UTAH DIVISION OF AIR QUALITY
SOURCE PLAN REVIEW

Bruce Taylor
Sevier Power Company
620 S Main
Bountiful, UT 840100

Project Number: N0125290003

RE:	NOI to construct a 580 MW combined cycle, natural gas, combustion turbine power plant Sevier County; CDS A; NSR, PSD, MACT (Part 63), Attainment Area, Title IV (Part 72 / Acid Rain), Compliance Assurance Monitoring (CAM), Title V (Part 70) major source, Major criteria source, NSPS (Part 60),
Review Engineer:	John Jenks
Date:	March 30, 2012
Notice of Intent Submitted:	September 8, 2011
Plant Contact:	Bruce Taylor
Phone Number:	(801) 916-7341
Source Location:	414,332 m Easting 4,300,261 Northing, Zone 12, Sigurd, UT Sevier County 4300261 m Northing, 414332 m Easting, UTM Zone 12 UTM Datum: NAD83

DAQ requests that a company/corporation official read the attached draft/proposed Plan Review with Recommended Approval Order Conditions. If this person does not understand or does not agree with the conditions, the review engineer should be contacted within five days after receipt of the Plan Review. If this person agrees with the Plan Review and Recommended Approval Order Conditions, this person should sign below and return (FAX # 801-536-4099) within 10 days after receipt of the conditions. If the review engineer is not contacted within 10 days, the review engineer shall assume that the company/corporation official agrees with this Plan Review and will process the Plan Review towards final approval. A public comment period will be required before the Approval Order can be issued.

Applicant Contact ____
(Signature & Date)

OPTIONAL: In order for this Source Plan Review and associated Approval Order conditions to be administratively included in your Operating Permit (Application), the Responsible Official as defined in R307-415-3, must sign the statement below and the signature above is not necessary. THIS IS STRICTLY OPTIONAL!

If you do not desire this Plan Review to be administratively included in your Operating Permit (Application), only the Applicant Contact signature above is required. Failure to have the Responsible Official sign below will not delay the Approval Order, but will require a separate update to your Operating Permit Application or a request for modification of your Operating Permit, signed by the Responsible Official, in accordance with R307--415-5a through 5e or R307-415-7a through 7i.

> **"Based on reasonable inquiry, I certify that the information provided for this Approval Order has been true, accurate and complete and request that this Approval Order be administratively amended to the Operating Permit (Application)."**

Responsible Official ____
(Signature & Date)

Print Name of Responsible Official ________________________________

ABSTRACT

As the abstract is longer than the available space in this field, please see the attached document SPC - Abstract.docx for additional details.

SOURCE SPECIFIC DESIGNATIONS

Applicable Programs:

NSPS (Part 60), Subpart A: General Provisions applies to Power Plant
NSPS (Part 60), Subpart Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units applies to Auxiliary Boiler
NSPS (Part 60), Subpart Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units applies to Convection Fuel Heaters
NSPS (Part 60), Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines applies to Emergency Fire Water Pump
NSPS (Part 60), Subpart IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines applies to Emergency Generator
NSPS (Part 60), Subpart KKKK: Standards of Performance for Stationary Combustion Turbines applies to Combustion Turbines
MACT (Part 63), Subpart A: General Provisions applies to Power Plant
MACT (Part 63), Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines applies to Emergency Fire Water Pump
MACT (Part 63), Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines applies to Emergency Generator
Attainment Area applies to Power Plant
Compliance Assurance Monitoring (CAM) applies to Power Plant
Major criteria source applies to Power Plant
NSR applies to Power Plant
PSD applies to Power Plant
Title IV (Part 72 / Acid Rain) applies to Power Plant
Title V (Part 70) major source applies to Power Plant

Permit History:

When issued, the approval order shall supersede or will be based on the following documents:

Is Derived From	Source submitted NOI dated September 8, 2011
Incorporates	Additional information received dated January 19, 2012

SUMMARY OF NOTICE OF INTENT INFORMATION

Description of Proposal:

Sevier Power Company (SPC) proposes to construct and operate a new natural gas-fired combined-cycle power generating plant to be located approximately 8 miles northeast of Richfield Utah in Sevier County, Utah. The proposed plant upon completion will include a single power block, fired exclusively on pipeline-quality natural gas, and will consist of either two General Electric (GE) Frame 7FA or Siemens Westinghouse 5000-F(4) gas turbines, two heat recovery steam generators (HRSGs) with supplemental firing, and one steam turbine in a combined-cycle configuration, with associated equipment including an air-cooled condenser, a natural gas-fired auxiliary boiler, two natural gas-fired fuel heaters, a diesel engine-driven fire pump, and a diesel engine emergency generator. The combined cycle plant will have a nominal electrical generating capacity output of approximately 580 megawatts (MWe).

The proposed plant is considered to be a major Prevention of Significant Deterioration (PSD) source and is listed as one of the 28 major categories as defined in 40 CFR Part 52.21. The criteria pollutants that will be emitted from the facility are nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM_{10} and $PM_{2.5}$), and sulfur dioxide (SO_2). The proposed electric generating facility has the potential to emit (PTE) regulated pollutants in amounts above significant levels as 40 CFR Part 52.21 (b) 23 for the following: NO_x, PM_{10} and $PM_{2.5}$, CO, and VOC.

Summary of Emission Totals:

The emissions listed below are an estimate of the total potential emissions from the source. Some rounding of emissions is possible.

Estimated Criteria Pollutant Potential Emissions		
CO_2 Equivalent	2,019,226.1	tons/yr
Carbon Monoxide	577.40	tons/yr
Nitrogen Oxides	168.30	tons/yr
Particulate Matter - PM_{10}	106.00	tons/yr
Particulate Matter - $PM_{2.5}$	106.00	tons/yr
Sulfur Dioxide	25.70	tons/yr
Volatile Organic Compounds	91.60	tons/yr
Estimated Hazardous Air Pollutant Potential Emissions		
Total HAPs (CAS #THAPS)	8.50	tons/yr
Total hazardous air pollutants	8.50	tons/yr

Review of Best Available Control Technology:

1. BACT review regarding Criteria Pollutant BACT - Combustion Turbines and HRSGs
   As required under R307-401-8(1)(a) and also under R307-405-11, "the degree of pollution control for emissions ... is at least best available control technology." Best available control technology or BACT is defined in R307-401-2(d). SPC submitted a BACT analysis following EPA's recommended "top-down" approach, which is a five-step methodology outlined as follows:

   Step 1 - Identify all control technologies
   Step 2 - Eliminate technically infeasible options
   Step 3 - Rank remaining control technologies by control effectiveness
   Step 4 - Evaluate most effective controls
   Step 5 - Select BACT

   This approach has been well documented and discussed, and is the most commonly accepted approach to satisfy the case-by-case requirement for BACT determination. UDAQ will not include an in-depth discussion of the top-down methodology here. Rather, UDAQ reviewed SPC's BACT submittal and agrees with the reached conclusions. For the CT/HRSG units those conclusions are:

NO_x - use of dry low-NO_x (DLN) combustors, SCR, and ammonia injection to achieve an emissions limit of 2.0 ppmdv @ 15% O_2 on a 3-hour average

CO - DLN combustors, good combustion practices, oxidation catalyst (oxy-cat) system with a limit of 3.0 ppmdv @ 15% O_2 on a 3-hour average

VOC - DLN combustors, good combustion practices, oxy-cat with a limit of 3.0 ppmdv @ 15% O_2 on a 3-hour average

$PM_{10}/PM_{2.5}$ - good combustion practices, natural gas as fuel, limit of 14 lb/hr on a 30-day rolling average

SO_2/H_2SO_4 - good combustion practices, natural gas as fuel, limit of 3.4 lb/hr on a 30-day rolling average [Last updated March 29, 2012]

2. BACT review regarding Criteria Pollutant BACT - Auxiliary Boiler
For the Auxiliary Boiler those conclusions are:

NO_x - use of ultra-low-NO_x burners (ULNB) and FGR to achieve an emissions limit of 0.017 lb/MMBtu, 1.45 lb/hr

CO - good combustion practices with a limit of 0.0375 lb/MMBtu

$PM_{10}/PM_{2.5}$ - good combustion practices, natural gas as fuel, limit of 0.01 lb/MMBtu

SO_2/H_2SO_4 - natural gas as fuel [Last updated March 9, 2012]

3. BACT review regarding Criteria Pollutant BACT - Miscellaneous Sources
For the convection heaters those conclusions are:

NO_x - use of low-NO_x burners (LNB) utilizing low excess air and FGR to achieve an emissions limit of 0.036 lb/MMBtu, 0.81 lb/hr

CO - good combustion practices with a limit of 0.074 lb/MMBtu

$PM_{10}/PM_{2.5}$ - good combustion practices, natural gas as fuel, limit of 0.01 lb/MMBtu

SO_2/H_2SO_4 - natural gas as fuel

For the diesel fired engines (emergency generator and emergency fire water pump) those conclusions are:

NO_x - use of Tier II (emergency generator) and Tier III (fire water pump) engines, hours of operation for testing and maintenance limited to 100 hrs/yr as per 40 CFR 63 Subpart ZZZZ

CO - use of Tier II and Tier III engines, hours of operation for testing and maintenance limited to 100 hrs/yr

SO_2/H_2SO_4 - ultra low sulfur diesel (15 ppm sulfur) as fuel [Last updated March 9, 2012]

4. BACT review regarding Startup / Shutdown BACT
While post-combustion controls work extremely well during normal operations, catalytic oxidation and reduction systems (SCR and oxy-cat) are of limited use during startup and shutdown periods. While some degree of emission control is possible, catalytic systems are designed to operate within specific temperature ranges and care must be taken to avoid thermal stresses during heating or cooling. Therefore, during startup and shutdown there will be periods when the catalyst beds have reduced or limited control efficiency. For this reason, the optimal control technique is to limit the number and duration of startup and shutdown events, as this limits the amount of operation under these periods of reduced efficiency.

SPC estimates that a maximum of 12 cold starts (equipment is cold prior to startup), lasting approximately 8 hours, 50 warm starts (equipment is warm), lasting approximately 4 hours, and 230 hot starts (equipment is near normal operating temperature), lasting approximately 1-3 hours, will occur annually.

Limits on emissions of 126 lb/hr for NO_x and 959 lb/hr for CO shall apply during all startup and shutdown periods. [Last updated March 23, 2012]

5. BACT review regarding GHG BACT
At this point in time, the only practical way to reduce the amount of CO_2 generated is to minimize the amount of fuel combustion required to produce the desired amount of electricity. This is achieved by operating the equipment efficiently in accordance with manufacturer standards and conducting periodic maintenance on the equipment to keep it at its optimum performance. In comparison to other fuels, natural gas generates a lower amount of CO_2 and will be used exclusively by SPC for the CTs/HRSGs.

To determine an appropriate CO_2 emissions limit for the CT/HRSGs, a search of state and EPA's RBLC databases for recent issued permits was conducted to proposed a BACT emission limit for the CTs/HRSGs, the auxiliary boiler, and convection heaters. Two permits were identified, PacifiCorp Lakeside in Utah County, Utah and Russell Energy Center in Alameda County, California with a CO_2 BACT limit which was 1,100 pounds CO_2 per net megawatt-hour. This CO_2 limit is comparable to the average emissions rate for all natural gas fired power plants of 1135 lbs/MW-hr that was published by EPA.

However, in the Response to Comments Document for Russell City Energy Center's project, EPA suggested that a proper BACT value should be established based on: 1) output based; 2) efficiency-based; 3) and include reasonable assumptions on degradation factors such as a compliance design margin and performance degradation from normal wear and tear. UDAQ pointed out to the EPA, however, that two factors also need to be accounted in establishing a proper BACT value which include: (1) An adjustment of power output for sources located at a much higher elevation; and (2) a discussion of relative percentage of duct firing since duct firing has a different emissions profile than that of the combustion turbine.

The Russell City Energy Center established a final efficiency rating of 7730 Btu/kWhr (HHV).

This was based on the maximum efficiency of 6,852 Btu/kWhr for each turbine, readjusting to 7,080 Btu/kWhr for an "as installed" rating, and then readjusting again for normal degradation. Russell City is located at an elevation of 16 feet above sea level. The proposed heat input rate for the Russell City Energy Center was 2,038.6 MMBtu/hr for each turbine and an additional 200 MMBtu/hr for duct firing in the HRSG.

Lake Side II followed a similar approach and established an efficiency rating of 8,095 Btu/kWhr. Lake Side II is located at an elevation of approximately 4,550 feet above sea level with a proposed a heat input rate of 1762 MMBtu/hr for each turbine and an additional 400 MMBtu/hr for duct firing.

The Russell City Energy Center is able to supply more fuel to the turbines given its much lower elevation. The total expected output of the plant is approximately 612 MW with 8.9% of its total heat input coming from duct firing. Lakeside II is a 629 MW plant with 18.5% of its heat input from duct firing.

The proposed SPC facility will have an efficiency rating of approximately 7,515 Btu/kWhr and occurs at the extreme low ambient conditions of -17°F. The SPC facility will be located at approximately 5,303 feet above mean sea-level. The proposed heat input rate of each turbine is a maximum of 1916.5 MMBtu/hr. The proposed heat input to the duct burners will be as high as 540 MMBtu/hr. The proposed SPC facility will be a nominal 580 MW plant with 8.1% of its total heat input coming from duct firing.

The NSR section recommends that the use of high efficiency CT/HRSG units be accepted as BACT for GHG emissions. As more than 98% of the GHG emissions are the CO_2 emissions from the CT/HRSG units, a limit of 1,926,426 MT of CO_2/yr from both CT/HRSG units combined shall be set, with compliance demonstrated by CEM. [Last updated March 27, 2012]

Modeling Results:

Please see Modeling Memorandum MN125290003-12.docx for UDAQ's analysis and recommendations [Last updated March 8, 2012]

RECOMMENDED APPROVAL ORDER CONDITIONS

The intent is to issue an air quality Approval Order (AO) authorizing the project with the following recommended conditions and that failure to comply with any of the conditions may constitute a violation of the AO. The AO will be issued to and will apply to the following:

Name of Permittee:	**Permitted Location:**
Sevier Power Company 620 S Main Bountiful, UT 840100	Sevier Power Company: Power Plant 414,332 m Easting 4,300,261 Northing Zone 12 Sigurd, UT 84657

UTM coordinates: 414332 m Easting, 4300261 m Northing, UTM Zone 12
SIC code: 4911 (Electric Services)

Section I: GENERAL PROVISIONS

I.1 All definitions, terms, abbreviations, and references used in this AO conform to those used in the UAC R307 and 40 CFR. Unless noted otherwise, references cited in these AO conditions refer to those rules. [R307-101]

I.2 The limits set forth in this AO shall not be exceeded without prior approval. [R307-401]

I.3 Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved. [R307-401-1]

I.4 All records referenced in this AO or in other applicable rules, which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the two-year period prior to the date of the request. Unless otherwise specified in this AO or in other applicable state and federal rules, records shall be kept for a minimum of five (5) years. [R307-401-8]

I.5 At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this AO, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded. [R307-401-4]

I.6 The owner/operator shall comply with UAC R307-107. General Requirements: Unavoidable Breakdowns. [R307-107]

I.7 The owner/operator shall comply with UAC R307-150 Series. Inventories, Testing and Monitoring. [R307-150]

Section II: SPECIAL PROVISIONS

II.A The approved installations shall consist of the following equipment:

II.A.1 **Power Plant**
Nominal 580 MW natural gas-fired combustion turbine power plant

II.A.2 **Turbine 1**
F-Class combustion turbine with dry low-NO_x

II.A.3 **HRSG 1**
Heat recovery steam generator with duct burners, SCR and catalytic oxidation

II.A.4 **Turbine 2**
F-Class combustion turbine with dry low-NO_x

II.A.5 **HRSG 2**
Heat recovery steam generator with duct burners, SCR and catalytic oxidation

II.A.6 **Auxiliary Boiler**
85 MMBtu/hr auxiliary boiler with ULNB and FGR

II.A.7 **Convection Fuel Heaters**
Two (2) 22.3 MMBtu/hr fuel heaters

II.A.8 **Emergency Generator**
1,250 kWe emergency diesel generator

II.A.9 **Emergency Fire Water Pump**
300 kWe diesel-fired fire water pump

II.A.10 **Water Treatment**
Water treatment and storage facilities

II.A.11 **Ammonia Storage and Handling**
Aqueous ammonia storage and handling equipment

II.B Requirements and Limitations

II.B.1 **Conditions on Permitted Source**

II.B.1.a SPC shall notify the Executive Secretary in writing when the installation of the equipment listed in II.A has been completed and is operational, as an initial compliance inspection is required. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If construction and/or installation has not been completed within eighteen months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the construction and/or installation. At that time, the Executive Secretary shall require documentation of the continuous construction and/or installation of the operation and may revoke the AO. [R307-401-8]

II.B.1.b The owner/operator shall install, calibrate, maintain, and operate a continuous emissions monitoring system on each of the HRSG stacks. The owner/operator shall record the output of the system, for measuring the NO_x and CO emissions. The monitoring system shall comply with all applicable sections of R307-170; 40 CFR 60.13; and 40 CFR 60, Appendix B. The NO_x monitor shall comply with 40 CFR 75, Appendix A and B.

All continuous emissions monitoring devices as required in federal regulations and state rules shall be installed prior to placing the affected source in operation. These devices shall be certified within 90 days of achieving full load, not to exceed 180 days after startup.

Except for system breakdown, repairs, calibration checks, and zero and span adjustments required under paragraph (d) 40 CFR 60.13, the owner/operator of an affected source shall continuously operate all required continuous monitoring systems and shall meet minimum frequency of operation requirements as outlined in R307-170 and 40 CFR 60.13.
[R307-170, 40 CFR 60.13]

II.B.1.c Visible emissions shall not exceed the following values:

All natural gas combustion exhaust stacks - 10% opacity
All other emission points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.
[R307-401-8]

II.B.1.d The owner/operator shall use natural gas as fuel in the combustion turbines, duct burners and auxiliary boiler.
[R307-401-8]

II.B.2 **<u>Conditions on Combustion Turbines and HRSGs</u>**

II.B.2.a Emissions to the atmosphere from the indicated emission point(s) shall not exceed the following rates and concentrations:

Source: Each Turbine/HRSG Stack

Pollutant	Limitations	Averaging Period
$PM_{10}/PM_{2.5}$	14 lb/hour (with duct firing)	30-day rolling average
NO_x	2.0 ppmvd at 15% O_2*	3-hour
CO	3.0 ppmvd at 15% O_2*	3-hour
VOC	3.0 ppmvd at 15% O_2*	3-hour

* Under steady state operation
[R307-401-8]

II.B.2.b Stack testing to show compliance with the emission limitations stated in the above condition shall be performed as specified below:

Emissions Point	Pollutant	Status	Frequency
HRSG Stacks	$PM_{10}/PM_{2.5}$	*	$
	NO_x	*	#
	CO	*	#

VOC	*	%

Testing Status (To be applied to the sources listed above)

* Initial compliance testing is required. The initial test date shall be performed as soon as possible and in no case later than 180 days after the start up of a new emission source, an existing source without an AO, or the granting of an AO to an existing emission source that has not had an initial compliance test performed. If an existing source is modified, a compliance test is required on the modified emission point that has an emission rate limit.

$ Test every year or testing may be replaced with parametric monitoring if approved by the Executive Secretary
% Test every five (5) years or testing may be replaced with parametric monitoring if approved by the Executive Secretary
# Compliance shall be demonstrated through use of a Continuous Emissions Monitoring System (CEM) as outlined in Condition II.B.1.b. The Executive Secretary may require testing at any time.
[R307-165]

II.B.2.c For all emissions testing the following shall apply:

Notification:

The Executive Secretary shall be notified at least 30 days prior to conducting any required emission testing. A source test protocol shall be submitted to DAQ when the testing notification is submitted to the Executive Secretary.

The source test protocol shall be approved by the Executive Secretary prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, stack to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Executive Secretary.

Sample Location:

The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by the Executive Secretary. An Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) approved access shall be provided to the test location.

Volumetric Flow Rate:

40 CFR 60, Appendix A, Method 2 or EPA Test Method No. 19 "SO_2 Removal & PM, SO_2, NO_x Rates from Electric Utility Steam Generators" or other testing methods approved by the Executive Secretary.

$PM_{10}/PM_{2.5}$:

For stacks in which no liquid drops are present, the following methods shall be used: 40 CFR 51, Appendix M, Methods 201, 201a and 202, or other testing methods approved by the Executive Secretary. All particulate captured shall be considered $PM_{10}/PM_{2.5}$. The back half condensibles shall be used for compliance demonstration as well as for inventory purposes.

For stacks in which liquid drops are present, methods to eliminate the liquid drops should be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5a, 5d, or 5e as appropriate, or other testing methods approved by the Executive Secretary. The back half condensibles shall also be tested using the method specified by the Executive Secretary. The portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Executive Secretary.

NO_x:

40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D, 7E, or other testing methods approved by the Executive Secretary.

CO:

40 CFR 60, Appendix A, Method 10, or other testing methods approved by the Executive Secretary.

Calculations:

To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary, to give the results in the specified units of the emission limitation.
[R307-165]

II.B.2.d Compliance with the 3-hour NO_x and CO emission limitations specified in Condition II.B.2.a shall not be required during short-term excursions, limited to a cumulative total of 160 hours annually. Short-term excursions are defined as 15-minute periods designated by the owner/operator that are the direct result of transient load conditions, not to exceed four consecutive 15-minute periods, when the 15-minute average NO_x and CO concentrations exceed 2.0 ppmv and 3.0 ppmv, dry @ 15% O_2, respectively. Transient load conditions include the following:

1. Initiation/shutdown of combustion turbine inlet air-cooling
2. Rapid combustion turbine load changes
3. Initiation/shutdown of HRSG duct burners
4. Provision of Ancillary Services and Automatic Generation Control

During periods of transient load conditions, the NO_x concentration shall not exceed 25 ppmv and the CO concentration shall not exceed 50 ppmv, dry @ 15% O_2. All NO_x and CO emissions during these events shall be included in all calculations of annual mass emissions as required by this permit.
[R307-401-8]

II.B.2.e Steady state operation means all periods of combustion turbine operation, except for periods of startup and shutdown as defined below, and periods of transient load conditions as defined in

Condition II.B.2.d. Startup is defined as the period beginning with turbine initial firing until the unit meets the ppmvd emission limits in Condition II.B.2.a for steady state operation. Shutdown is defined as the period beginning with the initiation of turbine shutdown sequence and ending with the cessation of firing of the gas turbine engine.

Emissions of NO_x from each CT/HRSG unit shall not exceed 126 lb/hr during startup or shutdown operations

Emissions of CO from each CT/HRSG unit shall not exceed 959 lb/hr during startup or shutdown operations
[R307-401-8]

II.B.2.f Emissions of GHG from both CT/HRSG units combined shall not exceed 1,926,426 metric tons of CO_2 per rolling 12-month period. Compliance with the rolling 12-month period shall be determined through use of the CO_2 CEM as outlined in condition II.B.1.b above.
[R307-170, R307-401-8]

II.B.2.g The height of the CT/HRSG stacks shall be no less than 165 feet, as measured from ground level at the base of the stack.
[R307-410-6]

II.B.3 **Conditions on Auxiliary Boiler**

II.B.3.a Emissions to the atmosphere from the indicated emission point(s) shall not exceed the following rates and concentrations:

Source: Auxiliary Boiler #2

Pollutant	Limitations	Averaging Period
$PM_{10}/PM_{2.5}$	0.01 lb/MMBtu	3-hour
NO_x	0.017 lb/MMBtu	3-hour
CO	0.0375 lb/MMBtu	3-hour

[R307-401-8]

II.B.3.b Stack testing to show compliance with the emission limitations stated in the above condition shall be performed as specified below:

Emissions Point	Pollutant	Status	Frequency
Auxiliary Boiler	$PM_{10}/PM_{2.5}$	*	%
	NO_x	*	%
	CO	*	%

Testing Status (To be applied to the sources listed above)

* Initial compliance testing is required. The initial test date shall be performed as soon as possible and in no case later than 180 days after the start up of a new emission source, an existing source without an AO, or the granting of an AO to an existing emission source that has

not had an initial compliance test performed. If an existing source is modified, a compliance test is required on the modified emission point that has an emission rate limit.

% Test every five (5) years or testing may be replaced with parametric monitoring if approved by the Executive Secretary

[R307-165]

II.B.3.c For all emissions testing the following shall apply:

Notification:

The Executive Secretary shall be notified at least 30 days prior to conducting any required emission testing. A source test protocol shall be submitted to DAQ when the testing notification is submitted to the Executive Secretary.

The source test protocol shall be approved by the Executive Secretary prior to performing the test(s). The source test protocol shall outline the proposed test methodologies, stack to be tested, and procedures to be used. A pretest conference shall be held, if directed by the Executive Secretary.

Sample Location:

The emission point shall be designed to conform to the requirements of 40 CFR 60, Appendix A, Method 1, or other methods as approved by the Executive Secretary. An Occupational Safety and Health Administration (OSHA) or Mine Safety and Health Administration (MSHA) approved access shall be provided to the test location.

Volumetric Flow Rate:

40 CFR 60, Appendix A, Method 2 or EPA Test Method No. 19 "SO_2 Removal & PM, SO_2, NO_x Rates from Electric Utility Steam Generators" or other testing methods approved by the Executive Secretary.

PM_{10}/$PM_{2.5}$:

For stacks in which no liquid drops are present, the following methods shall be used: 40 CFR 51, Appendix M, Methods 201, 201a and 202, or other testing methods approved by the Executive Secretary. All particulate captured shall be considered PM_{10}/$PM_{2.5}$. The back half condensibles shall be used for compliance demonstration as well as for inventory purposes.

For stacks in which liquid drops are present, methods to eliminate the liquid drops should be explored. If no reasonable method to eliminate the drops exists, then the following methods shall be used: 40 CFR 60, Appendix A, Method 5, 5a, 5d, or 5e as appropriate, or other testing methods approved by the Executive Secretary. The back half condensibles shall also be tested using the method specified by the Executive Secretary. The portion of the front half of the catch considered PM_{10} shall be based on information in Appendix B of the fifth edition of the EPA document, AP-42, or other data acceptable to the Executive Secretary.

NO_x:

40 CFR 60, Appendix A, Method 7, 7A, 7B, 7C, 7D, 7E, or other testing methods approved by the Executive Secretary.

CO:

40 CFR 60, Appendix A, Method 10, or other testing methods approved by the Executive Secretary.

Calculations:

To determine mass emission rates (lb/hr, etc.) the pollutant concentration as determined by the appropriate methods above shall be multiplied by the volumetric flow rate and any necessary conversion factors determined by the Executive Secretary, to give the results in the specified units of the emission limitation.
[R307-165]

II.B.4 **Conditions on Emergency Generator**

II.B.4.a Emergency generators shall be used for electricity producing operation only during the periods when electric power from the public utilities is interrupted, and for regular maintenance and testing. Records documenting generator usage shall be kept in a log and they shall show the date the generator was used, the duration in hours of the generator usage, and the reason for each generator usage.
[R307-401-8]

II.B.5 **Conditions on Diesel-Fired Equipment**

II.B.5.a The owner/operator shall use a combination of #1 or #2 fuel oil or diesel fuel in the emergency generators and fire pump.

The sulfur content of any #1 or #2 fuel oil or diesel fuel burned shall not exceed 0.0015 percent by weight. Sulfur content shall be determined by ASTM Method D-4294-89, or approved equivalent. Certification of fuels shall be either by the owner/operator's own testing or test reports from the fuel marketer or supplier. For purposes of demonstrating compliance with this limitation, the owner/operator may obtain the above specifications by testing each purchase of fuel in accordance with the required methods; by inspection of the specifications provided by the vendor for each purchase of fuel; or by inspection of summary documentation of the fuel sulfur content from the vendor; provided that the above specifications are available from the vendor for each purchase if requested.
[R307-401-8]

Section III: APPLICABLE FEDERAL REQUIREMENTS

In addition to the requirements of this AO, all applicable provisions of the following federal programs have been found to apply to this installation. This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including UAC R307.

NSPS (Part 60), A: General Provisions
NSPS (Part 60), Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
NSPS (Part 60), IIII: Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
NSPS (Part 60), KKKK: Standards of Performance for Stationary Combustion Turbines
MACT (Part 63), A: General Provisions
MACT (Part 63), ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
Title IV (Part 72 / Acid Rain)
Title V (Part 70) major source

REVIEWER COMMENTS

The AO will be based on the following documents:

Is Derived From	Source submitted NOI dated September 8, 2011
Incorporates	Additional information received dated January 19, 2012

1. Comment regarding PSD Applicability:
   Because the SPC power plant is defined as a fossil fuel-fired steam electric plant of greater than 250 MMBtu/hr heat input, it falls into one of the 28 listed source categories with a 100 tpy emission threshold for determination as a major stationary source under PSD. The SPC power plant will be a major source for at least one PSD regulated pollutant as found under 40 CFR 52.21(b)(1)(i)(a). Therefore, any pollutant with emissions greater than the significance level will also be subject to PSD review. An analysis of SPC's emissions reveals that NO_2, CO, PM_{10} and $PM_{2.5}$ are all subject to PSD review (GHG emissions will be covered under a separate review comment).

   In addition to the application of BACT (covered elsewhere) and an analysis of air quality impacts, a source subject to PSD must also submit an Additional Impacts Analysis which addresses the impact to visibility; acid deposition; the impact on soils, vegetation and wildlife; and the general commercial, residential, industrial and other growth associated with the source.

   For purposes of this review, visibility and acid deposition are both addressed in the associated (and attached) modeling memorandum MN125290003-12.docx.

   The soils vegetation and wildlife analysis was submitted under Appendix P of the September 8, 2012 NOI. After review of the expected emissions from the SPC power plant, modeled impacts on Air Quality Related Values (AQRVs) were below, and in most cases far below, the significant impact levels established by EPA. Therefore, no adverse impact to soils, vegetation or wildlife is expected.

   The growth analysis is found in section 8.2 of the NOI. No new commercial construction, housing, or industrial construction would be necessary during the construction period. Similarly, no new housing, commercial or industrial construction is expected as a result of operating the power plant. The full-time permanent positions required are estimated at 20-25, with some of these positions filled by local residents. Given these growth expectations, no new significant emissions are anticipated from secondary growth during either construction or operation of the power plant. [Last updated March 27, 2012]

2. Comment regarding NSPS Applicability:
   The following New Source Performance Standards were determined to be applicable to the SPC power plant:

   40 CFR 60 Subpart A - General Provisions. This subpart outlines general provisions applicable to a source subject to any other subpart under 40 CFR 60.

   40 CFR 60 Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. This subpart applies to both the auxiliary boiler and the two convection

heaters. As these units are all natural gas fired, only the recordkeeping and reporting requirements of Subpart Dc are applicable. Although the HRSGs are steam generating units, they are not subject to the requirements of Subpart Da, Db or Dc, because they are considered to be integral to the combined cycle CT/HRSG affected unit under Subpart KKKK (see below) and are therefore regulated under that NSPS.

40 CFR 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. This subpart applies to both the diesel-fired emergency generator, and the diesel-fired emergency fire water pump. Both units shall comply with the provisions of this subpart.

40 CFR 60 Subpart KKKK - Standards of Performance for Stationary Combustion Turbines. As the two CT/HRSG units are both greater than 10 MMBtu/hr heat input, this subpart applies. A stationary combustion turbine is defined as all equipment associated with the physical turbine; including (but not limited to) the turbine, heat recovery systems, ancillary equipment, any combined-cycle turbine, and any combined heat and power combustion system. Therefore, the HRSGs and duct burners are considered to be part of the stationary combustion turbine, and are exempt from the NSPS requirements of Subparts Da, Db or Dc. Subpart KKKK also supersedes the older Subpart GG, which, therefore, does not apply. [Last updated March 9, 2012]

3. Comment regarding NESHAP/MACT Applicability:
The following NESHAP/MACT requirements were found to be applicable to the SPC power plant:

40 CFR 63 Subpart A - General Provisions: This subpart outlines general provisions applicable to a source subject to any other subpart under 40 CFR 63.

40 CFR 63 Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. This subpart applies to both the emergency generator and emergency fire water pump. An affected compression ignition source that meets the criteria outlined in 40 CFR 63.6590 paragraphs (c)(1) through (7) must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR 60 Subpart IIII. Therefore, while Subpart ZZZZ applies to these two units, there are no additional applicable requirements.

While the CT/HRSGs are a source of HAP emissions, the total expected HAP emissions from the power plant is less than 10 tpy. This categorizes the SPC power plant as an area source for HAP emissions. Therefore the requirements of 40 CFR 63 Subpart YYYY do not apply to this plant. [Last updated March 29, 2012]

4. Comment regarding Title IV and Title V:
The SPC power plant will be subject to both Title IV (Acid Rain Provisions) and Title V (Operating Permits) of the CAA.

Title IV requires, in part, the installation of a CEMS to demonstrate compliance with the acid rain requirements of 40 CFR 75. This CEMS requirement is also included in this permitting action.

Title V requires, in part, that the applicant submit a timely and complete Title V application within one year of commencing operations. It also requires the application of CAM (compliance assurance monitoring) on those emitting units meeting specific requirements. The CT/HRSG units will require the application of CAM. SPC has proposed to meet this requirement by installing and operating a CEMS for both NO_x and CO emissions (the CAM-applicable pollutants). [Last updated March 9, 2012]

5. Comment regarding GHG Emissions:
As part of its request for additional information, UDAQ asked SPC to recalculate GHG emissions using a consistent methodology. In summary, that strategy was to apply the same ambient temperature conditions to each source of GHG emissions and then pick the highest emitting scenario with all other factors being unchanged. This results in a lower but more accurate and realistic estimate of GHG emissions from the plant. Using this revised methodology the GHG emissions from the SPC plant are calculated as follows:

SPC operating case #11(GE operating case #14) turbine emissions:
CO_2 = 1926425.5 metric tons (MT)/yr, global warming potential (GWP) x1 = 1926425.5 MT/yr CO_2e
N2O = 101.43 MT/yr, GWP x310 = 31443.3 MT/yr CO_2e
CH4 = 32.60 MT/yr, GWP x21 = 684.6 MT/yr CO_2e

Turbine CO_2e = 1958552.1 MT/yr

Adding in the auxiliary boiler at 39816 MT/yr CO_2e and convection heaters at 20858 MT/yr CO_2e for this same operating case gives a grand total of 2,019,226.1 MT/yr CO_2e.

A discussion of GHG BACT is found in the BACT section of this source plan review document. [Last updated March 9, 2012]

ACRONYMS

The following lists commonly used acronyms and associated translations as they apply to this document:

40 CFR	Title 40 of the Code of Federal Regulations
AO	Approval Order
BACT	Best Available Control Technology
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDS	Classification Data System (used by EPA to classify sources by size/type)
CEM	Continuous emissions monitor
CEMS	Continuous emissions monitoring system
CFR	Code of Federal Regulations
CMS	Continuous monitoring system
CO	Carbon monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent - 40 CFR Part 98, Subpart A, Table A-1
COM	Continuous opacity monitor
DAQ	Division of Air Quality (typically interchangeable with UDAQ)
DAQE	This is a document tracking code for internal UDAQ use
EPA	Environmental Protection Agency
FDCP	Fugitive dust control plan
GHG	Greenhouse Gas(es) - 40 CFR 52.21 (b)(49)(i)
GWP	Global Warming Potential - 40 CFR Part 86.1818-12(a)
HAP or HAPs	Hazardous air pollutant(s)
ITA	Intent to Approve
LB/HR	Pounds per hour
MACT	Maximum Achievable Control Technology
MMBTU	Million British Thermal Units
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOI	Notice of Intent
NO_x	Oxides of nitrogen
NSPS	New Source Performance Standard
NSR	New Source Review
PM_{10}	Particulate matter less than 10 microns in size
$PM_{2.5}$	Particulate matter less than 2.5 microns in size
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
R307	Rules Series 307
R307-401	Rules Series 307 - Section 401
SO_2	Sulfur dioxide
Title IV	Title IV of the Clean Air Act
Title V	Title V of the Clean Air Act
TPY	Tons per year
UAC	Utah Administrative Code
UDAQ	Utah Division of Air Quality (typically interchangeable with DAQ)
VOC	Volatile organic compounds