(s): <u>11/17/16</u>

APPENDIX A

Field Data

Te	est No). <u>16-334</u>	So	uth Co	-26 ast Air G)- Quality Ma	anagem	ent Dis	trict	Dat	e(s):	<u>11/17</u>	<u>'/16</u>
Te	est No. ampling	16-334 Location:		ipany:	Aero nsh T	5	<u> </u>			ate: _/ ample T	///7 rain:	116 #1	18
Pr Fi Pr Pi	re-Test Iter: robe: tot Tube	Leak Check: cfm @ ور ب¢ دfm @ Leak Check:	Pass				Pos Filte Pro	st-Test L er: be: 0	eak Che	eck: cfm @ _ cfm @ _ eck:	/ L Pass /	_ ″Hg v _ ″Hg v Fail	rac rac
Time	Sample Point #	Gas Meter Reading (dcf) Start:	Sta Velocity Head ("H ₂ O)		Velocity (fps)	Calculated Sampling Rate (cfm)	Orifice △P ("H₂O)	Probe Temp. °F	Filter Temp. °F	Imp. Temp. °F	•	Temp. F Out	Vacuum " Hg
12:15		864.749 869,5					0.68				73	73 73	15" 15" 15"
+20 +30 +48		874.1 879.144					0,64				76	74	13
150		14.3	95										
100	Z	DERK											
110		931.245 935.75 940.25					0.67					80	15"
+20		944.768					0.65				84 84	81 81	15" 15" 15"
		13,	52.5										
K-Fact Nozzle	or: Diame	/	Avg.			R	anister # ecorded	Ву:	3 W	Star	t:		Hg vac
Static I		e in Stack: Calibration I		N/A		Pi H₂O	tot Facto	or:			•	7	-
Magne Pitot T Potenti Therm Gas M	d Mano chelic No iometer ocouple eter No Corr. Fa	No. No. No.			N/A 1-15-11 0292			-			diam. diam.		ack mensions
Meter	Corr. Fa		192			-	Stac	k: Hori	izontal / V	ertical	Rect	angular	/ Circular

Т	est No). <u>16-334</u>			-27	'_				Date	e(s): <u> </u>	11/17	/16
			So	uth Coa	ast Air G	Quality Ma	anagem	ent Dis	trict				
-		11 2211	0		1	1. PL				ata	111.	111	
1	est No.	[6-334 Location:	Con	ipany:	17010	Craft			S	anole T	rain [.]	15	
0	amping		run	144	Fravorec	Source	Toet Da	ta	0	umpie i	ann.		
P	re-Test	Leak Check:			11446136	Source	Po	st-Test I	eak Ch	eck:			
F	ilter [.]	cfm @		"Hg	vac		Filt	er:	(cfm @	1	۳Hg ۱	/ac
P	robe:	O cfm @	13	T "Hg	vac		Pro	obe:	0	cfm @ _ cfm @ _	is	"Hg v	/ac
Ρ	itot Tub	e Leak Check:	Pass	/ Fail			Pit	ot Tube	Leak Ch	ieck:	Pass /	Fail	
Times	Comple	Gas Meter	-	Furna	æ	Calaulatad		Droho	Filtor	Imp.	Motor	Temp.	Vacuum
Time	Sample Point	Reading (def)	Valagity	Tomp	Volocity	Calculated Sampling		Probe Temp.	Filter Temp.			F	" Hg
	#	Start: 193.207	Head	°F	Velocity (fps)	Rate	ΔP	°F	°F	°F	In	Out	
1235		193.201	("H ₂ O)	1800		(cfm)	("H₂O) <i>4.2</i>	-			86	84	15
15		199.205	1.2	1000			4.2				87	84	15
+10		104.808					412	addir songirs conditio			90	85	15
+15		199.205 204.808 210.203					4.2				23	86	15
+20		215.730					4.2				95	87	15
+25		215.730 221.685					4-2				96	88	15
+30		227.417	MINING STORAGE				4.2			Non-Transferration	97	90	15
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(Net Vo	I. Uncorr.)		Avg.										
K-Fac	tor: 🕖	,601				С	anister	#:		Star	t:	1	Hg vac
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	e Diame netric Pr	Manufacture of the second s	29,80	"	HgA		ecordec itot Fact		1				_
			+/-		""	H ₂ O						,	
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Incline	d Mana	Calibration E		(Cal:	N/A		T	1		N	f diam.		
	ehelic N			Cal:	11//1	$\langle $		ľ			L	*	
	ube No	And the second se		(Cal:		í l	1 I	Ν			•		ack
		No. NO31		(Cal: /	1/15/16	ý					diam.	Di	mensions
	nocouple			(Cal:	115/10	j				9	L L	21	
	leter No	NO711		Cal:	11/15/16)		-			V	G	
	Corr. Fa		0075					1			(
Samp	ling Pro	be: Stainless S	Steel / Bor	osilicate	/ Quartz		Stac	k: Hor	izontal / V	ertical	Rect	angular	/ Circular

1031110.10-334	Test	No.	16-334
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-28-

Т	est No.	[6-334 Location:				Quality Ma				ate:	<u>/1-1</u>	7-10	0
5	ampling		0116	week.		Source	Toet Da	ta	3	ample	all.		
F P	ilter: robe:	33,600 s Leak Check: cfm @ O cfm @ cfm @ e Leak Check:	E	"Hg	vac vac	Source	Filt	er: obe:	eak Che	cfm @ _	15	_ ″Hg \ _ ″Hg \ Fail	/ac /ac
Time	Sample Point #	Gas Meter Reading (dcf) Start G H, 250	Star Velocity Head		Velocity (fps)	Calculated Sampling Rate (cfm)	Orifice △P	Probe Temp. °F	Filter Temp. °F	Imp. Temp. °F	Meter In	-	Vacuum ″ Hg
1100		011.000	("H₂O)			(cim)	("H₂O)				76	75	15
+10		887.900					2.5				80		15
120		886,655					2.5				82	77	15
+30		905.400		-			2.5				84	77	15
140		914.120	and the second				2.5				85	79	15
150		922.065					2.5				85	79	15
160		931,127					2.5				86	80	15
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		and harden to be a	+ /		"	H ₂ O						7	
		Calibration E					Î				•		
Magn	ed Manc ehelic N	0	(Cal: _ Cal: _	N/A)				Ľ	diam.	φ _{st}	ack
Poten Thern	Fube No tiometer nocouple	No. <u>N0315</u> No.		Cal:	1-15-16)	- ↓	-			diam. ♦		mensions
	/leter No Corr. Fa		1.020		1-15-16	0						<u> </u>	
	ling Pro			osilicate	/Quartz	TFE	Stac	k: Hor	No Sh	ertical YCL	Rect	angular	/ Circular

Test No. <u>16-334</u>

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Date(s): <u>11/17/16</u>

APPENDIX B

District Laboratory Data

Test No. <u>16-334</u>

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Date(s): 11/17/16

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Dr., Diamond Bar, CA 91765-4182

Page 1 of 1

MONITORING & ANALYSIS REPORT OF LABORATORY ANALYSIS

TO Mike Garibay, Supervising AQ Engineer Source Test Engineering	LABORATORY NO	1632007
	SOURCE TEST NO	16-334
SAMPLE(S) DESCRIBED AS 3 Hex Chrome trains	DATE RECEIVED _	11/18/2016
3	PROJECT/ RULE _	Paramount
SAMPLING LOCATION Aerocraft Heat Treating	REQUESTED BY	Wayne Stredwick
15701 Minnesota Avenue Paramount, CA 90723	DATE ANALYZED	11/18/2016

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS Moisture and Hexavalent Chrome by CARB 425 (Sodium Bicarbonate solution)

\mathbf{N}	TRAIN 18	TRAIN 15	Train 10	
Moisture gain, g	3.2	0.8	-5.4	
Silica gel% expended	70	75	70	
Filter gain, mg	<1	<1	<1	
Recovery notes	No Probe	Probe and	No Probe	
	Tube only	Tube	Tube only	
Cr ⁺⁶ total μg	0.50	0.35	0.19	

Cr⁺⁶ blank ND

NOTE (1) Additional significant figures provided for calculation purposes.

REF STR-113-66

Date Approved:

11/28/20/6

Approved By:

Solomon Teffera, Acting Senior Manager Laboratory Services (909) 396-2391

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Date(s): <u>11/17/16</u>



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Dr., Diamond Bar, CA 91765-4182

MONITORING AND ANALYSIS **REPORT OF LABORATORY ANALYSIS** (Page 1 of 2)

TO: Mike Garibay Supervising AQ Engineer Science & Technology Advancement LABORATORY NO. 1632007-13, 14, & 16

REFERENCE NO. Cr(VI)2-1: 123-125

SAMPLES DESCRIBED AS:

One quench tank sample, one cooling tower sample, and one metal dust sample collected from Aerocraft Heat Treating

SUBMITTED ON: 11-18-2016

REQUESTED BY: Wayne Stredwick

SAMPLE SOURCE:

Aerocraft Heat Treating 15701 Minnesota Ave. Paramount, CA 90723

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Analytical Method

Analysis of Hexavalent Chromium of a Solid and Liquid Sample by Ion Chromatography

The dust sample was extracted in a sodium bicarbonate solution. An aliquot from each liquid sample was taken. The analysis for hexavalent chromium (Cr⁶⁺) for all three samples was performed in accordance with SCAQMD Method #0046, (Standard Operating Procedure for the Analysis of Hexavalent Chromium in Ambient Air by Ion Chromatography).

Results: See page 2.

Date Approved: ______2_9/_16_

Approved By:

Solomon Teffera, Acting Sr. Manager Laboratory Services

-32-

Date(s): <u>11/17/16</u>

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Dr., Diamond Bar, CA 91765-4182

MONITORING AND ANALYSIS REPORT OF LABORATORY ANALYSIS (Page 2 of 2)

<u>Aerocraft Heat Treating</u> <u>15701 Minnesota Ave., Paramount CA 90723</u>

LAB ID	SAMPLE DATE	SAMPLE DESCRIPTION	Cr(VI)	UNITS
1632007-13	11/18/2016	Quench Water Tank	46	ppm
1632007-14	11/18/2016	Cooling Tower Water	5.0	ppb
1632007-16	11/18/2016	Metal Dust from Product Storage	190	ppm

Test No. <u>16-334</u>

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Date(s): <u>11/17/16</u>

South Coast	

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Dr., Diamond Bar, CA 91765-4182

MONITORING AND ANALYSIS **REPORT OF LABORATORY ANALYSIS** (Page 1 of 2)

TO: Mike Garibay Supervising AQ Engineer Science & Technology Advancement LABORATORY NO. 1632007-15

REFERENCE NO. Cr(VI)2-1: 127

SAMPLES DESCRIBED AS:

Source Test 16-334 solid (flakes) titanium sample from Aerocraft Heat Treating

SUBMITTED ON: 11-18-2016

REQUESTED BY: Wayne Stredwick

SAMPLE SOURCE:

Aerocraft Heat Treating 15701 Minnesota Ave. Paramount, CA 90723

ANALYTICAL WORK PERFORMED, METHOD OF ANALYSIS AND RESULTS

Analytical Method

Analysis of Hexavalent Chromium of a Solid Sample by Ion Chromatography

The solid (flakes) sample was pulverized with a mortar and pestle and extracted in a sodium bicarbonate solution. The analysis for hexavalent chromium (Cr6+) was performed in accordance with SCAQMD Method #0046, (Standard Operating Procedure for the Analysis of Hexavalent Chromium in Ambient Air by Ion Chromatography).

Results: See page 2.

Date Approved: ________

blomo seffe

Approved By: Solomon Teffera, Acting Sr. Manager Laboratory Services

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Date(s): <u>11/17/16</u>

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT 21865 Copley Dr., Diamond Bar, CA 91765-4182

MONITORING AND ANALYSIS REPORT OF LABORATORY ANALYSIS (Page 2 of 2)

<u>Aerocraft Heat Treating</u> <u>15701 Minnesota Ave., Paramount CA 90723</u>

LAB ID		SAMPLE DESCRIPTION	Cr(VI) ppb
1632007-15	11/18/2016	Source test 16-334 solid titanium sample	18

Test No. <u>16-334</u>

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Date(s): <u>11/17/16</u>

APPENDIX C

Calibration Data

Test No. <u>16</u>	<u>334</u>			-36-				Date	e(s): <u>11/17/16</u>
DAT	sou 'A she	TH COAS EI FOR	ST AIF. THERM	QUALI OCOUPL	TY MAN E/POTE	AGEMEN NTIONE	T DIST TER CA	RICT LIBRATI	ICN
Field Meter ST Ref. Thermomet Temperature So	QC= er # urce(:	: NC J(AS	303 Fm°o	\$N0	305	c Q	Ser	liannua Imonth1	Y.
1	an manage in the second and an manage in the contemporate	W2Participation and endowned a	303	NUMBER OF PRINCIPAL OF DESCRIPTION OF THE DESCRIPTI		And Brown and Arter and	030	TERMINAL PROPERTY AND INCOME.	
		Lead STQC#	NB	196		Lead STQC#_	NR	Siz.	The second se
Temp.* A		B	(B-A A)100 **		B	(B-A A	.)100 **	
Sensor Ref. STQC# Temp.	Ch#1	Ch#2	Ch#1	Ch#2	Ch#1	Ch#2	Ch#1	Ch#2	COMMENTS
No105:219	211	212			312	212			
10109 212	311	212			212	511			
NOIDS 710	71(112	R D'ORTZAL CRIMINAL		711	511			NUTER IN A PROPERTY OF THE OWNER AND AN ADVANCES
10104 710	712	712			711	711			NE O A MOLT MOLT MOLT MOLT AND A MOLT MOLT AND
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				-					
All temperatur *Percent (%) di	es ar	e in de	grees	L	<u> </u>				

Test No. <u>16-334</u>	-37-	Date(s): <u>11/17/16</u>
	чим чим чим чим	DATE: AMBIENT AIR PBAR: STANDARD DR
	1/4 1/4 1/2 1/2 1/2 3/4 3/4 1 1 1	T AIR RD DRY
	15.0 13.1 31.8 30.2 20.1 21.9 32.4 16.3 22.0 12.6 21.9 21.7 19.6 21.7	DATE: 11-15-2016 AMBIENT AIR 75 0 F PBAR: 29.43 In.Hg STANDARD DRY GAS METER ID#: STANDARD DRY TOTAL TEMP
	74 74 74 74 74 74 74	16 OF In.Hg ID.Hg TEMP
	9.5 5.6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	H2O PF
	999 999 999 999 999 999 999 999 999 99	SC THEO PRESSURE IN OUT
		зо л лн сод рж х с лят. 7812470 8 нго
	185.0 200.1 213.4 272.5 302.8 323.1 323.1 353.1 417.4 417.4 417.4 443.0 505.3	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT DRY GAS METER CALIBRATION WORKSHEET PERFORMED BY 1812470 7812470 T812470 E METER H20 READ1 READ2 TOTAL HRS MIN (in cubic F) cubicF
	200.0 213.2 245.2 302.7 322.9 345.0 345.0 385.5 417.2 439.4 439.4 439.4 439.4 439.4 504.7	JUALITY ; R CALIB R CALIB READ2 READ2
	15.0 13.1 31.8 30.2 20.1 21.9 32.4 16.3 22.0 19.6 19.6 19.6 19.6	ALITY MANAGEMENT DISTRI CALIBRATION WORKSHEET PERFORMED DRY GAS METER ID DRY GAS METER ID R EAD2 TOTAL HRS M
	н Н	ENT DISTRICT WORKSHEET PERFORMED BY: METER ID
	47 40 37 40 21 21 21 21 21 21 21 21 21 21 21 21 21	NED BY
	11.05 25.60 30.55 4.80 14.61 14.61 17.70 55.77 36.34 17.70 55.77 36.34 51.76 52.99 52.99	м н С
	47.18 41.43 100.51 37.24 40.50 21.93 29.61 18.86 20.88 17.74	T.Nguyen N0711 Decimal
	0.3179 0.3162 0.3164 0.5385 0.5397 0.5397 0.5399 0.7433 0.7433 0.7433 1.0391 1.0391 1.0373	Page 1 UC FL RT CFM

Test No. <u>16-334</u>

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Te	est No.	<u>16-33</u>	<u>34</u>			-39)-										Dat	e(s)	: <u>11</u>	/17/	<u>16</u>	
								*														
							10			-	2	~	7	0								
	Page 2			UC FL RT CFM	0.3167 0.3156	0.3153	0.5295	0.5399	0.7928	0.7397	0.7497	1.0513	1.051	1.0253		_						
	<u>й</u>	T.Nguyen		TIME Decimal	47.67 41.51	100.87	56.66	37.69 40.00	40.61	22.44	29.08	18.74	20.54	18.24	9100 31 11	BT07-CT-TT						
		F		SEC	40.33 30.55	51.96	39.60	41.43 0.29	36.79	26.55	4.80	44.35	32.25	14.36								
	TRICT	PERFORMED BY:		NIW	47 41	40	56	37 40	40	22	29	18	20	18	¢	i.						
	ENT DIS WORKSHE	PERFOR		HRS		н																
	MANAGEM RATION			CubicF	15.1 13.1	31.8	30.0	20.0	32.2	16.6	21.8	19.7	21.6	18.7								
	UALITY CALIB			METER READ1 READ2 (in cubic F)	606.2 619.4	651.4	708.5	750.3	790.6	822.3	844.2	887.8	909.6	928.5								
	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT DRY GAS METER CALIBRATION WORKSHEET			METER READ1 READ2 (in cubic F	591.1 606.3	619.6	678.5	728.7	758.4	805.7	822.4	868.1	888.0	909.8								
	OUTH CON			H20	0.7	0.7	1.8	1.8 8 1	ο α. • · · ·	3.8	3.8	6.2	6.2	6.2								
	ŝ			SSURE	0.3	0.3	1.0	1.0	2.1	2.1	2.1	3.0	3.0	3.0								
			TTLON	H2O PRESSURE IN OUT	1.0	1.0	2.7	2.7	л 4.	5.4	5.4	9.3	9.3	9.3								
		10	NG :	TEMP	74 74	74	74	74	74	74	74	74	74	74								
		11-15-2016		TOTAL CubicF	15.1 13.1	31.8	30.0	20.0	32.2	16.6	21.8	19.7	21.6	18.7								
			DRY GAS METER ID	, CFM	1/4 1/4	1/4	1/2	1/2	3/4	3/4	3/4	Ч	Ч	н								
		DATE:	DRY G	TRIAL CFM	4 0	m	ч	2 10	n 4	2	m	Ч	2	ო								

Test No. <u>16-334</u>	-40-	Date(s): <u>11/17/16</u>
Page 3 11-15-2016 T.Nguyen	OVERALL 1.0075	1.0075
	AVE: 0 1.0045 1.0132	1.0043
DATE : PERFORMED BY:	COBF 1.0051 1.0054 1.0050 1.0195 1.0195 1.0195 1.0005 1.0005	
Υ Υ	<pre>% ID : N0713 H20 Corrected FlowRate 0.65 0.3039 0.65 0.3028 0.65 0.3028 1.83 0.5095 1.83 0.5195 1.83 0.5195 1.83 0.5195 3.75 0.7665 3.75 0.7248</pre>	6.15 1.0224 0.9966 6.15 1.0229 0.9961 6.15 0.9971 1.0201 CORRECTION FACTOR.
	DRY GAS METER ID : N0713 U/C TEMP H20 Corre FlowRate Flow FlowRate 0.3167 74 0.3155 74 0.65 0.3 0.3153 74 0.65 0.3 0.3153 74 1.83 0.5 0.5395 74 1.83 0.5 0.5399 74 1.83 0.5 0.7928 74 1.83 0.5 0.7928 74 1.83 0.5 0.7928 74 3.75 0.7 0.7397 74 3.75 0.7 0.7497 74 3.75 0.7	1.0513 74 1.0517 74 1.0253 74
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT DRY GAS METER CALIBRATION WORKSHEET DRY GAS METER CALIBRATION SULCULATIONS	7812470 1.0000 H2O Corrected FlowRate 23 0.3054 23 0.3054 2.8 0.5194 2.8 0.5194 2.8 0.5198 5.6 0.7809 5.6 0.7219	74 9.5 1.0189 74 9.5 1.0181 74 9.5 1.0171 DRY GAS METER ID : N0711 DATE: 11-15-2016
MANAGE LON WOR		74 9.5 74 9.5 DRY GAS ME DATE:
SOUTH COAST AIR QUALITY MANAGEMENT DIS' DRY GAS METER CALIBRATION WORKSHEET DRY GAS METER COEFFICIENT CALCULATIONS	<pre>STANDARD DRY GAS METER ID#: With Coefficient of FILAL CFM U/C TEMP FILOWRAte 1/4 0.3179 74 2 1/4 0.3162 74 3 1/4 0.3164 74 1 1/2 0.3164 74 2 1/2 0.5385 74 2 1/2 0.5385 74 3 1/2 0.5385 74 3 3/4 0.6389 74 3 3/4 0.7433 74</pre>	1.0391 1.0373 10.0173 10 10
SOUTH COAST AII DRY GAS METER DRY GAS METER	UD DRY G With C CFM 1/4 1/4 1/2 1/2 1/2 1/2 3/4 3/4 3/4	нн н
SOUTH (DRY GAK DRY GAK	STRANDAF TREAL 1 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	ri N m