TECHNICAL REVIEW DOCUMENT
FOR
OPERATING PERMIT 95OPGA028
to be issued to:

American Atlas Limited, LLC - American Atlas #1
Garfield County
Facility ID 0450057
Prepared on June 3, 1998, July 23, 1998 & October 13, 1998,
October 28, 1998. Revised on December 2, 1998
by Vince Brindley, Review Engineer

I. Purpose

This document establishes the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during Public Comment and EPA review. Information in this report is primarily from the application received on February 1, 1995 and additional information received on April 12, 1995, and June 23, 1995. Numerous phone conversations and miscellaneous correspondence also took place. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

On April 16, 1998 the Colorado Air Quality Control Commission directed the Division to implement new procedures regarding the use of short term emission and production/throughput limits on Construction permits. These procedures are being directly implemented in all operating permits that had not started their Public Comment period as of April 16, 1998. All short term emission and production/throughput limits that appeared in the construction permits associated with this facility that are not required by a specific State or Federal standard or by the above referenced Division procedures have been deleted and all annual emission and production/throughput limits converted to a rolling 12 month total. Note that, if applicable, appropriate modeling to demonstrate compliance with the National Ambient Air Quality Standards was conducted as part of the Construction Permit processing procedures. If required by this permit, portable monitoring results and/or EPA reference test method results will be multiplied by 8760 hours for comparison to annual emission limits unless there is a specific condition in the permit restricting hours of operation.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit

without applying for a revision to this permit or for an additional or revised Construction Permit.

II. Source Description

This facility is a cogeneration plant defined under the standard industrial classification code of 4911. Electricity is generated with three natural gas fired combined cycle turbines equipped with duct burners to supplement the exhaust heat. The exhaust heat is used in a Heat Recovery Steam Generator (HRSG) to generate steam for a steam turbine that also generates electricity. The residual waste heat after the HRSG is used to make hot water for heating a greenhouse complex. A fourth gas turbine is onsite to be used only for spare parts, no fuel hook-ups or power line are permitted. There are also two small natural gas fired boilers used for supplemental heat for the greenhouses. The facility is located at 0056 County Road 352 in the city of Rifle, Colorado. Garfield county is designated as attainment for all criteria pollutants. There are no affected states within 50 miles of the facility. The following Federal Class I areas are located within 100 kilometers of the facility: Flat Tops Wilderness Area, Maroon Bells-Snowmass Wilderness Area, and the West Elk Wilderness Area. The facility has certified that they are not subject to the Accidental Release provisions of section 112(r) of the Clean Air Act. Facility wide emissions are as follows:

Pollutant	Current PTE (tpy)	PTE as Modified (tpy)	Actual (tpy)
NOx	247.58	247.8	216.1
VOC	2.08	21.8	19.8
CO	25.78	114.4	104.0
PM	19.8	38.0	34.6
PM_{10}	19.8	38.0	34.6

During the review of the Operating Permit application, it was discovered that this source should have been classified as one of the listed 28 source categories that are considered major at 100 tpy (Fossil fuel-fired steam electric plants of more than 250 MMBTU/hr heat input). When the original Construction Permit application was received by the Division in 1985, it was unclear whether the heat input to the gas-fired turbines and duct burners should be included in calculating the plant-wide total heat input. The plant-wide heat input is the factor that determines whether or not a source is considered to be included as one of the listed 28 source categories. A clarification letter was published by the EPA after the Construction Permit application was received and the CP was initially issued. The clarification letter states that the heat input to the gas-fired turbines and duct burners should be included which means that this source meets the definition and thus

must be considered a major source at 100 tpy. At this time the Division has decided not to pursue any retro-active PSD review issues since the initial applicability determination was made prior to the release of the EPA clarification memo. However, this facility will now be considered an existing major source (Potential To Emit > 100 tons per year) in an attainment area with respect to Prevention of Significant Deterioration (PSD). Any future modifications over the established significance levels will trigger the need for PSD review.

The facility submitted a modification request during the processing of this application. The source wished to increase the permit limit for CO and change the emission factors for VOCs and PM/PM10 to the AP-42 values. These changes did not exceed any of the significance levels and therefore were not considered major modifications. Also addressed in the modification package were the cooling tower (previously unpermitted) and the 1000 KW emergency generator. The cooling tower appears to have emissions above deminimis levels and therefore it will be included as an emission point in the Operating Permit under the combined Operating Permit/Construction Permit procedures. The source has requested a fuel consumption limit for the emergency generator such that the unit will be considered an insignificant activity. The fuel consumption limit will be included as an enforceable condition in the Operating Permit.

Potential emissions are based on emissions calculations supplied in the operating permit application, existing construction permits and as submitted within the modification package for the regulated units covered by the Operating Permit. Actual emissions are based upon information supplied in the operating permit modification application. This source is required to provide an updated APEN for each emission unit in the event that emissions of NOx increase 5% or 50 tons per year and/or CO or VOC increase 5 tons per year above the level reported on the last APEN submitted to the APCD.

III. Emission Sources:

The following sources are specifically regulated under terms and conditions of the Operating Permit for this Site:

S001 - Three (3) General Electric 15.8 MW, Frame 5 Natural Gas Fired Turbine, Model # LA, Serial #'s 179233, 179234, & 179235, Heat Input Rate of 217 MMBTU/hr each. Each Turbine is Equipped with a Duct Burner Rated at 58 MMBTU/hr.

Discussion:

1. Applicable Requirements- These turbines were issued initial approval

Construction Permit 85GA185(1) on September 11, 1985. The permit was modified to allow the use of the duct burners for emergencies only (loss of a turbine) and reissued on September 26, 1986. The permit was last issued as a final approval with modification to allow the use of the duct burners full time on June 17, 1988.

The following terms and conditions of the Construction Permits have been incorporated into the Draft Operating Permit as Applicable Requirements: Annual emission limits for NOx, CO, VOC, PM, PM10 and fuel use limitations; 20% Opacity limit; General and specific provisions of New Source Performance Standards (NSPS) Subpart GG - Standards of Performance for Stationary Gas Turbines, including NOx and SO_2 limitations in parts per million; and APEN reporting per Colorado Regulation No. 3, Part A.II. The annual SO2 emission limitations from the final approval permit were dropped as actual uncontrolled emissions were below deminimis levels using the AP-42 emission factors. The annual limitations for particulate matter (PM) and particulate matter under 10 microns (PM10) will be included as applicable requirements. Additionally, the particulate and SO2 fuel burning standards from Colorado Reg. 1 will be included in the Operating Permit.

The following short term limits have been removed from the Operating Permit per the guidance in paragraph two of this document: pound per hour NOx, CO, VOC and PM emissions; and scf per hour fuel consumption.

2. Emission Factors- Emissions from a gas-fired turbine are produced during the combustion process, and are dependent upon the turbine load, combustor design, ambient temperature, air-to-fuel ratio, and the specific properties of the natural gas being burned. The pollutants of concern are Nitrogen Oxides (NOx), Carbon Monoxide (CO), Volatile Organic Compounds (VOC) and Particulate Matter (both PM and PM10). Small quantities of Hazardous Air Pollutants (HAPs) and are also emitted due to incomplete combustion. The emission factor for NOx was derived from the NSPS requirement of 75 ppmvd and includes the emission contribution from the duct burners. The emission factor for CO was determined by the source from test data obtained at other facilities. The emission factors used are listed below:

Pollutant	**Emission Factor (lbs/mmBTU)**	**AP-42 (lbs/mmBTU)**
NOx	0.262	0.44
CO	0.126	0.11
VOC	0.024	0.024

Pollutant	Emission Factor (lbs/mmBTU)	AP-42 (lbs/mmBTU)
PM*	0.0419	0.0419
PM10*	0.0419	0.0419

*Note: Particulate emission factors include condensibles

3. Monitoring Plan - Section II, Conditions 1.1 to 1.13 of the Operating Permit list the Monitoring and Recording provisions necessary to verify compliance with Applicable Requirements for these turbines. Specific monitoring guidance for Combustion Turbines in Attainment areas has been developed by the Division as shown on the attached Grid titled "Compliance/Scenario Summary - Turbines, Attainment Area Location." The requirements pertaining to these turbines has been shaded. This Grid defines monthly emission calculation, measurement of fuel use, and quarterly NOx portable monitoring as minimum requirements for these turbines since they are using emission factors greater than AP-42 and the facility NOx emissions are between 200 tpy and 250 tpy. Emissions of CO will also be tested on a quarterly basis as the emission rates for NOx and CO are often inter-dependant.

Current portable monitoring guidance provides that a source will test a unit on a quarterly basis using a portable flue-gas analyzer capable of measuring CO and NOx. A failure of the portable test requires a re-test using calibration gasses. Failure of the calibration gas test then requires that the source have a stack test performed. The testing frequency will stay at quarterly for the duration of this permit. In addition to the guidance contained in the Grid, sources subject to NSPS GG will be required by the Division to stack test twice during the term of the operating permit. One test shall be conducted within the first year of issuance of the permit and the other shall be done during the last year of the five year permit term. During the first stack test the source shall be required to perform a particulate matter test (Method 5, front and back half) to confirm the particulate matter emission factors. This requirement has been added on the recommendation of the Division modeling staff that reviewed the modification submitted during permit processing.

These turbines are subject to the NOx standard of 75 ppm contained in NSPS GG (40 CFR 60 § 60.332 (a)(l)). NSPS GG also requires that the fuel be analyzed for sulfur content. The sulfur dioxide emissions cannot exceed 0.015% by volume @ 15% Oxygen on a dry basis and the sulfur content of the fuel cannot exceed 0.8% by weight . Based on engineering judgement, the Division has determined that the exclusive use of pipeline quality natural gas as fuel will be sufficient to monitor compliance with the sulfur standards. Compliance with the NOx

standard shall be demonstrated by the testing schedule from the previous paragraphs.

The Division has determined based on AP-42 emission factors and engineering judgement that opacity emissions from this turbine will be insignificant if only pipeline quality natural gas is used as fuel. The use of pipeline quality natural gas as fuel will be considered parametric monitoring for the purposes of the opacity limitation, but does not preclude the use of a visual observation using EPA Method 9.

4. Compliance Status - American Atlas indicated in its application that they believe the facility to be in compliance with the conditions of their permit. The source has requested an increase in CO emissions concurrent with the processing of the application. There were no compliance issues found in a review of the source's master file. The source is believed to be in compliance at this time.

<u>S002</u> - Two (2) Puripher NOx-DOWN Natural Gas Fired Boilers Rated at 24.0 MMBTU/hr, each. Equipped with Puripher RenOjet NOx-Down Type RG V-ND 10.0 LMF Burners for Control of NOx and CO, Serial Number TBD.

Discussion:

1. Applicable Requirements - These boilers were issued an Initial Approval Construction Permit (#97GA0023) on May 29, 1997 to replace the existing, permitted boilers (85GA185(2)).

The following applicable requirements have been incorporated into the Operating Permit: visible emissions shall not exceed twenty percent (20%) opacity; annual limits on Nitrogen Oxides (NOx), Carbon Monoxide (CO) and fuel consumption; New Source Performance Standards Subparts A and Dc; and APEN reporting per Colorado Regulation No. 3, Part A.II. The Regulation 6 particulate standard for new fuel burning equipment was added as an applicable requirement upon removal of the hourly emission limits.

The Construction Permit included emission limits for Particulate Matter (both TSP and PM10), Volatile Organic Compounds (VOCs) and Sulfur Dioxide (SO2). However since the emission rates of each were below the APEN deminimis levels, the emission limits were not incorporated into the Operating Permit.

The due date of the first semi-annual monitoring report required by this operating permit will be more than 180 days after the initial approval construction permits were issued and/or the equipment commenced operation. Therefore, the Division

considers that the Responsible Official certification submitted with that report will serve as the self-certification for construction permits 97GA0023 and the appropriate provisions of the construction permits have been directly incorporated into this operating permit.

The short term limits on emissions and fuel consumption were removed as applicable requirements from the Construction Permit during the modification per the guidance in paragraph two (2) of this document.

2. Emission Factors - Emissions from boilers are produced during the combustion process, and are dependent upon the air to fuel ratio adjustment and specific properties of the natural gas being burned. The pollutants of concern for this point are Nitrogen Oxides (NOx) and Carbon Monoxide (CO). Small quantities of Hazardous Air Pollutants (HAPs) are also emitted when combustion is incomplete. This source has elected to use AP-42 emission factors in determining emissions from this point. The following factors shall be used in calculating emissions:

Pollutant	**Emission Factor (AP-42 (3/98))**
NOx	50 lb/MMscf
CO	84 lb/MMscf

It should be noted that the above emission factors are from the latest edition of AP-42 as noted. The calculated emissions using these factors will be different than those calculated in the Construction Permit. The Operating Permit will reflect the new emission factors and emissions limits.

3. Monitoring Plan - Since the emissions calculations are dependent only on fuel consumption and the above emission factors with no other variables involved, American Atlas will not be required to perform emission calculations to demonstrate compliance. Instead, compliance will be shown by tracking fuel consumption and remaining below the annual (rolling twelve month) fuel use limit. As long as fuel use is at or below the stated limit, it will be assumed that the units are in compliance with the emission limits. Fuel consumption shall be determined by a separate fuel meter for the boiler. Compliance with annual limits shall be determined on a rolling twelve month total.

This unit is subject to the provisions of NSPS Subpart Dc. The Division's analysis of the applicable requirements for this (gas-fired) unit indicated that there are no emission limits imposed by the Subpart. Therefore the daily fuel records required in 60.48c (h) and (i) do not have any regulatory impact. Subpart Dc will

be listed as an applicable requirement in the permit, but there will not be any standards, monitoring, or recordkeeping associated with the subpart.

The Opacity standard of 20% (normal operation) and 30% (during start-up) will be demonstrated by a certification that the heaters have used pipeline quality natural gas exclusively during the reporting period. The Division has determined, based on AP-42 emission factors and engineering judgement, that particulate emissions from this heater will be insignificant if only natural gas is burned.

4. Compliance Status - American Atlas indicated that they were in compliance with the limitations they requested in the construction permit modification submitted in April 1998. Therefore, this unit is currently considered to be in compliance with all applicable requirements.

S003 - Hamon Two-Cell Forced Draft Cooling Tower

Discussion:

1. Applicable Requirements - This cooling tower is a previously unpermitted source that was thought to be insignificant. Further evaluation has determined that particulate emissions from the tower are above deminimis levels. Permitting for this point will be handled as a combined construction/operating permit as per the guidance from paragraph three (3) of this document.

Emissions of Particulate Matter (PM) and Particulate Matter less than 10 microns from this cooling tower shall not exceed 6.44 tons per year. Also APEN reporting per Colorado Regulation No. 3, Part A.II is required.

2. Emission Factors - Emissions from cooling towers are produced due to evaporation of cooling water as part of the cooling process, and are dependent upon the water recirculation rate and the Total Dissolved Solids (TDS) present in the water. The main pollutants of concern for this point are Particulate Matter (PM) and Particulate Matter less than 10 microns (PM10). Small quantities of Hazardous Air Pollutants (HAPs) are also emitted due to the presence of anti-algae compounds and biocides used to prevent fouling of the cooling water system. The source used a mass balance to calculate the particulate emissions from the cooling tower. Emission factors have been derived from the mass balance equation and are reliant on the TDS concentration of the recirculating water and the hours of steam turbine operation as follows:

Pollutant	Emission Factor
PM	0.00103(TDS) lb/hr

PM10 0.00103(TDS) lb/hr

Where TDS = concentration of TDS in recirculating water, ppm

3. Monitoring Plan - Section II, Conditions 3.1 to 3.4 of the Operating Permit list the Monitoring and Recording provisions necessary to verify compliance with Applicable Requirements for this cooling tower.

4. Compliance Status - This source is believed to be in compliance with all applicable requirements.

S004 - Cummins Emergency Generator

Discussion:

1. Applicable Requirements - This emergency generator shall be considered an insignificant activity provided that no more than 2000 gallons per year of diesel fuel are consumed. Source shall maintain records of actual fuel consumption and make them available to the Division upon request.

IV. Insignificant Activities

A list of insignificant activities was provided with the application. These items were placed in an appendix in the proposed permit so that they would be of use during inspections. Of specific interest:

1. Chemical storage areas where chemicals are stored in closed containers, and where total storage capacity does not exceed 5000 gallons. This exemption applies solely to storage of such chemicals. This exemption does not apply to transfer of chemicals from, to, or between such containers.

2. Stationary internal combustion engines that operate less than 250 hours per year and have a horsepower rating of less than 737 HP. (turbine start-up engine)

3. Point S004 from Section III above provided that fuel consumption does not exceed 2000 gallons per year.

V. Alternate Operating Scenarios

No alternative scenarios were requested in the operating permit application.

VI. Permit Shield

Several items were requested to be included under the permit shield but it was determined that these items could not be included.

VII. Accidental Release Program - 112(r)

Section 112(r) of the Clean Air Act mandates a new federal focus on the prevention of chemical accidents. Sources subject to these provision must develop and implement risk management programs that include hazard assessment, a prevention program, and an emergency response program. They must prepare and implement a Risk Management Plan (RMP) as specified in the Rule.

Section 68.215(e) of the Federal Clean Air Act requires the Division to address four issues in regards to operating permit sources subject to 112(r):

1. Verify source submitted and register an RMP by deadline

EPA is in the process of setting up a Website specifically for 112(r) plans. All 112(r) sources will electronically submit their plans to this "designated central location". The Division will require sources certify in their annual compliance certification that they are/are not subject to 112(r) and they have/have not submitted a Risk Management Plan (RMP) to the designated central location by June 20, 1999. In addition, the Division will check the 112(r) website to verify that a RMP was actually submitted to the website by the deadline. Failure to submit a RMP by the June deadline by sources subject to 112(r) will be considered a permit deviation for reporting purposes under Title V.

2. Verify that source owner/operator has submitted a source certification or in its absence has submitted a compliance schedule.

As mentioned above, the Division will require that sources certify in their annual compliance certification that they are/are not subject to 112(r) and they have/have not submitted a Risk Management Plan (RMP) to the designated central location by June 20,1999. If they are subject to 112(r) but did not submit an RMP on time, a compliance schedule under the provisions of Title V must be submitted to the Division by the source. Failure to submit a RMP or a compliance schedule by the June deadline by sources subject to 112(r) will be considered a permit deviation for reporting purposes under Title V.

3. For some or all sources use one or more mechanisms such as completeness check, source audits, record review, or facility inspections to ensure permitted sources are in

compliance with the requirements of this part

The Division may choose to perform any or all of the activities listed under this subsection. Although there is no specific number of such actions required in the 112(r) rule, a June 3, 1997 draft 112(r) implementation guidance from EPA states that "Congress considered a requirement that 1.4 percent of the RMPs be audited annually, but dropped that provision."

The Division will, at a minimum, perform a "completeness check" on an unspecified number of Title V 112(r) sources. The website that EPA is in the process of developing to accept 112(r) RMP's will include software that will electronically conduct a completeness check on the RMP's. For the purposes of this operating permit, such check shall serve as the completeness check required under 68.215(e)(3). As noted in the Preamble to the final 112(r) rule (June 20, 1996 Federal Register, page 31691), "EPA agrees that the review for quality or adequacy of the RMP is best accomplished by the implementing agency..." In Colorado, the implementing agency is the U.S. EPA. If the EPA website software indicates that a source did not submit a complete plan, it will be considered a permit deviation for reporting purposes under Title V and the Division may initiate an enforcement action for failure to meet the Title V permit condition (see below). Per the Preamble (page 31691), the Division may perform the completeness checks in a time frame consistent with the source's Title V certifications.

4. Initiate enforcement action as necessary

This refers to enforcement under Title V, not under Part 68 (112(r)). If a source fails to file a RMP or a compliance schedule by the June deadline or the EPA software indicates that the RMP is not complete, it will be considered a permit deviation for reporting purposes under Title V and the Division may initiate an enforcement action.

This facility has notified the Division in their operating permit application that they are not subject to the requirements of 112(r) as per 40 CFR 68.3.