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Errata to Air Quality Analysis of Startup and Shutdown Operation for the Magnolia Power Project (01-AFC-06) (TN 219136, published June 16, 2017)

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The following revisions are in response to comments from the project owner on the Air Quality Analysis of Startup and Shutdown Operation for the Magnolia Power Project (Air Quality analysis). The revisions form errata to the previously published AQ analysis. Draft comments from the project owner were received on June 16, 2017, but formal comments were not received until July 19, 2017 and published to the docket on July 26, 2017, after the June 16 publication of the Air Quality analysis.

The project owner comments and responses from Energy Commission staff are included below. **Bold double underline** is used to indicate new language and ~~double strikethrough~~ is used to indicate deleted language.

Comment 1: Page 8, CEQA Mitigation for VOCs. Please provide clarification on whether this has been addressed, or how it will be addressed.

Response: Staff recommended in the Air Quality analysis that the project owner surrender 3 pounds of volatile organic compound (VOC) emission reduction credits (ERCs) for the Magnolia Power Project to address changes in the project design and operation. On May 10, 2017, the South Coast Air Quality Management District (SCAQMD) confirmed that an application to surrender 3 pounds of volatile organic compound (VOC) emission reduction credits (ERCs) for the Magnolia Power Project (MPP) was being processed. In addition, on May 18, 2017, the Southern California Public Power Authority (SCPPA) provided a copy of this application to the California Energy Commission (Energy Commission) staff. According to SCAQMD records, the transaction (ERC surrender) was completed on May 19, 2017. The surrender of 3 pounds of VOCs satisfies the mitigation recommended by Energy Commission staff. Staff has published the ERC application submitted to SCAQMD.

Comment 2: Page 15, Analysis, add a bullet after second bullet: "Revising shutdown frequency to 5 shutdowns per month and 60 shutdowns per year."

Response: Energy Commission staff analyzed the project according to a startup and a shutdown frequency of 5 per month and 60 per year. Page 2 of the Air Quality analysis includes a bullet stating revisions to the revised Title V permit for MPP included an increase in the number of startups and shutdowns to 5 per month and 60 per year. Page 2 then continues to explain this proposed amendment would incorporate the applicable permit changes from the SCAQMD Title V revisions. Page 1-2 of the Petition to Amend (PTA) submitted to the Energy Commission by SCPPA on June 10, 2016 (TN 211786) discusses their 2015 request to SCAQMD to change to startup and shutdown operation. Section 2, Description of Project Amendment of the PTA, includes a description of the requested project amendments to the Energy

Commission. The change in shutdown operation was not specifically requested or discussed by SCPA in Section 2 of the PTA. However, Section 3 Environmental Analysis of the Project Changes of the PTA clearly analyzes a change in both startup and shutdown operation.

Therefore, it was not clear if the change in shutdown operation was a direct request or a consequence of the specific request to amend the startup operation and therefore it was not listed in a separate bullet on page 9 of the Air Quality analysis. In addition, there were no direct requests to add the number of shutdown scenarios in any condition of certification because the shutdowns are automatically limited by the number of allowable startups. While Energy Commission staff did not specifically list the change in shutdown operation as a request by the applicant, it is a consequence of the requested change to the startup operations and was analyzed accordingly. Therefore staff does not recommend making this change to the Air Quality analysis.

Comment 3: Page 29, The units in the table header for Heat Input should be (MMBtu/year) instead of (MMBtu/hr).

Response: The units in Air Quality Table 18 in the Air Quality analysis should be corrected as follows:

Air Quality Table 18
Criteria Pollutants Concentrations, 2011-2014 (ppm or $\mu\text{g}/\text{m}^3$)

Scenario	Event	Operation (hrs/year)	Heat Input (MMBtu/ hr year)
Decision (Load Following)	Start	317	566,836
	Shutdown	52	92,924
	No DB	3,209	5,734,483
	With DB	1,000	2,370,000
	Total	4,578	8,764,243
Decision (Base Load)	Start	0	0
	Shutdown	0	0
	No DB	7322	13,084,414
	With DB	1,000	2,370,000
	Total	8,322	15,454,414
Proposed Amendment	Start	360	643,320
	Shutdown	30	53,610
	No DB	6,932	12,387,484
	With DB	1,000	2,370,000
	Total	8,322	15,454,414

Source: SCAQMD 2016, SCPA 2016, and staff analysis.

Note: DB = Duct burner operation

Comment 4: Page 29, The units in the table header for GHG Emissions should be (lbs/year) instead of (lbs/hour).

Response: The units in Air Quality Table 19 of the Air Quality analysis should be corrected as follows

Air Quality Table 19
Estimated Potential Greenhouse Gas Emissions

Pollutant	Emission Factor ^a	Global Warming Potential ^b	GHG Emissions	
	(kg/MMBtu)	-----	(lbs/ hour year)	(tons/year)
CO ₂	53.06	1	1,807,796,707	903,898
CH ₄	0.001	25	34,071	17.04
N ₂ O	0.0001	298	3,407	1.70
Total Mass:	----	----	1,807,834,184	903,917
CO ₂ e:	----	----	1,809,663,787	904,832

Source: SCAQMD 2016, staff analysis

Kg/MMBtu = kilograms per million British thermal units

Notes: ^aEmission factors from Table 1 of EPA's Emission Factors for Greenhouse Gas Inventories

^bTable A-1 of 40 CFR Part 98, Subpart A

Comment 5: Page 35, add a bullet after ninth bullet: "Limit number of shutdowns to 5 per month".

Response: As discussed in Energy Commission staff's response to comment 2 above, limiting the number of allowable startups results in a limitation to the allowable shutdowns. There is no specific condition in the air quality conditions of certification or the SCAQMD permit that directly limits the shutdown operations. Energy Commission staff does not believe a bullet is needed here but has no objection with a bullet to provide additional clarity to the changes in MPP operation resulting from the proposed amendments.

Comment 6: Page 47, The ammonia injection rate listed in the SCAQMD permit is incorrect. The injection rate in AQ-3 should be in units of lb/hr (i.e. 50 and 350 lb/hr). Also, the statement should include the following language, "except during start-up and shutdown". This will be revised in the SCAQMD administrative permit application.

Response: This correction was not proposed in the PTA filed by SCPPA. After receiving the comment from SCPPA, Energy Commission staff discussed these proposed changes with SCAQMD and SCPPA. SCAQMD is aware the units now need to be corrected. According to the SCAQMD, the ammonia injection range is information provided by the applicant and included in the permit conditions as an indicator of system compliance. The values are not used for any specific calculation and do not impact any of the analysis findings or other conditions of certification. In addition, the SCAQMD believes adding the exception for start-up and shutdown is appropriate since limitations for startup and shutdown operations are already

included in the permit. SCAQMD believes that a minor correction is needed and could be accomplished with an administrative permit revision.

The Energy Commission does not currently have a parallel administrative decision revision process to make these types of changes; therefore, Energy Commission staff recommends including these proposed changes in the PTA that is being processed. Energy Commission staff recommends the following changes to Condition of Certification **AQ-3** to be included in the Air Quality analysis:

AQ-3 The project owner shall install and maintain a flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH₃).

~~The project owner shall also install and maintain a device to continuously record the parameter being measured. The~~ **project owner shall continuously record the flow rate with a** measuring device or gauge shall be accurate to within plus or minus 5 percent. ~~It shall be,~~ calibrated once every twelve months.

The project owner shall maintain the ammonia injection rate between 50 and 350 ~~gph~~ pounds per hour, except during start-up and shutdown.

[Rule 1303(a)(1)-BACT; Rule 2012]

[Devices subject to this condition: C10]

Verification: The project owner shall make the site available for inspection by representatives of the District, ~~California Air Resources Board (CARB), the~~ **U.S. United States Environmental Protection Agency (EPA)** and the California Energy Commission (Commission).

Comment 7: Page 48, The temperature range in AQ-4 should include the language, “except during start-up and shutdown”. This will also be revised in the SCAQMD administrative permit application.

Response: This correction was not proposed in the PTA filed by SCPPA. After receiving the comment from SCPPA, Energy Commission staff discussed this proposed change with the SCAQMD and SCPPA. SCAQMD believes adding the exception for start-up and shutdown is appropriate since limitations for startup and shutdown operations are already included in the permit. SCAQMD believes that this change could be incorporated into their permit with an administrative permit revision. The Energy Commission does not currently have a parallel administrative decision revision process to make these types of changes; therefore, Energy Commission staff recommends including these proposed changes in the PTA that is being processed. Energy Commission staff recommends the following changes to Condition of Certification **AQ-4** to be included in the Air Quality analysis:

AQ-4 The project owner shall install and maintain a temperature gauge to accurately indicate the temperature ~~in~~ **of** the exhaust at the inlet to the SCR

reactor. The project owner shall also install and maintain a device to continuously record the parameter **temperature** being measured. The ~~with a~~ measuring device or gauge shall be accurate to ~~within~~ plus or minus 5 percent. ~~It shall be~~ calibrated once every twelve months.

The operator shall maintain the temperature between 450 and 900 degrees F, except during start-up and shutdown.

[Rule 1303(a)(1)-BACT; Rule 2012]

[Devices subject to this condition: C10]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, **U.S.** EPA and the Commission.

Comment 8: Page 48, The pressure range in AQ-5 should include the language, “except during start-up and shutdown”. This will also be revised in the SCAQMD administrative permit application.

Response: This correction was not proposed in the PTA filed by SCPPA. After receiving the comment from SCPPA, Energy Commission staff discussed this proposed change with the SCAQMD and SCPPA. SCAQMD believes adding the exception for start-up and shutdown is appropriate since limitations for startup and shutdown operations are already included in the permit. SCAQMD believes that this change could be incorporated to their permit with an administrative permit revision.

The Energy Commission does not currently have a parallel administrative decision revision process to make these types of changes; therefore, Energy Commission staff recommends including these proposed changes in the PTA that is being processed. Energy Commission staff recommends the following changes to Condition of Certification **AQ-5** to be included in the Air Quality analysis:

AQ-5 The project owner shall install and maintain a pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches of water column. The project owner shall also install and maintain a device to continuously record the parameter being measured. **pressure with a** The measuring device or gauge shall be accurate to ~~within~~ plus or minus 5 percent, ~~It shall be~~ calibrated once every twelve months.

The operator shall maintain the differential pressure between 1.0 and 5 inches of water column, except during start-up and shutdown.

[Rule 1303(a)(1)-BACT; Rule 2012]

[Devices subject to this condition: C10]

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, U.S. EPA and the Commission.

Comment 9: Page 50, SPCPA will be revising the language in the permit relating to AQ-8 in the SCAQMD administrative permit application. The revised language will read:

The test shall be conducted at least once every three years. The results shall be submitted to the AQMD within 60 days after the test date. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test. The test shall be conducted;

- 1) when the gas turbine and duct burner are operating simultaneously at 100 percent of maximum heat input, or as close as practical, but not less than 90 percent of maximum heat input*
- 2) when the gas turbine is operating alone at 100 percent of maximum heat input, or as close as practical, but not less than 90 percent of maximum heat input.*

Response: This correction was not proposed in the PTA filed by SPCPA. After receiving the comment from SPCPA, Energy Commission staff discussed this proposed change with the SCAQMD and SPCPA. SPCPA stated that the facility could not reliably operate at one hundred percent of maximum heat input during source tests. SCAQMD believes that this change could be incorporated to their permit with an administrative permit revision.

The Energy Commission does not currently have a parallel administrative decision revision process to make these types of changes; therefore, Energy Commission staff recommends including these proposed changes in the PTA that is being processed. Energy Commission staff recommends the following changes to Condition of Certification **AQ-8** to be included in the Air Quality analysis:

AQ-8 The project owner shall conduct source test(s) for the pollutant(s) identified below.

Pollutant	Method	Averaging Time	Test Location
SO _x	<u>AQMD Laboratory Method 307-91 or</u> District Approved Method	District Approved Avg. <u>Averaging</u> Time	Fuel Sample
ROG	District Approved Method	1 hour	SCR Outlet
PM	<u>EPA Method 201A/District Method 5.1 or</u> District Approved Method	District Approved Avg. <u>Averaging</u> Time	SCR Outlet

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration and/or monthly emissions limit.

The test(s) shall be conducted at least once every three years. The test shall be conducted and the results **shall be** submitted to the **AQMD** District within 60 days after the test date. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test. The test shall be conducted:

- 1) when the gas turbine and duct burner are operating simultaneously at 100 percent of maximum heat input, or as close as practical, but not less than 90 percent of maximum heat input ~~and~~
- 2) when the gas turbine is operating alone at 100 percent of maximum heat input, or as close as practical, but not less than 90 percent of maximum heat input.

The test shall be conducted to demonstrate compliance with the Rule 1303 concentration and/or monthly emissions limit.

For natural gas fired turbines only, an alternative to AQMD Method 25.3 for the purpose of demonstrating compliance with BACT may be the following:

- a) Triplicate stack gas samples extracted directly into Summa canisters, maintaining a final canister pressure between 400-500 mm HG absolute,
- b) Pressurization of the Summa canisters with zero gas analyzed/certified to less than 0.05 parts per million by volume total hydrocarbons as carbon (ppmvC), and
- c) Analysis of Summa canisters per unmodified EPA Method TO-12 (with pre-concentration) or the canister analysis portion of AQMD Method 25.3 with a minimum detection limit of 0.3 ppmvC or less and reported to two significant figures. The temperature of the Summa canisters when extracting the samples for analysis shall not be below 70 F.

The use of this alternative method for VOC compliance determination does not mean that it is more accurate ~~then~~-than unmodified AQMD Method 25.3, nor does it mean that it may be used in lieu of AQMD Method 25.3 without prior approval, except for the determination of compliance with the BACT level of 2.0 parts per million by volume (ppmv) ROG calculated as carbon set by ARB for natural gas fired turbines.

[Rule 1303(a)(1)-BACT; Rule 1303(b)(2)-Offset; Rule 1401]

[Devices subject to this condition: D4, D6]

Verification: The project owner shall submit test results to the District and CPM no later than 60 days following the source test date and notify the District and CPM no later than 10 days prior to the source test date and time.

Comment 10: Page 61, Magnolia does not meet the Federal threshold for the RMP program. Based on discussions with the SCAQMD, SCPPA is recommending to remove this condition entirely. This will also be included in the SCAQMD administrative permit application.

Response: Condition of Certification **AQ-33** includes requirements for accidental release prevention. The condition language originated from SCAQMD requirements. Deleting Condition of Certification **AQ-33** was not proposed in the PTA filed by SCPPA. Energy Commission staff discussed this proposed change with SCAQMD staff and SCPPA. SCAQMD stated that this is a standard condition that was at one point placed on many Title V permits. SCAQMD staff believes that the condition could be changed or deleted and incorporated in their permit with an administrative permit revision. The Energy Commission does not currently have a parallel administrative decision revision process to make these types of changes; therefore, Energy Commission staff recommends including this deletion in the PTA that is being processed. Energy Commission staff recommends the following changes to Condition of Certification **AQ-33** to be included in the Air Quality analysis:

AQ-33 ~~Accidental release prevention requirements of Section 112(r)(7):~~

~~a) The project owner shall comply with the accidental release prevention requirements pursuant to 40 CFR Part 68 and shall submit to the District's Executive Officer, as part of an annual compliance certification, a statement that certifies compliance with all of the requirements of 40 CFR Part 68, including the registration and submission of a risk management plan (RMP).~~

~~b) The project owner shall submit any additional relevant information requested by the District's Executive Officer or designated agency.~~

~~[Rule 40CFR 68 - Accidental Release Prevention]~~ Deleted

~~**Verification:** Records will be retained at the project site and made available for review upon request. The project owner shall submit to the CPM the documents listed above in (a) and (b) as part of an annual compliance certification.~~