

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: Scheduled Inspection

B787036544

FACILITY: EAGLE ALLOY INC		SRN / ID: B7870
LOCATION: 5142 EVANSTON AVE, MUSKEGON		DISTRICT: Grand Rapids
CITY: MUSKEGON		COUNTY: MUSKEGON
CONTACT: Steven Spiwak , Environmental Health and Safety Specialist		ACTIVITY DATE: 09/14/2016
STAFF: Eric Grinstern	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Unannounced inspection		
RESOLVED COMPLAINTS:		

EAGLE ALLOY INC. (SRN: B7870)

FACILITY DESCRIPTION

Eagle Alloy is located in Egelston Township in Muskegon County. Eagle Alloy aka Eagle Group consists of two facilities that are considered one stationary source. The facilities consist of Eagle Alloy and Eagle Precision Cast Parts. Eagle Alloy is a steel foundry and Eagle Precision is an investment casting operation.

REGULATORY ANALYSIS

The stationary source has an opt-out permit (No. 95-01F) that covers all permitted processes.

Within the permit, emissions units 1 thru 17 and 43, 44, EUSHAKEOUT and EUPOURCASTCOOL are located in Eagle Alloy and emissions units 18 thru 37 are located in Eagle Precision.

The facility is subject to and considered a "large" existing area source under the Iron and Steel Foundry Area Source NESHAP, Subpart ZZZZ. NESHAP subject processes include all iron/steel foundry operations in regards to compliance with the fugitive emissions limits. The melting furnaces are also NESHAP subject in regards to scrap metallic/mercury requirements, emission limits, operation and maintenance requirements and testing.

Since the last compliance inspection the facility completed installation of the thermal sand reclamation system and sand coating plant.

COMPLIANCE EVALUATION

At the facility, AQD staff consisting of Eric Grinstern and Adam Shaffer met with Steven Spiwak, Environmental, Health and Safety Specialist, John Workman Owner/President, Dave Fazakerley, VP of Manufacturing and Debbie Pipoly, General Manager, Eagle Precision.

Eagle Precision

Eagle Precision is an investment casting operation that primarily produces ferrous castings

and to a lesser extent, non-ferrous castings. Being one stationary source with Eagle Alloy, Eagle Precision is subject to the requirements of Subpart ZZZZZ as a large area source.

Since the last inspection, Eagle Precision expanded in size by about 20,000 square feet and added two melting furnaces (500 lb. and 1000 lb.) that operate off a single 300KW panel. The facility also added two natural gas fired ovens used to as ceramic kilns for molds.

EU23

Assorted Mold Dip Trees

Emissions Limits

Emission unit limits opacity to 10%.

During the inspection no visible emissions were seen to be emanating from the mold dip tree process.

EU24

Two (250 KW) Induction Furnace panels that operate two 1,000-lb pots, one 400-lb pot and one 500-lb pot.

The furnaces are subject to Subpart ZZZZZ.

Emissions Limits

Emission unit contains a "No visible emission" limit.

During the inspection no visible emissions were seen to be emanating from the furnaces in Eagle Precision that would be emitted to the outside atmosphere.

FG09

Cleaning & Finishing Equipment

Emission Units: EU27, EU28, EU29, EU30, EU31, EU32, EU33, EU35, EU36, and EU37

Emissions Limits

The emission unit contains limits on particulate emissions.

Compliance with the particulate emission limit is based upon proper operation of baghouse control.

Observation of the baghouses showed that they all vented into the in-plant environment and appeared to be operating properly.

The permit lists a vent for a baghouse. None of the finishing processes or control equipment vent to the outside atmosphere.

MISCELLANEOUS

The facility installed two melt furnaces (500 lb. and 1000 lb.) as exempt from permitting under Rule 282(a)(iv).

The facility installed two ceramic kilns as exempt from permitting under Rule 282(a)(iii).

The facility provided an exemption analysis during the inspection. (Attached)

Eagle Alloy

Eagle Alloy is a steel foundry that utilizes shell molds and to a lesser extent furan no-bake molds. Cores consist primarily of shell cores.

EU43

Phenolic Shell Sand Thermal Reclamation System with particulates controlled by a baghouse.

Emissions Limits/Testing

The emission unit contains limits on particulate emissions and VOCs.

Compliance with the particulate emission limit is based upon proper operation of the baghouse and initial compliance testing. Compliance with the VOC limit is based on maintaining the combustion chamber above 1150 degrees and initial compliance testing.

The facility conducted initial compliance testing on August 13-14, 2013. Test results showed compliance with the PM and VOC limits.

	<u>Limit</u>	<u>Test Result</u>
PM	0.01 lb/1,000	0.0005 lb/1,000
PM10	1.12 pph	0.251 pph
PM2.5	1.12 pph	0.251 pph
VOCs	1.83 pph	0.260 pph

Material Limits/Records

The process is restricted to an hourly sand throughput limit of 4.25 tons per hour. The facility is required to monitor and records the sand throughput rate on an hourly basis. Review of the facility's records for the past 30 days showed compliance with the 4.25 ton per hour limit.

Process/Operational Restrictions/Records

Requires a minimum temperature of 1150 degrees to be maintained in the combustion chamber. During the inspection a temperature of 1157 degrees was observed in the final zone. The temperature probe appears to be located near the sand exit point. Readings observed for the other zones of the unit were higher in temperature than the probe being used to demonstrate compliance. The facility is required to monitor and record the temperature on a continuous basis.

The facility provided temperature records for the previous 90 days. Review of the records appeared to showed that there were instances where the temperature was slightly below the 1150 degrees. A majority of the time the low temperature readings were associated with startup and only lasted for one or two minutes. The facility has stated that the system will not start until the temperature is at 1150 degrees. The facility provided additional information stating that the system is meeting the 1150 degree requirement when it is operating. The baghouse is required to be equipped with a device to monitor the pressure drop on a continuous basis. The facility is also required to record the pressure drop on a daily basis. Observation of the pressure drop during the inspection showed a reading of 2.27 inches on the gauge near the baghouse, and a reading of 2.2 inches on the electronic readout adjacent to the

thermal reclaimer. Review of records provided by the facility for the previous 12-months showed consistent pressure drop readings during periods of operation.

Stack Restrictions

Requires stack SVTHERMREC to have a maximum diameter of 32 inches and a minimum height of 40 feet. Visual observation of the stack showed that it appeared to meet the dimension requirements.

EU44

Sand Coating Plant. Reclaimed sand or new sand is transferred from the storage silo to a sand heater, then combined with resin and additives in a batch pug mill and then fed into a continuous mixer. After the mixer, the recoated sand is fed through a triple deck vibratory screener and cooled before it is then fed through an additional screener. Particulate emissions generated from the silo to the pug mill are controlled with a bag house. Organic emissions from the sand coating operation, including hazardous air pollutants are controlled with a thermal oxidizer.

Emissions Limits/Testing

The emission unit contains limits on particulate emissions, VOCs, Formaldehyde and Phenol. The permit also limits opacity to 5%.

Compliance with the opacity and particulate emission limit is based upon proper operation of the baghouse and initial compliance testing. Compliance with the VOC, opacity, Formaldehyde and Phenol limit is based on maintaining the thermal oxidizer above 1300 degrees and initial compliance testing for VOC.

The facility conducted initial compliance testing on August 13-14, 2013. Test results showed compliance with the PM and VOC emission limits.

	<u>Limit</u>	<u>Test Result</u>
PM	0.01 lb/1,000	0.0004 lb/1,000
PM10	0.95 pph	0.260 pph
PM2.5	0.95 pph	0.260 pph
VOCs	4.6 pph	0.279 pph

The permit requires that the facility re-verify VOC emissions every two years. The initial performance test was conducted on August 13-14, 2013, therefore requiring retesting by August 14, 2015. The facility stated that they have not conducted retesting.

Observation of the stack showed intermittent opacity. Mr. Spiwack stated that the opacity occurs with the opening of a damper door. Observation of the opacity showed that it lasted a maximum of about 30 seconds and had opacity reading of 10-15%. Before and after the 30 second event no opacity was observed. The opacity episodes occurred about every 3.5 minutes, resulting in a 6-minute average below the 5% limit.

Material Limits/Records

The process is restricted to an hourly sand throughput limit of 10.0 tons per hour. The facility is required to monitor and records the sand throughput rate on an hourly basis. Review of the facility's records for the past 30 days showed compliance with the 10.0 ton per hour limit. The facility stated that the reading for an initial batch provides erroneous data due to the cleaning of hardened sand from the process.

Design/Equipment Parameters/Records

Requires the installation and operation of a thermal oxidizer. Proper operation includes 90% capture, 95% VOC destruction and maintaining a minimum temperature of 1300 degrees. At

the time of the inspection the thermal oxidizer temperature was 1406 degrees. The facility is required to continuously monitor and record the thermal oxidizer temperature. The facility is required to record the baghouse pressure drop once daily. At the time of the inspection the baghouse pressure drop was 3.3 inches. Review of the records provided by the facility for the previous 12 months showed a consistent pressure drop during operation and temperature in the thermal oxidizer greater than 1300 degrees.

Stack Restrictions

Requires stack SVTHERMOX to have a maximum diameter of 32 inches and a minimum height of 78.25 feet. Visual observation of the stack showed that it appeared to meet the dimension requirements. Requires stack SVSANDPLANT to have a maximum diameter of 34 inches and a minimum height of 43 feet. Visual observation of the stack showed that it appeared to meet the dimension requirements.

FG04

Shakeout (2 Dust Collectors, one shared with EU06 Discharge In-plant)

The facility has a Didion unit that is used to shakeout shell molds. .

Shell mold shakeout (knock-out) is performed at the end of the cooling tunnels. The mold is knocked out manually with the sand being placed in a hopper that is controlled by the two baghouses. The castings are then processed through the Didion unit.

Emission Units: Didon tumbler

Design/Equipment Parameters

Requires the installation and operation of baghouse control.

During the inspection observation of the baghouses showed that they had been installed and appeared to be operating properly. The collected particulate super sack was untied at the time of the inspection. Mr. Spiwak immediately contacted someone to correct the problem. The pressure drop at the time of the inspection was 1.4 inches.

FG05

Cleaning and Finishing System

Emission Units: EU09, EU10, EU11, EU12, EU13, EU14, and EU15

Emissions Limits

The emission unit contains limits on particulate emissions.

Compliance with the particulate emission limit is based upon proper operation of baghouse control.

During the inspection observation of the baghouses showed that they had been installed and appeared to be operating properly.

No VE was observed from any of the baghouses at the time of the inspection.

The Torit baghouse that controls emissions from the two blast units had a pressure drop of 3.7 inches at the time of the inspection.

The Waltz Holtz baghouse that controls emission from the 4-in-1 reclaimer had a pressure drop of 2.7 inches at the time of the inspection.

The Torit that controls grinding had no pressure drop since only the drop out box is used, as stated in the permit.

Design/Equipment Parameters

Requires the installation and operation of baghouse control.

During the inspection observation of the baghouses showed that they had been installed and appeared to be operating properly.

FG06

Sand Reclamation System

Emission Units: EU16 and EU17

Emissions Limits

The emission unit contains limits on particulate emissions.

Compliance with the particulate emission limit is based upon proper operation of baghouse control.

During the inspection observation of the baghouses showed that they had been installed and appeared to be operating properly.

Design/Equipment Parameters

Requires the installation and operation of baghouse control.

During the inspection observation of the baghouses showed that they had been installed and appeared to be operating properly.

Note: Staff has observed and issued a VN for excessive opacity from the shell mold cooling tunnels in the past. Observation of the cooling tunnels during this inspection showed intermittent opacity. Due to the intermittent nature of the opacity it did not exceed a 6-minute average of 20%.

FGFACILITY

Emission Limits/Material Limits

FGFACILITY contains limits for PM, PM10, PM 2.5, Individual HAP and Aggregate HAPs. Compliance with the emission limits is demonstrated through the requirement that the facility maintain records of emissions.

Review of facility supplied records for the previous 12 months showed compliance with FGFACILITY emission limits. In calculating emissions the facility assumed a 25% capture efficiency associated with structural control for the processes vented inside tunnels. Assuming 25% control is not appropriate since the tunnels have fans that exhaust directly uncontrolled to the outside atmosphere. It appears the facility will still be in compliance without the use of the control assumption. The facility will be requested to recalculate emissions.

The flex group also contains material limits for steel production, lake sand usage, sand binder, shell sand binder and shell sand. The facility provided material usage records demonstrating compliance with the limits.

Review of facility records for the previous 12 months showed compliance with the ton per year

limits on a 12 month rolling average.

FGMACTZZZZZ

The facility is considered an existing large area source under Subpart ZZZZZ.

Emission Limits

The facility is subject to PM or Total Metal HAP limits for the melting furnaces located in Eagle Alloy and Eagle Precision. The facility is also subject to a fugitive opacity limit of 20% for the buildings housing foundry processes.

The facility conducted testing on March 10, 2012 and demonstrated compliance with the emission limit for PM and the opacity limit. The facility will need to retest by March 2017.

The facility is demonstrating compliance with the PM emission limit through emissions averaging. The facility provided records demonstrating compliance via emissions averaging.

Material Limits/Process/Operational Restrictions

The facility is subject to restrictions regarding methanol depleted warm box catalyst which the facility has certified compliance with.

The facility is subject to work practice standards for scrap, which they have certified compliance with and was verified during this inspection. The facility only melts No. 1 busheling and internal scrap.

Design/Equipment Parameters

Requires the facility to install and maintain capture and collection systems for the melt furnaces unless they are part of an emissions averaging group. None of the furnaces at Eagle Alloy or Eagle Precision have capture or control. The facility is using the emissions averaging option.

Testing

Requires the facility to test the melting furnaces to demonstrate compliance with the emission limits for PM or Total Metal HAPs by July 1, 2011. Also requires fugitive opacity testing by July 1, 2011 and every 6-months thereafter.

The facility conducted initial testing on March 10, 2012. The five year re-test will need to take place prior to March 2017.

The facility has been conducting the fugitive opacity testing. Testing is required every 6 months. The facility has been a few days late on a few occasions. EG reminded the facility to conduct the testing within every 6 months, not semi-annually.

Monitoring/Recordkeeping

Requires the facility to maintain an O&M plan for each control device controlling emission from the melt furnaces.

None of the facility's furnaces have capture or control; therefore they do not have any O&M plans.

Requires inspections of capture and control devices for the melt furnaces.

None of the facility's furnaces have capture or control; therefore they have not conducted any inspections.

**NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS
IRON AND STEEL FOUNDRIES AREA SOURCES
40 CFR PART 63 SUBPART ZZZZZ
INSPECTION CHECKLIST
Notification and Reporting Requirements**

Requirement	Citation 40 CFR	Notification Submitted		Comments
		Yes	No	
Initial Notification (Existing - May 1, 2008) (New - May 1, 2008 or no later than 120 days after startup)	63.10890(b)(small) or 63.10900(b)(large) and Subpart A 63.9	X		Submitted
Notification of Size Classification (Existing-January 2, 2009) (New - No later than 120 days after startup)	63.10890(g) (small) or 63.10899(d)(large)	X		Submitted
Notification of Compliance - Metallic Scrap Management / Binder Formulation (Existing-February 1, 2009) (New - February 1, 2008 or no later than 30 days after startup)	63.10890(c)(1)and (3)(small) or 63.10900(b)(large) and Subpart A 63.9	X		Submitted
Notification of Compliance - Mercury Requirements (Existing - February 3, 2010) (New - February 1, 2008 or no later than 30 days after startup)	63.10890(c)(2) (small) or 63.10900(b)(large) and Subpart A 63.9	X		Submitted
Semiannual Certification Reports (July 30/January 30)	63.10890(f)(small) or 63.10899(c)(large)	X		Submitted
Capture and Collection System, O&M Plan, Bag leak detection system (if applicable) Notification (Existing - July 31,	63.10900(b) and Subpart A 63.9			NA

2011) (New – August 30, 2008 or 60 days after the initial test, whichever is later)				
Compliance with Emissions Limits (July 31, 2011 if only opacity testing performed/ August 30, 2011 if new PM/HAP test performed) (New – August 30, 2008 or 60 days after the initial test, whichever is later)	63.10900(b) and Subpart A 63.9	X		
Performance Testing Notification (testing completed) (60 days after initial test)	63.10900(b) and Subpart A 63.9	X		

Size Classification Requirements – Small and Large Foundries

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
Existing and New Sources				
Maintain records of metal melt production Small – annual records Large – monthly records	63.10890(e)(7) (small) or 63.10899(6) (large)	X		Existing small foundry → Melts ≤ 20,000 ton/yr Existing large foundry → Melts ≥ 20,000 tons/yr New small foundry → Melting capacity ≤ 10,000 ton/yr New large foundry → Melting capacity ≥ 10,000 ton/yr

Binder Management Requirements – Small and Large Foundries

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
Existing and New Sources				
No methanol in catalyst for a furfuryl alcohol warm box mold/core line (Existing - January 2, 2009) (New – January 2, 2008, or upon startup)	63.10886	X		
Copies of MSDS or product data sheets for binders and coatings	63.10890(e)(5) (small) or 63.10899(4) (large)	X		
Records of annual quantity and composition of binders and coatings used that contain HAPs	63.10890(e)(6) (small) or 63.10899(5) (large)	X		

Metallic Management Practice Requirements – Large and Small Foundries

Requirement	Citation	Facility Compliance	Comments
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		Yes	No	
<p>Comply with one of the following options for incoming scrap:</p> <p>1. Prepare and operate according to written material specifications that scrap does not contain post-consumer auto body scrap, engine blocks, oil filters, oily turnings, lead components, chlorinated plastics, or free organics.</p> <p>2. Prepare and operate according to written material specifications that scrap has been depleted to the extent practicable.</p> <p>Certain scrap can be subject to one option and other scrap subject to the other option if scrap remains segregated until charge make-up. (Existing-January 2, 2009) (New – January 2, 2008, or upon startup)</p>	63.10885(a)	X		<p>X Option 1 Option 2</p> <p>Facility is currently receiving scrap that is in compliance with Option 1.</p>
<p>Records of material specifications and records demonstrating compliance with material specifications.</p>	63.10890(e) (small) or 63.10899(a)(1) (large)	X		

Mercury Management Practice Requirements – Large and Small Foundries

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
<p>Comply with one of the following options for each scrap provider, contract or shipment:</p> <p>1. Site-Specific Plan 2. EPA Approved</p>	63.10885(b)	X		<p>? Option 1 ? Option 2 ? Option 3 X Option 4</p> <p>The facility does not receive any auto scrap.</p>

<p>Program 3. Specialty Alloy 4. Non-motor Vehicle Scrap</p> <p>(Existing- January 4, 2010) (New – January 2, 2008, or upon startup)</p>				
<p>EPA approved Program: Maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program.</p>	<p>63.10890(e)(4) (small) or 63.10899(a)(3) (large)</p>			<p>NA</p>
<p>Site-Specific Plans: Records of number of mercury switches removed, weight of mercury switches removed, vehicles processed, and percent of mercury switches removed.</p>	<p>63.10890(e)(3) (small) or 63.10899(a)(2) (large)</p>			<p>NA</p>

Standards and Management Practice Requirements – Large Foundries

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
Existing Sources				
<p>Each furnace is controlled by a capture and collection system unless part of an emissions averaging group (Existing-January 2, 2011)</p>	<p>63.10895(b)</p>	<p>X</p>		<p>Emissions averaging group</p>
<p>Compliance with emission limit for melting furnaces 0.8 lbs per ton of metal charged or 0.06 lbs of total metal HAP per tons of metal charged (Existing-January 2, 2011)</p>	<p>63.10895(c)</p>	<p>X</p>		
Existing and New Sources				
<p>Opacity limit for fugitive emissions from foundry operations 20 percent (one 6-minute average up to 30 percent) (Existing-January 2, 2011)</p>	<p>63.10895(e)</p>	<p>X</p>		<p>Some testing conducted a few days late.</p>

(New – January 2, 2008, or upon startup)				
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Standards and Management Practice Requirements - Large Foundries (cont)

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
New Sources				
Compliance with emission limit for melting furnaces 0.1 lbs per ton of metal charged or 0.008 lbs of total metal HAP per tons of metal charged (January 2, 2008, or upon startup)	63.10895(c)			NA
When using a wet scrubber to control emissions from a metal melting furnace: maintain the 3-hour average pressure drop and scrubber flow rate at or above the minimum level established during performance testing.	63.10895(d)			NA
When using an electrostatic precipitator to control emissions from a metal melting furnace: maintain the voltage and secondary current at or above the level established during performance testing.	63.10895(d)			NA

Operation and Maintenance Requirements – Large Foundries

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
Existing and New Sources				
Prepare and operate according to an O&M Plan for each control device for emissions sources subject to a PM, metal HAP, or Opacity limit.	63.10896		X	

(Existing-January 2, 2011) (New – January 2, 2008, or upon startup)				
Maintain copy of O&M Plan on-site (Existing-January 2, 2011) (New – January 2, 2008, or upon startup)	63.10896(a) 63.10899(7)		X	
Maintain records demonstrating compliance with O&M Plan requirements	63.10899(7)		X	

Monitoring Requirements – Large Foundries

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
Existing Sources				
Conduct initial inspection of each operating PM control device for a melting furnace no later than 60 days after the emission compliance date.	63.10897(a)		X	
Conduct subsequent periodic inspections of a PM control device for a melt melting furnace.	63.10897(a)		X	
Maintain logbook of initial and periodic inspections as well as any maintenance action on a PM control device for a metal melting furnace.	63.10899(b) (13)		X	
Existing and New Sources				
Conduct monthly inspections of equipment important to the performance of the total capture system for metal melting furnace control equipment. Maintain records of inspections and	63.10897(e) 63.10899(b) (10)		X	

repairs.				
If using emissions averaging, maintain monthly records of pounds of PM or total metal HAP per ton of metal from all metal melting furnaces based on a weighted average.	63.10899(8)			NA
New Sources				
For wet scrubbers on metal melting furnaces – use CPMS to measure and record 3-hour average pressure drop and water flow rate.	63.10897(b)			NA
For Electrostatic precipitators on metal melting furnaces - use CPMS to measure and record hourly average voltage and secondary current.	63.10897(c)			NA
Install, operate and maintain a bag leak detection system on baghouses used to control PM from a metal melting furnace.	63.10897(d)			NA
Site-specific monitoring plan for each bag leak detection system to be part of the O&M plan.	63.10897(d) (2)			NA
Records of each valid bag leak detection system alarm and corrective action.	63.10897(d)(3)			NA

Testing Requirements – Large Foundries

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
Existing and New Sources				
Conduct testing to demonstrate compliance with applicable PM/metal HAP and Opacity limits (Existing - July 1,	63.10898	X		

current.				
Install, operate and maintain a bag leak detection system on baghouses used to control PM from a metal melting furnace.	63.10897(d)			NA
Site-specific monitoring plan for each bag leak detection system to be part of the O&M plan.	63.10897(d) (2)			NA
Records of each valid bag leak detection system alarm and corrective action.	63.10897(d)(3)			NA

Testing Requirements – Large Foundries

Requirement	Citation	Facility Compliance		Comments
		Yes	No	
Existing and New Sources				
Conduct testing to demonstrate compliance with applicable PM/metal HAP and Opacity limits (Existing - July 1, 2011) (New -180 days after startup)	63.10898	X		
Conduct subsequent opacity testing no less than every 6-months using Method 9 or Method 22	63.10898(h)	X		

CONCLUSION

Based on the information and observations made during this inspection, the facility is in compliance with applicable air quality rules and regulations, with the exception of the following, for which a Violation Notice will be issued.

EU44 – Sand Coating Plant

Special Condition V.2 Testing/Sampling

Failure to retest to verify VOC emission rate from the thermal oxidizer within two years

following the initial emissions test.

NAME *Eric Hunter*

DATE *9/30/16*

SUPERVISOR *[Signature]*