



4.0 SUMMARY OF APPLICABLE REQUIREMENTS

A new “major” stationary source of air pollution or a major modification at an existing major source is required to obtain an air permit through the NSR process. PSD NSR is required for significant emissions of attainment pollutants at sources located in attainment and unclassified areas. Attainment refers to meeting the NAAQS. See Section 4.1.1. Non-attainment new source review (NANSR) is required for significant emissions of non-attainment pollutants in areas designated as non-attainment. These are areas where monitoring data show that criteria pollutant(s) are not meeting the applicable ambient air quality standard (i.e., non-attainment areas). A new source, or major modification of an existing source, can be subject to both PSD and NANSR if the area in which the source is located is attainment for one or more pollutants and non-attainment for another pollutant(s) and the source is considered “major” for both the attainment and non-attainment pollutants.

4.1 FEDERAL REQUIREMENTS

The Consumers Energy Company – Karn/Weadock Generating station is located in an area that is designated as attainment for all criteria pollutants subject to regulation under the CAA, and the area is classified as Class II under the federal PSD regulations. Therefore, the requirements for NANSR do not apply to the proposed modification. The proposed project constitutes a major modification at a major stationary source as defined in the federal PSD regulations for PM, PM₁₀/PM_{2.5}, SO₂, NO_x, CO, VOC, H₂SO₄ and Fluorides emissions.

4.1.1 National Ambient Air Quality Standards

No new source is permitted to cause or contribute to a violation of a NAAQS. These standards have been set by USEPA for all of the criteria pollutants. These currently include CO, Lead, NO₂, PM₁₀, PM_{2.5}, Ozone and SO₂. See Table 4-1.



Table 4-1. National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary Stds.	Averaging Times	Secondary Stds.
Particulate Matter (PM ₁₀)	Revoked ⁽²⁾	Annual ⁽²⁾ (Arith. Mean)	Revoked ⁽²⁾
	150 µg/m ³	24-hour ⁽³⁾	Same as Primary
Particulate Matter (PM _{2.5})	15.0 µg/m ³	Annual ⁽⁴⁾ (Arith. Mean)	Same as Primary
	35 µg/m ³	24-hour ⁽⁵⁾	Same as Primary
Sulfur Oxides	0.03 ppm	Annual (Arith. Mean)	-----
	0.14 ppm	24-hour ⁽¹⁾	-----
	-----	3-hour ⁽¹⁾	0.5 ppm (1300 µg/m ³)
Nitrogen Dioxide	0.053 ppm (100 µg/m ³)	Annual (Arithmetic Mean)	Same as Primary
Carbon Monoxide	9 ppm (10 mg/m ³)	8-hour ⁽¹⁾	None
	35 ppm (40 mg/m ³)	1-hour ⁽¹⁾	None
Ozone	0.08 ppm	8-hour ⁽⁶⁾	Same as Primary
	0.12 ppm	1-hour ⁽⁷⁾ (Applies only in limited areas)	Same as Primary
Lead	1.5 µg/m ³	Annual (Arithmetic Mean)	Same as Primary

⁽¹⁾ Not to be exceeded more than once per year.

⁽²⁾ Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM₁₀ standard in 2006 (effective December 17, 2006).

⁽³⁾ Not to be exceeded more than once per year on average over 3 years.

⁽⁴⁾ To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

⁽⁵⁾ To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³ (effective December 17, 2006).

⁽⁶⁾ To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

⁽⁷⁾ (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1, as determined by appendix H.

(b) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas.

4.1.2 Prevention of Significant Deterioration (PSD)

The federal PSD regulations are codified in 40 CFR Part 52.21 and require that all major new or modified stationary sources located within an attainment area and emitting any pollutant regulated under the CAA in excess of the applicable significance level be reviewed by the USEPA, or the state agency, provided the state has an approved program. Michigan is currently a



delegated state under PSD NSR and NANSR and issues permits on behalf of the USEPA. Michigan has promulgated rules to implement the PSD program in lieu of the federal program, and has applied to USEPA for a revision to the State Implementation Plan (SIP). The SIP is a plan that each state must develop to implement the stationary source requirements of the Clean Air Act. The approval of Michigan's SIP revision is in process at the time of the submittal of this application. The application requirements for a federal PSD application, as contained herein, will also satisfy the Michigan Rules.

The following definitions are important to understand when determining PSD applicability:

- **Potential to emit** means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant including air pollution control equipment and restrictions on the hours of operation or on the type of material combusted, stored or processed shall be treated as part of the design if the limitation or the effect it would have on the emissions is federally enforceable.
The assumptions used to calculate the potential to emit for each pollutant are described in Section 3. The air pollution control equipment and the type of material (coal) will be federally enforceable and, therefore, these were taken into account for the potential to emit calculations.
- **Significant** is defined as any net increase in emissions or the potential to emit in excess of the levels specified in 40 CFR 52.21 (also presented in Table 4-2).
- A **major stationary source** is defined as any one of 28 listed source categories that have the potential to emit 100 tpy or more, or any other stationary source that has the potential to emit 250 tpy or more, of any criteria pollutant regulated under the Clean Air Act.

The Karn/Weadock Generating station is a fossil fuel-fired steam electric plant with a capacity greater than 250 million British thermal units per



hour heat input, which is one of the 28 listed source categories, and has the potential to emit more than 100 tpy of criteria pollutants.

- **Major modification** means any physical change in the design or method of operation of a major stationary source that results in a significant net emission increase in any criteria pollutant regulated under the CAA.

The existing Karn/Weadock facility is considered an existing major source under the PSD regulations. The proposed installation of an ASCPC boiler with ancillary equipment qualifies as a major modification for PM, PM₁₀/PM_{2.5}, SO₂, NO_x, CO, VOC, Fluorides, and H₂SO₄, as shown in Table 4-2.

Table 4-2. Potential Emissions as a Result of Proposed Project

Pollutant	Potential to Emit ¹ (tpy)	PSD Significant Emission Rate (tpy)	PSD Applicability
PM/PM ₁₀	911.2	25	Yes
PM _{2.5}	908.1	15	Yes
SO ₂	2153.7	40	Yes
NO _x	1820.5	40	Yes
CO	4523.6	100	Yes
VOC	144.4	40	Yes
Lead	0.3	0.6	No
H ₂ SO ₄ Mist	143.5	7	Yes
Fluorides (as HF)	8.8	3	Yes

¹ The potential to emit has been calculated assuming the air pollution control equipment and the material (coal) combusted will be federally enforceable.

The proposed facility is subject to PSD review for PM, PM₁₀/PM_{2.5}, SO₂, NO_x, CO, VOC, H₂SO₄ and Fluorides. As part of the PSD review process, major sources are required to address the following items prior to issuance of a permit:



- **Control technology review** - includes a determination of the BACT for the proposed project and equipment subject to PSD, presented in Section 5. This includes a BACT demonstration for the ASCPC boiler, the gas fired auxiliary boiler and emergency fire pump engines, and the material handling systems.
- **Air quality analysis** - also known as pre-construction monitoring, this analysis requires, with certain exemptions, that the source collect ambient air monitoring data in the impact area for at least one year prior to the start of construction. An exemption applies if the predicted concentrations are below the prescribed de minimis levels. The de minimis levels of $14 \mu\text{g}/\text{m}^3$ on an annual basis for NO_2 , $13 \mu\text{g}/\text{m}^3$ on a 24 hour basis for SO_2 and $575 \mu\text{g}/\text{m}^3$ on an 8 hour basis for CO are satisfied by the proposed ASCPC project. The de minimis levels for PM_{10} , $\text{PM}_{2.5}$, and ozone are not met, but sufficient air quality data exists in Bay County through the state monitoring network for these pollutants to allow a waiver of this requirement. A letter requesting the waiver has been submitted to MDEQ. Additionally, Consumers has not recorded on-site meteorology data as the Tri-County Airport (MBS), located approximately 15 miles from the site, is considered representative.
- **Ambient impact analysis** - requires a demonstration of compliance with federal and state air quality standards and allowable PSD Increments using computational models. An analysis of the impacts on non-attainment areas may also be required if the source could contribute to violations of any applicable air quality standard. The ambient impact analysis is presented in Section 6.
- **Source information** - includes process design parameters and control equipment information, must be submitted with the permit application to the reviewing agency. This information is presented in Section 2.



- **Additional impact analysis** - includes an analysis of the impacts of the proposed source on soils, vegetation, wildlife and visibility. This is presented in Section 9.

4.1.3 New Source Performance Standard (NSPS)

EPA has promulgated several new source performance standards (NSPS) contained in 40 CFR Part 60. The applicable subparts are discussed in the following sections. The General Provisions contained in Subpart A apply to all sources specified in the NSPS rules. These general requirements include, but are not limited to:

- Monitoring and reporting to assure that the particular source is in compliance with the applicable NSPS rules;
- Initial compliance testing to verify that the source meets the applicable limits specified in the applicable NSPS Subpart;
- Notification and recordkeeping.

4.1.3.1 Subpart Da – Standards of Performance for Electric Utility Steam Generating Units

Subpart Da applies to electric utility steam generating units (rated at a heat input capacity of more than 250 MMBtu/hr) which are defined as “any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW net-electrical output to any utility power distribution system for sale.” The proposed new ASCPC boiler meets the definition of an electric utility steam generating unit, is rated at 8190 MMBtu/hr and will be subject to the requirements of Subpart Da.

Subpart Da contains emissions limits, compliance determination methods, recordkeeping and reporting requirements for particulate matter, sulfur dioxide, nitrogen oxides and mercury. The applicable emission limitations and standards are summarized in Table 4-3.



Table 4-3. Summary of NSPS, Subpart Da Emission Standards

Subsection	Pollutant	Standard	Averaging Time	Alternate Standard
60.42a	Particulate Matter	0.14 lb/MWh		0.03 lb/MMBtu, and 99.9% removal
60.42a	Particulate Matter	20% opacity ¹	6-minutes	NA
60.43a	Sulfur Dioxide	1.4 lb/MWh		95% reduction
60.44a	Nitrogen Oxides	1.0 lb/MWh		NA
60.45a	Mercury (Sub bituminous)	66 E-06 lb/MWh		NA
60.45a	Mercury (50/50 Blend)	43 E-05 lb/MWh ²		NA

¹ Subpart Da allows for one 6-minute period per hour of not more than 27% opacity.

² From Subpart Da, §60.45(a)(5)(i), Equation 1 assuming a 50/50 Blend of bituminous and sub-bituminous coals with heating values of 12,300 and 8,300 Btu/lb, respectively.

4.1.3.2 Subpart Db – Standards of Performance For Industrial/Commercial/Institutional Steam Generating Units

Affected steam generating units are defined as units that combust any fuel and produce steam, heat water or other medium and have a total heat input greater than 100 MMBtu/hr. While the ASCPC boiler has more than 100 MMBtu heat input, it is exempt from Subpart Db pursuant to §60.40b(e), because it is subject to Subpart Da . However, the auxiliary boiler will be subject to the requirements of Subpart Db.

Subpart Db contains emissions limits, compliance determination methods and procedures, and reporting requirements that will be applicable to the auxiliary boiler. Specifically, it contains emissions standards for particulate matter, sulfur dioxide, and nitrogen oxides. The auxiliary boiler will be fired exclusively with pipeline natural gas, therefore, the NSPS emission limitations and standards for a natural gas fired boiler constructed after February 28, 2005. These limits are summarized in Table 4-4.



Table 4-4. Summary of NSPS, Subpart Db Emission Standards

Subsection	Pollutant	Standard	Alternate Standard
60.42b	Sulfur Dioxide	NA ¹	NA ¹
60.43b	Particulate Matter	NA ²	NA ²
60.44b	Nitrogen Oxides (High heat release)	0.20 lb/MMBtu	NA

¹ Subpart Db, (60.42b(k)(2)) exempts the auxiliary boiler from an SO₂ limit as the potential SO₂ emission rate is less than 0.32 lb/MMBtu.

² Subpart Db does not have a PM emission limit or opacity limit for units firing natural gas exclusively.

4.1.3.3 Subpart HHHH– Emission Guidelines and Compliance Times for Coal-Fired ESGUs

Subpart HHHH establishes the model program for the state mercury budget-trading program and outlines the permitting, allowance, and monitoring provisions in order to reduce emissions of mercury on a national level. To date, MDEQ has not developed a mercury budget-trading program and is in the process of developing a state mercury rule for electric utilities. The requirements of Subpart HHHH, begin with the monitoring/recordkeeping/reporting requirements in 2009. The Hg Budget Permits (CAPs), per 40 CFR Part 60.4121, do not apply until January 1, 2010. The proposed ASCPC boiler will be a Mercury Budget Unit and will submit the requisite permit application on or before the applicable dates.

4.1.3.4 Subpart IIII – Stationary Compression Ignition Internal Combustion Engines

Subpart IIII applies to stationary compression ignition (CI) internal combustion engines (ICE) that commence construction after July 11, 2005, where the CI ICE (not including fire pumps) are manufactured after April 1, 2006, or manufactured after July 1, 2006 for certified National Fire Protection Association fire pump engines.

Table 4-5 provides a listing of the engines Consumers is proposing to install in support of the new boiler.



Table 4-5. Proposed CI ICE Engines

Engine	Fuel	Size (hp)
Fire Pump ¹	Diesel	525
Fire Booster Pump ¹	Diesel	60
WFGD Quench Pump	Diesel	455
Emergency Generator	Diesel	2980

¹ If these engines are certified by the National Fire Protection Association, then they will comply with the regulations for fire pumps. Regardless of the certification, they meet the definition of emergency engine.

Emergency stationary internal combustion engine means any stationary internal combustion engine whose operation is limited to emergency situations and required testing and maintenance. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc. Stationary CI ICE used to supply power to an electric grid or that supply power as part of a financial arrangement with another entity are not considered to be emergency engines.

The subpart specifies emission limitations, monitoring, reporting, and recordkeeping requirements for NO_x, CO, nonmethane hydrocarbons (NMHC), hydrocarbons (HC) and PM. The diesel-fired ICE engines will comply with the applicable requirements of NSPS Subpart IIII.

4.1.3.5 Subpart OOO – Nonmetallic Mineral Processing Plant

As the new facility will include equipment for crushing/grinding limestone, and limestone is classified as a nonmetallic mineral, this equipment will be subject to Subpart OOO. The subpart applies to limestone material handling activities at the facility such as grinding, screening, transfer, storage, and loading. These emission limitations and standards are summarized in Table 4-6.



Table 4-6. Summary of NSPS, Subpart OOO Emission Standards

Source	Standard
Transfer points on conveyor belts and other affected facility stacks	0.022 gr/dscf
Transfer points on conveyor belts and other affected facility stacks	7% Opacity
Transfer points on conveyor belts and other affected facility fugitives	10% Opacity ¹

¹ Some exceptions are identified in §60.672 and §60.673 but are not applicable to ASCPC

4.1.3.6 Subpart Y – Coal Preparation Plants

The new facility will include equipment used to process, handle, convey, and/or store coal. Therefore this equipment will be subject to Subpart Y, which regulates the emissions of particulate matter and applies to facilities in coal preparation plants that process greater than 200 tons per day. There will be no pneumatic coal cleaning neither equipment nor thermal driers installed or operated at the plant. Therefore, this subpart only limits the opacity from the coal handling equipment to not more than 20% Opacity, and Consumers will meet this limit.

4.1.3.7 Subpart Kb – Volatile Organic Liquid Storage Vessels

Subpart Kb applies to each storage vessel with a capacity greater than 75 cubic meters (equivalent to 2,648 cubic feet) used to store volatile organic liquids.

Consumers is not proposing to install any storage vessels for storing volatile organic liquids greater than 2,648 cubic feet. The proposed 10,000 gallon diesel fuel storage tank has an equivalent volume of 1,337 cubic feet.

4.1.4 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

Modified facilities, such as the Karn/Weadock Generating station, may be subject to the federal requirements for HAPs by either of two ways. The first step for determining applicability is to review the pollutant and source-specific regulations promulgated in 40 CFR Parts 61 and 63. These regulations are collectively known as the National Emission Standards for Hazardous Air



Pollutants (NESHAPs). The second pathway in which a source may be subject requires a review of the case-by-case Maximum Achievable Control Technology (MACT) requirements pursuant to Section 112(g) of the federal Clean Air Act should a federal NESHAP not exist. The third pathway in which a source may be subject requires a review of the case-by-case Maximum Achievable Control Technology (MACT) requirements pursuant to Section 112(j) of the federal Clean Air Act in the event that there is a listed source category and USEPA fails to promulgate a standard. The recent vacatur of the Institutional, Commercial and Industrial Boiler MACT, 40 CFR 63 Subpart DDDDD, appears to make the auxiliary boiler subject to Section 112(g) requirements. The only emission limit requirement under the vacated Institutional, Commercial and Industrial Boiler MACT for large natural gas fired boilers included a CO limit of 400 ppm corrected to 3% oxygen. This limit was promulgated as representing the “best of the best” technologies for new natural gas fired boilers. The new auxiliary boiler will comply with a BACT limit of 0.035 lb/MMBtu which is equivalent to 40 ppmv, one tenth of the former MACT limit, and represents a case specific MACT for this unit.

4.1.4.1 NESHAP for Electric Utility Steam Generating Units

In December 2000, the EPA proposed a NESHAP standard for mercury from electric utility steam generating units (Utility Units). This NESHAP was rescinded on March 29, 2005 in a Federal Register notice.

Effective June 1998, a requirement for a case-by-case determination of the MACT applies to all new and reconstructed major sources of HAPs pursuant to Section 112(g) of the federal Clean Air Act and 40 C.F.R. §§63.40 to 63.44. However, EPA determined that the emissions of certain regulated hazardous air pollutants from utility boilers are better regulated under the new source performance standards in 40 C.F.R. Part 60, and therefore chose not to promulgate the previously proposed NESHAP for mercury from utility boilers. In the Federal Register dated March 29, 2005, EPA noted that because mercury emissions are reduced by control equipment for other pollutants (e.g., SCR, fabric filters and scrubbers) “...it is not appropriate or necessary to regulate coal and oil-fired Utility Units under Section 112.” Therefore, a case-by-case determination is unnecessary.



4.1.4.2 NESHAP for Stationary Reciprocating Internal Combustion Engines

Subpart ZZZZ establishes emission and operating limitations for HAP emissions from stationary reciprocating internal combustion engines (RICE), greater than 500 hp and located at major sources of HAP emissions.

The compression ignited RICE engines to be installed at the facility will qualify as emergency equipment and as such will only be subject to the initial notification requirements.

4.1.4.2 Proposed Regulations

On July 12, 2006 the US EPA proposed changes to Subpart ZZZZ. To date, these regulations have not been promulgated; however, Consumers is committed to complying with these regulations if they are promulgated and applicable to this facility.

4.1.5 Clean Air Interstate Rule (CAIR)

On March 10, 2005, EPA issued the Clean Air Interstate Rule (CAIR). CAIR is designed to permanently cap emissions of SO₂ and NO_x in the eastern United States, thus achieving large emissions reductions across 28 eastern states (including Michigan) and the District of Columbia.

For each phase cap, CAIR assigns SO₂ and NO_x emission budgets (in units of tpy for NO_x and SO₂ and tons per ozone season for NO_x) to each affected upwind state. The affected states were required to submit revised state implementation plans (SIPs) within 18 months (by September 11, 2006) for EPA review and approval. Michigan promulgated rules for implementing the NO_x CAIR requirements on June 25, 2007. These rules were also included as part of Michigan's proposed ozone SIP, filed with the Secretary of State on July 16, 2007 and are to be submitted to EPA, for review and approval in accordance with EPA's abbreviated SIP approval process. Michigan has not promulgated rules for implementing SO₂ CAIR requirements. The SIPs will provide details as to the procedures that will be used to allocate the state NO_x budgets to individual sources.

Following SIP approval and allocation of the state budgets to individual sources, emission units at these sources must possess sufficient SO₂ and NO_x allowances such that actual emissions do not



exceed the allocations. Sources that exceed their allocation will need to reduce actual emission rates or purchase additional allowances on the open market. Sources that have surplus allowances may bank the allowances for use in any future control period or sell the surplus allowances on the open market.

Michigan's NO_x trading program includes provisions for allocating NO_x allowances to new utility units, such as the proposed ASCPC boiler (i.e., a new source set-aside). There are no provisions for a new source set-aside with respect to CAIR SO₂ allowances. For NO_x allowances, new units will be allocated allowances from the new source set-aside until they have established a baseline and are included in the existing unit pool. NO_x allowance allocations from the new source set-aside pool will be made to new units on a "first-come, first-to-get" basis.

The ASCPC boiler is subject to, and will comply with, the applicable state and federal CAIR rules.

4.1.6 Clean Air Mercury Rule (CAMR)

On March 15, 2005, EPA issued the Clean Air Mercury Rule (CAMR). CAMR is designed to permanently cap emissions of mercury from coal-fired power plants. When fully implemented, CAMR will reduce nation wide mercury emissions from coal-fired power plants by nearly 70 percent, from 48 tons a year to 15 tons. Similar to CAIR, CAMR will utilize a two-phase cap-and-trade program. The first phase will cap mercury at 38 tpy, becoming effective in 2010, while the second cap of 15 tpy, becomes effective in 2018.

The first phase cap (i.e., 38 tons) represents the "co-benefit" reductions achieved by CAIR (i.e., the add-on controls needed for the NO_x and SO₂ reductions will also reduce mercury). Further emission reductions in the second phase will be achieved through future, or emerging, technology such as sorbent injection.

The NSPS program serves as the regulatory authority for CAMR. Subpart HHHH, which contains EPA's model mercury trading program, was discussed in Section 4.1.3.3. Under the terms of revised NSPS Subpart B, states had to submit plans by November 17, 2006, that



addressed the state 2010 and 2018 electrical generating unit (EGU) mercury caps for EPA review and approval. These plans detailed the procedures used to allocate the state mercury budgets to individual coal-fired utility units.

As described previously for the CAIR state SO₂ and NO_x budgets, following SIP approval and allocation of the state mercury budgets to individual sources, these sources must possess sufficient allowances to cover their actual emission rates. Sources that exceed their allocation will need to reduce actual emission rates or purchase additional allowances. Emission sources that have surplus allowances may bank or sell the allowances. Revised SIPs that address the CAMR requirements were required to be submitted to EPA by November 17, 2006. Although mercury allowances will be allocated on a unit-by-unit basis, compliance with the CAMR mercury allowance program is determined on a plant-wide basis.

Michigan is in the process of developing rules for control of Hg from EGU's. These rules are expected to require 90% control of mercury and disallow trading, i.e., be more stringent than the requirements of NSPS, Subpart HHHH.

The ASCPC boiler is subject to and will comply with the federal CAMR rules. It is anticipated that the unit will be subject to Michigan rules for control of mercury emissions that are yet to be promulgated.

4.1.7 Compliance Assurance Monitoring

The Compliance Assurance Monitoring (CAM) rule found in 40 CFR Part 64 establishes criteria for monitoring certain air pollution control devices to provide reasonable assurance of compliance with emission limits and standards. The CAM rule applies, on a pollutant specific basis, to each emission unit at a source that is a major source, required to obtain a Michigan Renewable Operating Permit (ROP) and that meets all of the following:

- The unit is subject to an emission limitation or standard for the pollutant;
- The unit uses a control device to achieve compliance with the limit or standard; and



- Potential uncontrolled emissions of the pollutant are equal to, or greater than, part 70 major source thresholds for that pollutant (i.e., 100 tpy of a criteria pollutant, 10 tpy of a single HAP, or 25 tpy of all HAPs combined, etc).

However, the following pollutant specific emission limitations or standards are exempt from the CAM rules:

- Emission units subject to a NSPS or NESHAP emission limitation or standard.
- Emission units subject to the Acid Rain Program proposed after November 15, 1990.
- Emission units subject to a Part 70 permit (i.e., Michigan ROP) that requires a continuous compliance method.

The CAM plans must be submitted with the ROP application, and are enforceable under the ROP when issued. Consumers will address the CAM requirements for the ASCPC project emission units at the time those emission units are incorporated into the ROP.

4.1.8 Federal Acid Rain Program

The new boiler will be subject to the provisions of the federal Acid Rain Program requirements found in 40 CFR Parts 72 to 78. These regulations require a facility to obtain a federal acid rain permit, hold SO₂ allowances in the source allowance tracking system, install and operate a CEMS for SO₂, NO_x, CO₂ or O₂ and exhaust flow. A continuous opacity monitoring system (COMS) is also required. Under some conditions, a Predictive Emissions Monitoring System or PEMS may be used in lieu of a CEMS.

4.1.9 Prevention of Accidental Releases

Section 112(r) of the Clean Air Act Amendments of 1990 directed the EPA to establish requirements in order to prevent the accidental release of a hazardous air pollutant. Due to the storage of bulk chemicals (e.g., anhydrous ammonia) for use in varied industries, EPA promulgated regulations that require facilities that store certain chemicals in amounts greater than the respective threshold quantity to prepare a Risk Management Plan (RMP) in order address how the chemicals will be stored and measures used to prevent their accidental release to the surrounding environment.



The requirements governing accidental releases can be found in 40 CFR Part 68 – Chemical Accident Prevention Provisions.

Consumers is not proposing any storage tanks or vessels that would be subject to these regulations.

4.2 MICHIGAN-SPECIFIC REQUIREMENTS

Michigan has developed regulations in order to both implement and supplement the federal requirements. Specifically, MDEQ has promulgated rules and regulations under the Natural Resources and Environmental Protection Act (Act 451 of 1994, As Amended) and Section 336 of the Michigan Compiled Law (MCL) for the control of air pollution.

4.2.1 Air Use Permit (Permit to Install or PTI)

The State of Michigan requires that all sources of air pollution must obtain a PTI prior to construction. State and federal rules for PSD also require a major modification of a major stationary source to obtain approval prior to beginning on-site construction of the major modification. Issuance of a State of Michigan PTI will satisfy the requirement to obtain approval prior to constructing the modification. The State of Michigan is a federally delegated state for issuing PSD permits.

Prior to obtaining approval of a PTI in Michigan, the source must demonstrate compliance with all applicable federal and state rules and regulations. This includes a public participation process, with an option for a public hearing, to allow all interested people the opportunity to make comments on the proposed modification.

The PTI will include conditions covering the installation and operation of the equipment until a ROP is issued or modified. The PTI conditions include some or all of the following: emission limits; equipment restrictions; design parameters; operating requirements; testing and sampling requirements; and monitoring, recordkeeping and reporting requirements. These are required to ensure that the source will continuously comply with the state and federal requirements applicable to the project.



4.2.2 Toxic Air Contaminants (TACs)

MDEQ Rules 224 to 232 (R 336.1224 to R 336.1232) for air pollution control regulate the emission of TACs from new and modified emission units. The substantive requirements are contained in Rules 224 and 225, T-BACT Requirements for New and Modified Sources and Health-Based Screening Level Requirements for New and Modified Sources, respectively. The proposed modification will be subject to Michigan Air Toxics requirements pursuant to Rules 224 and 225.

4.2.2.1 Best Available Control Technology for Toxics (T-BACT)

Michigan Rule 224 (R 336.1224) specifies that new or modified emission units cannot emit toxic air contaminants in excess of the maximum allowable emission rate based upon the application of best available control technology for toxics (T-BACT). However, Rule 224(2) states that the requirement for T-BACT does not apply to emission units for which standards have been promulgated under Section 112(d), or for which a control technology determination has been made under Section 112(g) or 112(j), of the Clean Air Act. To date, no standards or control technology determinations have been promulgated under the Clean Air Act and, therefore, a T-BACT analysis has been completed for all relevant toxic air contaminants.

4.2.2.2 Health Based Screening Levels for Air Toxics

Michigan Rule 225 (R 336.1225) requires that the ambient concentrations ($\mu\text{g}/\text{m}^3$) produced by the emissions of toxic air contaminants (TACs) from the new or modified source be less than or equal to the screening levels that are established by the MDEQ. Screening levels for non-carcinogenic compounds are referred to as Initial Threshold Screening Levels (ITSLs), while screening levels for carcinogenic compounds are referred to as Initial Risk Screening Levels (IRSLs). Rule 226 (R 336.1226) contains exemptions from the requirements contained in Rule 225, and Rule 227 (R336.1227) specifies methods for demonstrating compliance with the state air toxics rules. Rules 229 through 232 (R336.1229-R336.1232) include methodologies for establishing screening levels.

The TAC emissions from the installation of the new equipment will consist of trace metals, organic compounds and inorganic compounds, some of which are also HAPs. The potential TAC



emission rates are presented in Appendix B and the ambient impacts of these TAC emissions have been shown to be in compliance with all of the applicable screening levels using the air quality modeling procedures contained in R 336.1240 and R 336.1241.

4.2.2.3 Requirement for Lower Emission Rate than Required by T-BACT

Rule 228 allows the department to determine, on a case-by-case basis, that the maximum allowable emission rate determined in Rules 224 or 225 may not provide adequate protection of human health or the environment. In this particular instance, the department has requested that Consumers perform a human health risk assessment for both mercury and lead following the guidelines set forth in the USEPA document *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities (EPA530-R-05-006)*. SAFRISK, LLC performed these assessments. The human health risk assessment for both mercury and lead is included in this application in Section 8.0 and Appendix H.

4.2.3 Standards for Density of Emissions and Particulate Emissions

Under Michigan Rule 301 (R 336.1301), visible emissions from processes and process equipment are limited to 20 percent opacity on a 6-minute average, with an allowance that one 6-minute average per hour may exceed 20 percent opacity provided it does not exceed 27 percent opacity. Particulate emission limits are also included in the Michigan Part 3 rules, but the level of particulate emissions proposed by Consumers in this application are based on BACT and will be at or lower than the applicable PM and/or opacity standards for fuel burning equipment and material handling equipment contained in Part 3 of the Michigan Air Pollution Control Rules.

4.2.4 Emission Limitations and Prohibitions – Sulfur-Bearing Compounds

Michigan has adopted specific rules to limit the emissions of SO₂ from power plants. Specifically, Rule 401 limits the sulfur content in fuel for power plants to 1.0% for units capable of producing greater than 500,000 lbs of steam per hour. As an alternative, the MDEQ allows power plants to meet an equivalent SO₂ emission rate according to Table 42 from Rule 401. Since the unit will be subject to a federal emission standard for SO₂ contained in the NSPS, Subpart Da and this emission limit is lower than that contained in Table 42 of Rule 401, the unit will be compliance with the Michigan Part 4 rules.



4.2.5 Emission Limitations and Prohibitions – New Sources of VOC Emissions

Michigan's Part 7 Rules require new sources of VOC to not allow emissions in excess of the lowest maximum allowable emission rate, otherwise known as VOC BACT. VOCs are emitted due to incomplete combustion of volatile matter occurring in the boiler. The inherent design and operation of the ASCPC boiler provides the factors facilitating complete combustion of volatiles including extended residence time, consistent high temperatures in the combustion chamber, and continuous thorough mixing of fuel and air. Therefore, through proper design and good combustion practices, VOCs emissions can be minimized. The design and operation of the boiler is considered BACT for VOC emissions.

The Part 7 rules also apply to the 10,000 gallon diesel fuel storage tank. The emissions are estimated at less than 10 pounds per year and will meet the Part 7 requirements.

4.2.6 Emission Limitations and Prohibitions – Oxides of Nitrogen

Michigan's Part 8 Rules govern the level of emissions allowed by both SIP call and non-SIP call stationary sources. The Karn/Weadock facility is located within the SIP call region, and the Part 8 Rule provisions for the SIP call sources will be replaced by the CAIR NO_x ozone season requirements starting in 2009. Rules implementing the CAIR requirements for NO_x became effective on June 25, 2007. The new ASCPC boiler is subject to, and will comply with, Michigan's Part 8 Rules.