



**TECHNICAL REVIEW AND EVALUATION  
OF APPLICATION FOR  
AIR QUALITY PERMIT No. 73126**

**I. INTRODUCTION**

This Class II operating permit renewal is for the operation of Sturm, Ruger and Company, Inc.'s Prescott Facility, which is located at 200 Ruger Road, Prescott, AZ 86301. This Permit #73126 renews and supersedes Permit #58528.

**A. Company Information**

Facility Name: Sturm, Ruger & Company Prescott Facility

Mailing Address: 200 Ruger Road, Prescott, AZ 86301

Facility Location: 200 Ruger Road, Prescott, AZ 86301-6181

**B. Attainment Classification (Source: 40 CFR §81.303)**

This facility is located in an area which is in attainment or unclassified for all criteria pollutants.

**II. PROCESS DESCRIPTION**

**A. Processes**

Gun parts received at the facility go through multiple rounds of grinding, sanding, and polishing to remove extra metal and bring individual parts to specification. Abrasive blasting is utilized to clean and texturize treated gun parts and prepare them for the bluing process. The bluing process is a surface treatment that turns the metal black, prevents rust and gives the gun parts more durability. The bluing operation is a heated process, where the parts move through cleaning, caustic salt treatment, rinsing and rust prevention chemical tanks. The chemicals used emit VOC and PM when heated. Two hot-water boilers are used to heat the tanks within the bluing operation. Gun parts are immersed into various chemical baths during the bluing process to generate a layer of protective coating against rust. Low NO<sub>x</sub> burners are used for the heaters. Ruger uses the trademarked Cerakote process to apply a ceramic-based paint finish to various parts of the firearm. This process uses a small abrasive blasting unit and paint stations. The abrasive blasting unit has an integrated dust collector. Many parts are heat treated with carburizing furnaces, tempering furnaces, endothermic gas generators and high temperature salt tanks. The salt tanks have dust collectors to control particulate matter. The pickling process is used to clean impurities from the metal parts of the firearms. This is done using hydrochloric acid followed by sodium hydroxide to neutralize surface reactions on the parts after rinsing. Polishing operations are used to acquire the desired surface finish. The polishing operations produce particulate matter and are controlled by dust collectors. Each firearm is tested on-site at one of two ranges. Both ranges are equipped with high efficiency particulate air (HEPA) filters to control particulate matter emissions. Comfort heaters are located on the roof and throughout the building, and used primarily in the winter months. The comfort heaters produce heat via natural gas combustion. Emergency power is provided by two generators. The primary emissions from these generators comes from readiness checks and maintenance, which are limited to a combined 500 hours per year.

**III. LEARNING SITE EVALUATION**



In accordance with ADEQ's Environmental Permits and Approvals near Learning Sites Policy, the Department is required to conduct an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

There are no K-12 learning facilities within 2 miles of the facility.

#### **IV. COMPLIANCE HISTORY**

Since the issuance of Permit #58528, the facility submitted 4 compliance certifications and ADEQ performed 2 inspections. The facility had two deviations in 2014 and three deviations in 2016. The permittee is currently in compliance with the permit conditions of permit #58528. No air quality cases or violations were issued during the permit term.

##### **A. Compliance issues**

Facility staff did not get Method 9 certified for the first half of 2014. No visible emission surveys were conducted between February 2014 and August 2014. A permit deviation report was not submitted. The deviation was included in the most recent compliance certification

During the period between March and July 2014, monthly visible emissions surveys were not conducted due to administrative error.

A power outage on January 15, 2016 affected the bluing operation due to a blown transformer. The bluing operation was not in production at the time but the caustic tanks were full and needed the scrubber. The total emissions were calculated at 1.44e-02 tons. No further action was taken by ADEQ

An excess emission report was submitted on September 23, 2016 from the Duall scrubber during startup. The scrubber was returned to normal operation on September 28, 2016.

Ruger reported that on September 29, 2016 the scrubber controlling the fumes and particulate from the salt bath operation had an opacity of 30%, exceeding the 20% opacity limit. The facility corrected the exceedance and no further action was taken by ADEQ.



**V. EMISSIONS**

The facility's potential to emit (PTE) including any changes conducted as part of this renewal is show in Table 1 below:

**Table 1: Potential to Emit**

Pollutant	Emissions (tons per year)			Minor NSR Thresholds	Minor NSR Triggered?
	Proposed	Current	Change		
VOC	0.91	0.55	0.36	20	No
SO <sub>x</sub>	0.10	0.07	0.03	20	
NO <sub>x</sub>	19.57	12.05	7.52	20	
CO	10.83	3.46	7.37	50	
PM	3.31	0	3.31	-	
PM <sub>10</sub>	3.31	14.49	(11.18)	7.5	
PM <sub>2.5</sub>	3.31	14.49	(11.18)	5	
HAPs	0.20	0	0.20	-	
Single HAP (Hexane)	0.13	0	0.13	-	
Pb	0.01	0	0.01	0.3	

**VI. MINOR NEW SOURCE REVIEW**

The modifications proposed at Sturm Ruger and Co. for Permit Renewal #73126 do not result in emissions increases of any criteria air pollutants above the Minor NSR thresholds.

**VII. APPLICABLE REGULATIONS**

Table 3 identifies applicable regulations and verification as to why that standard applies.

**Table 3:**

Unit	Control Device	Rule	Discussion
Small Arms Manufacturing (all equipment except fuel burning equipment and emergency generator)	Various dust collectors and scrubbers	A.A.C. R18-2-730	These rules are applicable to unclassified sources not otherwise subject to standards of performance under Articles 7, 9, or 11 of A.A.C. Title 18, Chapter 2.
		A.A.C. R18-2-702	These rules are general provisions for all existing, stationary, point sources not otherwise subject to opacity standards relating to specific types of sources covered elsewhere in Chapter 2 of A.A.C. Title 18.
Fuel Burning Equipment (Boilers, Col Met oven, carburizing furnaces, tempering furnace and endo gas generator)	None	A.A.C. R18-2-724	These rules are standards of performance for fossil-fuel fired industrial and commercial equipment. They are applicable to industrial and commercial installations which are less than 250 MMBtu/hr. capacity, but in the aggregate on any premises are rated at greater than 0.5 MMBtu/hr, and in which fuel is burned for the primary purpose of producing steam, hot water, hot air or other liquids, gases, or solids and in the course of doing so the products of combustion do not come into direct contact with process materials.
	None	40 CFR 63 Subpart JJJJJ	These rules do not apply to this permit per 40 CFR 63.11195(e) as all fuel burning equipment is gas fired.
Emergency Generators	None	A.A.C. R18-2-719	These rules are standards of performance for existing stationary rotating machinery. They are applicable to all stationary gas turbines, oil-fired turbines, or internal combustion engines.
		40 CFR 60 Subpart IIII	These NSPS rules from 40 CFR 60 Subpart IIII are applicable to stationary compression ignition internal combustion engines.
		40 CFR 63 Subpart ZZZZ	These NESHAP rules from 40 CFR 63 Subpart ZZZZ are applicable to stationary reciprocating internal combustion engines located at an area source of HAP emissions.



**VIII. PREVIOUS PERMIT AND CONDITIONS**

**A. Previous Permit Conditions**

Table 4 compares the substantive conditions in Permit No. 58528 with the conditions in this renewal permit and cross-references the previous permit conditions to their location in the renewal permit

**Table 4:**

Section No.	Determination			Comments
	Revised	Keep	Delete	
Att. "A"	X			General Provisions – Revised to represent the most recent template language
Att. "B" Section I	X			Facility wide requirements: Updated to match current template language
Att. "B" Section II	X			Removed text that was covered in the new facility wide requirements
Att. "B" Section III	X			Removed text that was covered in the new facility wide requirements. Added the boilers to the applicability section. Removed the bluing heaters.
Att. "B" Section IV	X			Updated to match current template language for existing compression ignition internal combustion engines (CI ICE)
Att. "B" Section V				Now Section VI
Att. "B" Section VI			X	
Att. "B" Section VII	X			Updated to match current template language
Att. "C"	X			Revised to reflect the most recent equipment operating at the facility and to include equipment information provided.

**IX. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**

**A. Facility Wide**

1. Along with the semiannual compliance certification, the Permittee is required to submit reports of all recordkeeping, monitoring and maintenance required by the permit.
2. The Permittee is required to maintain, on-site, records of the manufacturer's specifications or an Operation and Maintenance Plan for all equipment listed in the permit.

**B. Fugitive Dust**

1. The Permittee is required to keep record of the dates and types of dust control measures employed.
2. The Permittee is required to show compliance with the opacity standards by having a Method 9 certified observer perform a monthly survey of visible emission from fugitive dust sources. The observer is required to conduct a 6-minute Method 9 observation if the results of the initial survey appear on an instantaneous basis to exceed the applicable standard.



3. The Permittee is required to keep records of the name of the observer, the time, date, and location of the observation and the results of all surveys and observations.
4. The Permittee is required to keep records of any corrective action taken to lower the opacity of any emission point and any excess emission reports.

**C. Periodic Activities**

1. The Permittee is required to record the date, duration and pollution control measures of any abrasive blasting project.
2. The Permittee is required to record the date, duration, and quantity of paint used, any applicable MSDS, and pollution control measures of any spray painting project.
3. The Permittee is required to maintain records of all asbestos related demolition or renovation projects. The required records include the “NESHAP Notification for Renovation and Demolition Activities” form and all supporting documents.

**X. MODELING REQUIREMENTS**

The change in emissions resulting from this renewal permit are less than the permitting exemption thresholds. As such an air dispersion modeling analysis was not required.

**XI. LIST OF ABBREVIATIONS**

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
Btu/ft <sup>3</sup>	British Thermal Units per Cubic Foot
Btu/hr	British Thermal Units per Hour
CFR	Code of Federal Regulations
CO	Carbon Monoxide
EPNG	El Paso Natural Gas Company
FERC	Federal Energy Regulatory Commissions
HAP	Hazardous Air Pollutant
hp	Horsepower
lb/hr	Pound per Hour
NO <sub>x</sub>	Nitrogen Oxides
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter Nominally less than 10 Micrometers
SO <sub>x</sub>	Sulfur Oxides
VOC	Volatile Organic Compound