CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov

DATE: April 14, 2014

TO: Interested Parties

FROM: Dale Rundquist, Compliance Project Manager

SUBJECT: Errata to the Abengoa Mojave Solar Project (09-AFC-5C)
Staff Analysis of Proposed Modifications to Amend Air Quality

On March 21, 2014, the California Energy Commission (Energy Commission) Staff published its analysis of the proposed modifications to the Energy Commission's Final Decision (Commission Decision) for the Abengoa Mojave Solar (AMS) Project.

On April 7, 2014, staff received an e-mail from the Mojave Desert Air Quality Management District (MDAQMD) stating they had received a request from Abengoa to revise the manufacturer of the aboveground fuel tank to be installed at this project. Due to this request, Energy Commission Staff has identified the need to publish errata to make minor corrections to Air Quality Conditions of Certification **AQ-51, AQ-53, AQ-54, AQ-55, AQ-56, AQ-57,** and **AQ-59.** These changes are administrative in nature and will not affect emissions nor will they cause the facility to operate contrary to any District, state, or Federal rules and regulations. The revisions to the March 21, 2014, filing are shown in **~~bold double strike out~~** for deletions and **<u>bold double underline</u>** for additions.

On October 29, 2013, Mojave Solar, L.L.C., filed a revised petition with the California Energy Commission (Energy Commission) requesting to amend the Final Decision for the Abengoa Mojave Solar (AMS) Project.

The modifications proposed in the revised petition to amend would:

- Update the Alpha and Beta Power Blocks' general arrangements to incorporate changes to equipment and building or process area locations;
- Remove the existing low boilers and high boilers cleaning distillation Volatile Organic Compounds (VOC) control system and utilize a scrubbing and carbon adsorption VOC control system;
- Update the two vertical Heat Transfer Fluid storage tank condensers on the vent stacks with a scrubber on the vent stream for each plant;
- Update the facility component counts with revision to the fugitive emissions inventory;
- Reduce from five to four the vertical ASME-rated expansion vessels (based on a reduction of HTF quantity) per plant;

- Replace the two Tier 2 4,190-bhp (3,125-kW) emergency generators with two Tier 2 2,280-kW units;
- Reduce the minimum Tier 2 emergency generators stack height to 30 feet above ground level;
- Reduce the currently permitted fire pump's stack height to 20 feet above ground level;
- Remove the operational testing restriction of one emergency engine per hour to allow the simultaneous testing of all emergency equipment; and
- Replace the two 346-bhp Tier 3 fire pump engines with two larger 575-617 bhp-Tier 3 engines.

The revised petition also requests the deletion of Air Quality Conditions of Certification **AQ-1** through **AQ-8**. Previously, on July 24, 2013, Mojave Solar petitioned the Energy Commission to allow removal from the project description two 21.5-MMBTU/hr natural gas-fired auxiliary boilers, which are no longer necessary and to which Air Quality Conditions of Certification **AQ-1** through **AQ-8** apply. Energy Commission staff approved this prior request,[1] and these Air Quality Conditions of Certification are no longer necessary.[2]

The 250-megawatt facility was certified by the Energy Commission in its Decision on September 8, 2010. The AMS Project is currently under construction and is approximately 80 percent complete. The facility is located near Hinkley, in San Bernardino County, California.

Energy Commission staff (staff) reviewed the revised petition and assessed the impacts of this proposal on environmental quality and on public health and safety. In the Staff Analysis, staff proposes changes to Air Quality Conditions of Certification **AQ-10**, **AQ-11**, **AQ-12**, **AQ-33**, **AQ-38**, **AQ-44**, **AQ-47**, and **AQ-50** through **AQ-59**. Staff also proposes new Air Quality Conditions of Certification **AQ-29a**, **AQ-40a**, and **AQ-60** through **AQ-74**. Staff also recommends the deletion of **AQ-1** through **AQ-8**, as they are no longer necessary due to the elimination of the two natural gas-fired auxiliary boilers. Staff also proposes to delete and reserve Conditions of Certification **AQ-13** through **AQ-15**, **AQ-17** through **AQ-20**, **AQ-37**, and **AQ-46**. It is staff's opinion that, with the implementation of these new, revised, and deleted conditions, the project would remain in compliance with applicable laws, ordinances, regulations, and standards (LORS), and the proposed changes would not result in any significant, adverse direct, indirect, or cumulative impacts to the environment (20 Cal. Code of Regs., § 1769).

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[1] A Notice of Determination was published on November 14, 2013, stating Energy Commission staff determined that approval by the full Commission was not required and the proposed modification met the criteria for approval at the staff level.

[2] In a letter addressed to Gerry Bemis (Technical Senior, Air Quality, Energy Commission) dated February 8, 2013, the Mojave Desert Air Quality Management District stated that it does not object to the removal of these equipment units from the California Energy Commission Decision nor the removal of related Conditions of Certification **AQ-1** through **AQ-8**.

The project site is under active construction. Therefore, some of the requested project changes are completed, some are in progress and work on others has not yet begun. Specifically, the two new emergency generators and two new water pumps have already been installed; the installation of the new VOC control system is in progress; and the new stacks for emergency generators and water pumps have been designed and are ready to be installed.

The revised amendment petition and Staff Analysis have been posted on the Energy Commission's Abengoa Mojave Solar webpage at http://www.energy.ca.gov/sitingcases/abengoa/. Energy Commission staff intends to recommend approval of the petition at the April 22, 2014 Business Meeting of the Energy Commission. If approved, the Energy Commission's Order regarding this petition will also be posted on the webpage.

This Notice is being provided to interested parties and to property owners adjacent to the facility site. This Notice has been mailed to the AMS mail list and sent electronically to the AMS list serve.

Any person may comment on the Staff Analysis. Those who wish to comment on the analysis are asked to submit their comments **prior to 5:00 p.m. April 21, 2014** by using the Energy Commission's e-commenting feature as follows: Go to the Energy Commission's Facility Name webpage and click on the "Submit e-Comment" link. In the form, provide the required information—your full name, e-mail address, the comment Title, and either a comment or an attached document. The comment Title should be "[Your Name]'s Comments re Facility Name Staff Analysis." Type your comments into the "Comment Text" field, or upload and attach a document with your comments. The maximum upload file size is 10MB, and only .doc, .docx, or .pdf attachments will be accepted. Enter the CAPTCHA that is used to prevent spamming. Then click on the "Agree and Submit your Comments" button to submit your comments to the Energy Commission Dockets Unit for review. When your comments are approved and docketed, you will receive an e-mail with a link to them on the facility webpage.

Written comments may also be mailed or hand-delivered to:

California Energy Commission
Dockets Unit, MS-4
Docket No. 09-AFC-5C
1516 Ninth Street
Sacramento, CA 95814-5512

All comments and materials filed with and approved by the Dockets Unit will be added to the Facility Docket Log and become publically accessible on the Energy Commission's webpage for the facility.

If you have questions about this Notice, please contact Dale Rundquist, Compliance Project Manager, at (916) 651-2072, or by fax to (916) 654-3882, or via e-mail at Dale.Rundquist@energy.ca.gov.

For information on participating in the Energy Commission's review of the proposed modification to the Abengoa Mojave Solar Project, call (800) 822-6228 (toll-free in California). The Public Adviser's Office can also be contacted via e-mail at publicadviser@energy.ca.gov. News media inquiries should be directed to the Energy Commission Media Office at (916) 654-4989, or by e-mail at mediaoffice@energy.ca.gov.

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ABENGOA MOJAVE SOLAR PROJECT (09-AFC-5C)

Revised Petition to Amend the Final Decision
EXECUTIVE SUMMARY
Dale Rundquist

INTRODUCTION

On October 29, 2013, Mojave Solar, L.L.C. (MSLLC), filed a revised petition with the California Energy Commission (Energy Commission) requesting to amend the Final Decision for the Abengoa Mojave Solar (AMS) Project.

The purpose of the Energy Commission's review process is to assess any impacts the proposed modifications would have on environmental quality and on public health and safety. The process includes an evaluation of the consistency of the proposed changes with the Energy Commission's Final Decision and an assessment of whether the project, as modified, would remain in compliance with applicable laws, ordinances, regulations, and standards (20 Cal. Code Regs., § 1769).

Energy Commission staff (staff) has completed its review of all materials received. The Staff Analysis below is staff's assessment of the project owner's proposal to modify the project description.

PROJECT LOCATION AND DESCRIPTION

The 250-megawatt facility was certified by the Energy Commission in its Decision on September 8, 2010. The AMS Project is currently under construction and is approximately 85 percent complete. The facility is located near Hinkley, in San Bernardino County, California.

DESCRIPTION OF PROPOSED MODIFICATIONS

The modifications proposed in the revised petition would:

- Update the Alpha and Beta Power Blocks' general arrangements to incorporate changes to equipment and building or process area locations;
- Remove the existing low boilers and high boilers cleaning distillation Volatile Organic Compounds (VOC) control system and utilize a scrubbing and carbon adsorption VOC control system;
- Update the two vertical Heat Transfer Fluid storage tank condensers on the vent stacks with a scrubber on the vent stream for each plant;
- Update the facility component counts with revision to the fugitive emissions inventory;
- Reduce from five to four the vertical ASME-rated expansion vessels (based on a reduction of HTF quantity) per plant;

- Replace the two Tier 2 4,190-bhp (3,125-kW) emergency generators with two Tier 2 2,280-kW units;
- Reduce the minimum Tier 2 emergency generators stack height to 30 feet above ground level;
- Reduce the currently permitted fire pump's stack height to 20 feet above ground level;
- Remove the operational testing restriction of one emergency engine per hour to allow the simultaneous testing of all emergency equipment; and
- Replace the two 346-bhp Tier 3 fire pump engines with two larger 575-617 bhp-Tier 3 engines.

The revised petition also requests the deletion of Air Quality Conditions of Certification **AQ-1** through **AQ-8**. Previously, on July 24, 2013, MSLLC petitioned the Energy Commission to allow removal from the project description two 21.5-MMBTU/hr natural gas-fired auxiliary boilers, which are no longer necessary and to which Air Quality Conditions of Certification **AQ-1** through **AQ-8** apply. Energy Commission staff approved this prior request,[3] and now these Air Quality Conditions of Certification are no longer necessary.[4]

NECESSITY FOR THE PROPOSED MODIFICATIONS

The modifications to the project description are needed to reflect the changes to the AMS's general arrangement and replacement of certain equipment that has occurred during the final detailed engineering design phase for the AMS Project. The modifications to the conditions of certification are needed to conform the conditions to the proposed changes in the project description.

STAFF'S ASSESSMENT OF THE PROPOSED PROJECT CHANGES

The technical area sections contained in this Staff Analysis include staff-recommended changes to the existing conditions of certification. Staff believes the changes would be beneficial because overall potential emissions from the AMS Project analyzed in the Final Decision would decrease as a result of the proposed modifications, and the changes would not result in any other adverse environmental impacts or risks to public health.

[3] A Notice of Determination was published on November 14, 2013, stating Energy Commission staff determined that approval by the full Commission was not required and the proposed modification met the criteria for approval at the staff level.

[4] In a letter addressed to Gerry Bemis (Technical Senior, Air Quality, Energy Commission) dated February 8, 2013, the Mojave Desert Air Quality Management District stated that it does not object to the removal of these equipment units from the California Energy Commission Decision nor the removal of related Conditions of Certification **AQ-1** through **AQ-8**.

Staff's conclusions in each technical area are summarized in **Executive Summary Table 1**, below.

Executive Summary Table 1
Summary of Impacts for Each Technical Area

TECHNICAL AREAS REVIEWED	STAFF RESPONSE			Revised Conditions of Certification Recommended
	Technical Area Not Affected	No Significant Environmental Impact*	Process As Amendment	
Air Quality			X	X
Biological Resources	X			
Cultural Resources		X		
Facility Design	X			
Hazardous Materials Management	X			
Land Use		X		
Noise & Vibration	X			
Paleontological Resources	X			
Public Health		X		
Soils & Water Resources	X			
Traffic & Transportation		X		
Transmission Line Safety & Nuisance	X			
Transmission System Engineering	X			
Visual Resources		X		
Waste Management	X			
Worker Safety & Fire Protection	X			

*There is no possibility that the proposed modifications would have a significant effect on the environment, and the modifications would not result in a change in or deletion of a condition adopted by the Commission in the Final Decision, or make changes that would cause project noncompliance with any applicable laws, ordinances, regulations, or standards (20 Cal. Code Regs., § 1769 (a)(2)).

Energy Commission technical staff reviewed the revised petition for potential environmental effects and consistency with applicable LORS. Staff has determined that the technical or environmental areas of Biological Resources, Facility Design, Hazardous Materials Management, Noise and Vibration, Paleontological Resources, Soils and Water Resources, Transmission Line Safety and Nuisance, Transmission System Engineering, Waste Management, and Worker Safety and Fire Protection are not affected by the proposed changes, and no revisions or new conditions of certification are needed to ensure the project remains in compliance with all applicable LORS for these areas.

Staff in the technical or environmental areas of Cultural Resources, Land Use, Public Health (analysis attached), Traffic and Transportation, and Visual Resources determined there is no possibility that the modifications may have a significant effect on the environment and the modification will not result in a change or deletion of a condition adopted by the Commission in the Final Decision or make changes that would cause the project not to comply with any applicable LORS (20, Cal. Code Regs., § 1769(a)(2).

Staff determined, however, that the technical area of Air Quality would be affected by the proposed project changes, and staff proposes changes to Air Quality Conditions of Certification **AQ-10**, **AQ-11**, **AQ-12**, **AQ-33**, **AQ-38**, **AQ-44**, **AQ-47**, and **AQ-50** through **AQ-59**. Staff also proposes new Air Quality Conditions of Certification **AQ-29a**, **AQ-40a**, and **AQ-60** through **AQ-74**. Staff also recommends the deletion of **AQ-1** through **AQ-8** as they are no longer necessary due to the elimination of natural gas-fired auxiliary boilers. Staff also proposes to delete and reserve Conditions of Certification **AQ-13** through **AQ-15**, **AQ-17** through **AQ-20, AQ-37,** and **AQ-46**.

The project site is under active construction. Therefore, some of the requested project changes are completed, some are in progress, and work on others has not yet begun. Specifically, the two new emergency generators and two new water pumps have already been installed; the installation of the new VOC control system is in progress; and the new stacks for emergency generators and water pumps have been designed and are ready to be installed.

STAFF RECOMMENDATIONS AND CONCLUSIONS

Staff concludes that the following required findings, mandated by Title 20, California Code of Regulations, section 1769 (a)(3), can be made, and staff recommends approval of the revised petition by the Energy Commission:

- The proposed modification(s) would not change the findings in the Energy Commission's Final Decision pursuant to Title 20, California Code of Regulations, section 1755;
- There would be no new or additional unmitigated, significant environmental impacts associated with the proposed modification(s);
- The PM10 impacts will exceed the air quality standards (mainly due to high background concentrations) however, when considering the existing mitigation measures required by the Energy Commission Decision, the impacts are not expected to contribute substantially to exceedances of the PM10 standards;
- The facility would remain in compliance with all applicable laws, ordinances, regulations, and standards;
- The modification(s) proposed in the petition would increase the efficiency of the operation as well as decrease emissions from the AMS Project;

- The proposed modification(s) would be beneficial to the public because overall potential emissions from AMS as analyzed in the Final Decision will decrease due to the change from natural gas-fired auxiliary boilers to electric heaters; and
- The proposed modifications are based on information not known by MSLLC during the certification proceeding as the decision to modify the general arrangement and project equipment occurred subsequent to approval of the project by the Energy Commission.

ABENGOA MOJAVE SOLAR PROJECT (09-AFC-5C)

Revised Petition to Modify the Final Decision
AIR QUALITY ANALYSIS
Tao Jiang, Ph.D., P.E.

INTRODUCTION

On October 29, 2013, Mojave Solar, L.L.C. filed a petition with the California Energy Commission (Energy Commission) to modify the certification for the Abengoa Mojave Solar Project (AMS). The 250-megawatt solar thermal generation facility was certified by the Energy Commission on September 8, 2010. The power plant site encompasses 1,765 acres of land situated within unincorporated San Bernardino County, California.

The requested facility changes include modifications to the general arrangement of the Alpha and Beta power blocks, as well as several changes to the facility equipment and components. The overall potential emissions from the revised AMS will decrease from those approved in 2010 Energy Commission Decision. Staff evaluated the proposed changes and found them consistent with all applicable laws, ordinances, regulations, and standards (LORS). PM10 concentrations exceed ambient air quality standards, mainly due to high background concentrations. However, staff concludes that modeled project impacts, when considering staff's recommended mitigation measures, would not contribute substantially to exceedances of the PM10 standards. The proposed changes do not result in any other significant air quality impacts.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

At the time of certification, applicable LORS were identified in the Supplemental Staff Assessment (SSA). In addition, the U.S. Environmental Protection Agency (EPA) implemented a new 1-hour NO_2 standard of 0.1 ppm, which became effective on April 12, 2010. Therefore, the project's proposed amendment is subject to all the LORS described in the SSA, as well as the new 1-hour NO_2 federal standard.

ANALYSIS OF AMENDMENT REQUESTS

The current amendment requests modifications to general arrangement and facility equipment and components, which will affect several Air Quality Conditions of Certification. More specifically, the proposed changes to the previously approved AMS are:

- Remove the natural gas-fired auxiliary boilers and delete Conditions of Certification **AQ-1** to **AQ-8** that apply to the boilers;
- Modifications to the general arrangement of the Alpha and Beta power blocks;
- Remove the existing low boilers and high boilers cleaning distillation VOC control system and install a scrubbing and carbon adsorption VOC control system;

revise associated Conditions of Certification **AQ-10** to **AQ-12,** delete **AQ-13** to **AQ-15** and **AQ-17** to **AQ-20**, and add **AQ-61** to **AQ-74**;

- Update the facility component counts and revise the fugitive emissions inventory;
- Replace the currently permitted two Tier II 4,190-hp (3,125-kW) emergency generators with two Tier II 2,280-kW emergency generators; add associated Condition of Certification **AQ-29a** and revise **AQ-33**;
- Reduce the currently permitted Tier II emergency generators' stack height to 30 feet above ground level and revise associated Condition of Certification **AQ-38**;
- Replace the currently permitted two 346-hp Tier III fire pump engines with two larger 575-617 hp Tier III fire pump engines; add associated Condition of Certification **AQ-40a** and revise **AQ-44**;
- Reduce the currently permitted fire pump's stack height to 20 feet above ground level, and revise associated Condition of Certification **AQ-47**;
- Remove the operational testing restriction of one emergency engine per hour and allow the simultaneous testing of all emergency equipment; delete associated Conditions of Certification **AQ-37** and **AQ-46**; and
- Revise Conditions of Certification **AQ-50** to **AQ-59,** and add **AQ-60** to update the new rule references for gasoline storage tank.

Given that the project site is under active construction, some of the requested project changes have not yet begun, some are in progress, and others are completed. Specifically, the two new emergency generators and two new water pumps have already been installed; the installation of the new VOC control system is in progress; and the new stacks for emergency generators and water pumps have been designed and are ready to be installed.

EXISTING AMBIENT AIR QUALITY

The project is located in the Mojave Desert Air Basin (MDAB) and within the Mojave Desert Air Quality Management District (MDAQMD). The current federal and state attainment status of criteria pollutants in the MDAB are summarized in **Air Quality Table 1.**

Air Quality Table 1
MDAB Federal and State Attainment Status

Pollutant	Attainment Status	
	Federal	State
Ozone (O_3)	Nonattainment	Nonattainment
Carbon monoxide (CO)	Attainment	Attainment
Nitrogen dioxide (NO_2)	Attainment	Attainment
Sulfur dioxide (SO_2)	Attainment	Attainment
Particulate matter less than 10 microns (PM10)	Nonattainment	Nonattainment
Particulate matter less than 2.5 microns (PM2.5)	Attainment	Nonattainment

Source: EPA 2014a. ARB 2014a.

Since the adoption of the Energy Commission Decision in 2010, additional ambient air quality data have become available. **Air Quality Table 2** reflects the most recent data for the last five years. Values above the applicable limiting standards are shown in bold and shaded in the table. Consistent with the Decision in 2010, all ozone, NO_2, CO and PM10 data shown are from the Barstow monitoring station. All PM2.5 and SO_2 data are from the Victorville 14306 Park Avenue monitoring station.

Staff recommends the background ambient air concentrations in **Air Quality Table 3** for use in the impacts analysis. The recommended background concentrations are based on the maximum criteria pollutant concentrations from the past three years (2010-2012) of available data collected at the monitoring stations surrounding the project site.

Air Quality Table 2
Criteria Pollutant Summary Maximum Ambient Concentrations (ppm or µg/m^3)

Pollutant	Averaging Period	Units	2007	2008	2009	2010	2011	2012
Ozone	1 hour	ppm	**0.099**	**0.104**	**0.095**	**0.097**	**0.093**	**0.090**
Ozone	8 hours	ppm	**0.088**	**0.096**	**0.086**	**0.078**	**0.083**	**0.084**
PM10 [a]	24 hours	µg/m^3	**202**	**93**	**76**	38	**98**	42
PM10	Annual	µg/m^3	**29.8**	**26.1**	**25.0**	**-**	**21.5**	19.2
PM2.5 [a]	24 hours	µg/m^3	19.0	--	17.0	15.0	-	-
PM2.5	Annual	µg/m^3	9.6	--	8.9	7.2	-	-
CO	1 hour	ppm	1.4	1.4	1.2	1.3	4.4	0.9
CO	8 hours	ppm	0.7	1.23	0.9	0.9	1.4	0.7
NO_2	1 hour	ppm	0.073	0.081	0.060	0.062	0.077	0.146
NO_2	Annual	ppm	0.02	0.019	0.016	0.017	0.017	0.017
SO_2	1 hour	ppm	0.009	0.006	0.008	0.052	0.013	0.006
SO_2	24 hours	ppm	0.005	0.002	0.006	0.007	0.007	0.003

Source: ARB 2014b; EPA 2014b.

Air Quality Table 3
Staff Recommended Background Concentrations (µg/m^3)

Pollutant	Averaging Time	Background	Limiting Standard	Percent of Standard
PM10	24 hour	98	50	86
	Annual	21.5	20	108
PM2.5	24 hour	15	35	43
	Annual	7.2	12	60
CO	1 hour	5060	23,000	22
	8 hour	1556	10,000	16
NO_2	1 hour	275	339	81
	Annual	32	57	56
SO_2	1 hour	136	196	69
	24 hour	18	105	17

Source: ARB 2014b, U.S.EPA 2014b and independent staff analysis.

CONSTRUCTION PHASE IMPACTS

The construction emissions and impacts for the previous design have been calculated and evaluated in the SSA and approved in the Energy Commission Decision. The currently requested modifications to the AMS would not result in a significant change of the construction equipment operations or emissions. Therefore, the previous estimated construction emissions and impacts still adequately represent the potential air quality impacts during construction of the modified project. All conditions of certification for construction in the Energy Commission Decision remain valid during project construction.

OPERATION PHASE IMPACTS

The revised project operation emissions are summarized in **Air Quality Table 4**.

Air Quality Table 4
Revised Project Operation Daily and Annual Emissions

	NOx	CO	VOC	SOx	PM10/2.5
Total Daily Emission (lbs/day)	71.44	35.34	61.85	0.074	74.0
Total Annual Emission (tons/year)	1.86	0.96	9.93	0.002	13.16

Source: MS 2013

The proposed project would result in net decreases in project emissions relative to those approved in 2010 Energy Commission Decision as shown in **Air Quality Table 5.**

Air Quality Table 5
Project Operation Annual Emissions Comparison

	NOx	CO	VOC	SOx	PM10/2.5
Existing emissions (tons/year)	2.96	2.08	12.92	0.03	13.47
Revised emissions (tons/year)	1.86	0.96	9.93	0.002	13.16
Changes (tons/year)	-1.1	-1.12	-2.27	-0.028	-0.31

Source: MS 2013

A new air dispersion modeling analysis has been conducted by the project owner to estimate the operational impacts of the modified project. The predicted maximum concentrations of criteria pollutants are summarized in **Air Quality Table 6**.

Air Quality Table 6
Revised Project Maximum Operation Impacts (µg/m^3)

Pollutant	Averaging Time	Modeled Impact	Background	Total Impact	Limiting Standard	Percent of Standard
PM10	24 hour	9.34	98	**107.34**	**50**	**215**
	Annual	1.75	21.5	**23.25**	**20**	**116**
PM2.5[a]	24 hour	2.91	15	17.91	35	51
	Annual	0.6	7.2	7.8	12	65
CO	1 hour	187.5	5060	5247.5	23,000	23
	8 hour	6.92	1556	1562.92	10,000	16
NO_2[b]	1 hour (state)			305.2	339	90
	1 hour (federal)			155.56	188	83
	Annual			47.8	57	84
SO_2	1 hour	0.36	136	136.36	196	70
	24 hour	0.003	18	18.003	105	17

Source: MS 2013 and independent staff analysis

Note: [a] Total predicted concentration for the federal 24-hour PM2.5 standard is the maximum 3-year average of the 98th percentile of the *daily maximum* 24-hour concentrate combined with the maximum background concentrations.

[b] Total predicted concentration for the federal 1-hour NO_2 standard is the maximum 3-year average of the 98th percentile of the *daily maximum* 1-hour concentrate combined with the maximum background concentrations.

The direct impacts of PM2.5, CO, NO_2, and SO_2 in conjunction with worst-case background concentrations, would continue to not be significant because operations would neither cause new violations nor contribute to existing violations of the ambient air quality standards. For PM10, conditions that would create worst-case project modeled impacts (low wind speeds) are not the same conditions that would exist when worst-case background levels are expected for PM10. Additionally, the worst-case

PM10 project modeled impacts occur at the fence line and drop off quickly with distance from the fence line. Therefore, staff continues to believe that the operational impacts, when considering staff's recommended mitigation measures (**AQ-SC6** and **AQ-SC7**), would not contribute substantially to exceedances of the PM10 California ambient air quality standards .

CONCLUSIONS AND RECOMMENDATIONS

The requested project changes would conform to applicable federal, state, and MDAQMD air quality laws, ordinances, regulations, and standards (LORS), and the amended project would not cause significant air quality impacts, provided that the conditions of certification in the following section are included. The PM10 impacts will exceed the air quality standards, mainly due to high background concentrations. The project impacts, when considering staff's recommended mitigation measures, are not expected to contribute substantially to exceedances of the PM10 standards. Staff continues to recommend the mitigation measures proposed in the 2010 Energy Commission Decision (**AQ-SC6** and **AQ-SC7**) to reduce operating period PM10 impacts. Staff recommends that the revised conditions of certification be approved as shown below.

AMENDED AND PROPOSED CONDITIONS OF CERTIFICATION

Below is a list of those conditions of certification that must be revised from those approved in the 2010 Energy Commission Final Decision (CEC2010). In addition to changes of conditions of certification requested by the project owner, new conditions of certification are also added for scrubbing and carbon adsorption VOC control system. These changes are also consistent with MDAQMD's Final Determination of Compliance (FDOC). ~~Strikethrough~~ is used to indicate deleted language and **underline and bold** is used for new language.

DISTRICT CONDITIONS

District Preliminary Decision Conditions (MDAQMD 2014)

~~Application No. 00010710 and 00010711 (Two - 21.5 MMBtu/hr Natural Gas Fired Auxiliary Boilers)~~

~~**EQUIPMENT DESCRIPTION**~~

~~Two 21.5 MMBtu/hr natural gas fired auxiliary boilers with low NOx burner systems.~~

~~**AQ-1** Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.~~

~~**Verification:** The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.~~

~~**AQ-2** This equipment shall be exclusively fueled with pipeline quality natural gas and shall be operated and maintained in strict accord with the recommendations of its manufacturer or supplier and/or sound engineering principles.~~

~~**Verification:** The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.~~

~~**AQ-3** Emissions from this equipment shall not exceed the following hourly emission limits, verified by fuel use and an initial or annual compliance tests as applicable for each pollutant:~~

~~a. NOx as NO_2:~~

~~0.237 lb/hr operating at 100% load (based on 9.0 ppmvd corrected to 3% O2 and averaged over one hour)~~

~~b. CO:~~

~~0.817 lb/hr operating at 100% load (based on 50 ppmvd corrected to 3% O2 and averaged over one hour)~~

~~c. VOC as CH_4:~~

~~0.231 lb/hr operating at 100% load~~

~~d. SOx as SO_2:~~

~~0.0126 lb/hr operating at 100% load~~

~~e. PM10/2.5:~~

~~0.159 lb/hr operating at 100% load~~

~~**Verification:** As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with boiler operating emission rates.~~

~~**AQ-4** Prior to the expiration date each year, after the completion of construction the project owner shall have this equipment tuned, as specified by Rule 1157(I), Tuning Procedure.~~

~~**Verification:** The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.~~

~~**AQ-5** The project owner shall maintain an operations log for this equipment on-site and current for a minimum of five (5) years, and said log shall be provided to District personnel on request. The operations log shall include the following information at a minimum:~~

~~a. Cumulative annual fuel use in cubic feet or operation in hours;~~

~~b. Annual tune-up verification;~~

c. ~~Results of annual compliance testing;~~

d. ~~Any permanent changes made to the equipment that would affect air pollutant emissions, and indicate when changes were made.~~

~~**Verification:** The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.~~

~~**AQ-6** The project owner shall perform initial compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District within 180 days of initial start up:~~

a. ~~NOx as NO_2 in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).~~

b. ~~VOC as CH_4 in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 25A and 18).~~

c. ~~CO in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Method 10).~~

d. ~~PM10/2.5 in mg/m^3 at 3% oxygen and lb/hr (measured per USEPA Reference Methods 5 and 202 or CARB Method 5).~~

e. ~~Flue gas flow rate in dscf per minute.~~

f. ~~Opacity (measured per USEPA reference Method 9).~~

~~**Verification:** The project owner shall notify the District and the CPM within fifteen (15) working days before the execution of the compliance test required in this condition. The test results shall be submitted to the District and to the CPM within 180 days of initial start up.~~

~~**AQ-7** The project owner shall perform annual compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:~~

a. ~~NOx as NO_2 in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Methods 19 and 20).~~

b. ~~CO in ppmvd at 3% oxygen and lb/hr (measured per USEPA Reference Method 10).~~

~~**Verification:** The project owner shall notify the District and the CPM within fifteen (15) working days before the execution of the compliance test required in this condition. The test results shall be submitted to the District and to the CPM within the timeframe required by this condition.~~

~~**AQ-8** Annual fuel usage shall not exceed 45.9 MMscf verified by annual fuel usage records.~~

~~**Verification:** As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with boiler annual fuel use limit.~~

AQ-1 (Deleted)

AQ-2 (Deleted)

AQ-3 (Deleted)

AQ-4 (Deleted)

AQ-5 (Deleted)

AQ-6 (Deleted)

AQ-7 (Deleted)

AQ-8 (Deleted)

Application No. ~~00010906~~ MD1000001202 and ~~00010907~~ MD1000001204 (Two - HTF Ullage/Expansion System)

EQUIPMENT DESCRIPTION

Two HTF ullage/expansion systems.

AQ-10 This system shall store only HTF, ~~specially the condensable fraction of the vapors vented from the ullage system.~~ **in liquid and/or vapor phase (including low boilers and high boilers), and nitrogen for blanketing.**

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-11 The ~~expansion tanks (5)~~, ~~nitrogen-condensing tank~~ **four (4) vertical expansion vessels, low boiler condensate receiver vessel,** and two **(2)** vertical HTF ~~storage~~ **overflow** tanks shall be operated at all times under a nitrogen blanket.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-12 The ullage/expansion system nitrogen venting shall be carried out only through ~~vents which have vapor condensing coolers which shall be maintained at or below 120 degrees Fahrenheit.~~ **District permit unit TBD.**

Verification: The project owner shall provide the District and CPM manufacturer design specifications showing compliance with this condition at least 30 days prior to the installation of the ullage/expansion vent system. ~~The project owner shall have active temperature gauges that can be inspected to show compliance with this condition.~~

~~**AQ-13** The HTF storage tank shall have in place a properly operating liquid HTF air cooler which shall maintain the tank at or below 165 degrees Fahrenheit.~~

~~**Verification:** The project owner shall provide the District and CPM manufacturer design specifications showing compliance with this condition at least 30 days prior to the installation of the HTF storage tanks. The project owner shall have active temperature gauges that can be inspected to show ongoing compliance with this condition.~~

~~**AQ-14** The nitrogen condensing tanks shall be maintained at or below 176 degrees Fahrenheit.~~

~~**Verification:** The project owner shall provide the District and CPM manufacturer design specifications showing compliance with this condition at least 30 days prior to the installation of the nitrogen condensing tanks. The project owner shall have active temperature gauges that can be inspected to show ongoing compliance with this condition.~~

~~**AQ-15** Vent release and HTF storage tank temperatures shall be monitored in accordance with a District approved Inspection, Monitoring and Maintenance plan.~~

~~**Verification:** The project owner shall provide the District for review and approval and the CPM for review the required Inspection, Monitoring and Maintenance plan at least 30 days prior to the installation of the HTF storage tanks and vent systems.~~

AQ-13 (Reserved)

AQ-14 (Reserved)

AQ-15 (Reserved)

~~**AQ-17** The project owner shall submit to the District a compliance test protocol within sixty (60) days of start-up and shall conduct all required compliance/certification tests in accordance with a District-approved test plan. Thirty (30) days prior to the compliance/certification tests the project owner shall provide a written test plan for District review and approval. Written notice of the compliance/certification test shall be provided to the District ten (10) days prior to the tests so that an observer may be present. A written report with the results of such compliance/certification tests shall be submitted to the District within forty-five (45) days after testing.~~

~~**Verification:** The project owner shall provide a compliance test protocol to the District for approval and CPM for review at least no later than sixty (60) days after start-up and submit a test plan to the District for approval and CPM for review at least thirty (30) days prior to the compliance tests. The project owner shall notify the District and the CPM within ten (10) working days before the execution of the compliance tests~~

~~required in **AQ-18** and **AQ-19**, and the test results shall be submitted to the District and to the CPM within forty-five (45) days after the tests are conducted.~~

~~**AQ-18** The project owner shall perform the following initial compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District within 180 days of initial start up. The following compliance tests are required:~~

~~a. VOC as CH_4 in ppmvd and lb/hr (measured per USEPA Reference Methods 25A and 18 or equivalent).~~

~~b. Benzene in ppmvd and lb/hr (measured per CARB method 410 or equivalent).~~

~~**Verification:** The project owner shall submit the test results to the District and to the CPM within 180 days after initial start up.~~

~~**AQ-19** The project owner shall perform the following annual compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:~~

~~a. VOC as CH_4 in ppmvd and lb/hr (measured per USEPA Reference Methods 25A and 18 or equivalent).~~

~~b. Benzene in ppmvd and lb/hr (measured per CARB method 410 or equivalent).~~

~~Additionally, records of all compliance tests shall be maintained on site for a period of five (5) years and presented to District personnel upon request.~~

~~**Verification:** As part of the Annual Compliance Report, the project owner shall include the test results demonstrating compliance with this condition and the project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.~~

~~**AQ-20** Emissions from this equipment may not exceed the following emission limits, based on a calendar day summary:~~

~~a. VOC as CH_4 – 4.55 lb/day, verified by compliance test.~~

~~b. Benzene – 1.9 lb/day, verified by compliance test.~~

~~**Verification:** As part of the Annual Compliance Report, the project owner shall include the test results demonstrating compliance with this condition and the project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.~~

AQ-17 (Reserved)

AQ-18 (Reserved)

AQ-19 (Reserved)

AQ-20 (Reserved)

Application No. ~~00010712~~ MD1000001206 and ~~00010713~~ MD1000001207 (Two - ~~4,190 HP~~ 2,280kW Emergency IC Engine)

EQUIPMENT DESCRIPTION

Two - ~~190 HP~~ **2,280kW** diesel fueled emergency generator engines, each driving a generator.

AQ-29a This engine shall be a US EPA Tier 2 certified, non-road compression-ignition engine, as evidenced by the manufacturer's engine tag.

Verification: The project owner shall make the site available for inspection of equipment and records by representatives of the District, ARB, and the Energy Commission.

AQ-33 This unit shall be limited to use for emergency power, defined as in response to a fire or when utility back-feed power is not available. In addition, this unit shall be operated no more than 0.5 hours per day and 50 hours per year for testing and maintenance, excluding compliance source testing. ~~Time required for source testing will not be counted toward the 50 hour per year limit.~~ **There is no limit on engine operation for emergency use.**

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

~~**AQ-37** No two permitted stationary emergency engines (emergency generators or emergency fire pump engines) Equipment with valid District permit numbers E0XXXX, E0XXXX, E0XXXX and E0XXXX shall not be readiness tested on the same calendar day.~~

~~**Verification:** The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.~~

AQ-37 (Reserved)

AQ-38 This engine shall exhaust through a stack at a minimum height of ~~60~~ **30** feet.

Verification: The project owner shall make the site available for inspection of equipment by representatives of the District, ARB, and the Energy Commission.

Application No. ~~00010714~~ MD1000001203 and ~~00010715~~ MD1000001205 (Two – ~~346~~ 575-617 HP Emergency IC Engine)

EQUIPMENT DESCRIPTION

Two - ~~346~~ **575-617** **B**HP diesel fueled emergency generator engines, each driving a fire suppression water pump.

AQ-40a **This engine shall be a US EPA Tier 3 certified, non-road compression-ignition engine, as evidenced by the manufacturer's engine tag.**

Verification: **The project owner shall make the site available for inspection of equipment and records by representatives of the District, ARB, and the Energy Commission.**

AQ-44 This ~~unit~~ **new direct-drive fire pump engine** shall be limited to use for emergency fire suppression, defined as in response to a fire or due to low fire water pressure. In addition, this ~~unit~~ **engine** shall be operated no more than ~~50 hours per year for testing and maintenance, excluding compliance source testing. Time required for source testing will not be counted toward the 50 hour per year limit. The 50 hour limit can be exceeded when the emergency fire pump assembly is driven directly by a stationary diesel fueled CI engine operated per and in accord with the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," 1998 edition. This requirement includes usage during emergencies. {Title 17 CCR 93115.3(n)}~~ **30 minutes in any one hour and no more than 10 hours per year for initial start-up testing and compliance demonstrations. Additionally, this engine shall not operate more than the number of hours necessary to comply with the testing requirements of the National Fire Protection Association (NFPA) 25 - "Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems," (current edition). The hours of operation for source testing or to perform testing on an engine that has experienced a breakdown or failure during testing will not be counted towards either of the allowable annual limits above. There is no limit on engine operation for emergency use. [Title 17 CCR 93115.6(a)(4)]**

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

~~**AQ-46** No two permitted stationary emergency engines (emergency generators or emergency fire pump engines) Equipment with valid District permit numbers E0XXXX, E0XXXX, E0XXXX and E0XXXX shall not be readiness tested on the same calendar day.~~

~~**Verification:** The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.~~

AQ-46 (Reserved)

AQ-47 This engine shall exhaust through a stack at a minimum height of ~~60~~ **20** feet.

Verification: The project owner shall make the site available for inspection of equipment by representatives of the District, ARB, and the Energy Commission.

Application No. 00010995 (One – Gasoline Storage Tank)

EQUIPMENT DESCRIPTION

One – Above ground gasoline storage tank and fuel receiving and dispensing equipment.

AQ-50 The toll-free telephone number that must be posted is 1-800-635-4617 ~~or 1-877-723-8070~~ **[Rule 461]**.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-51 The project owner shall maintain a log of all inspections, repairs, and maintenance on equipment subject to Rule 461. Such logs or records shall be maintained at the facility for at least two (2) years and available to the District upon request. Records of Maintenance, Tests, Inspections, and Test Failures shall be maintained and available to District personal upon request; record form shall be similar to the Maintenance Record form indicated in ~~EO VR-401-A~~, ~~Figure 2N~~ **current ARB Executive Orders [~~EO VR-401;~~ Rule 461]**.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-52 Any modifications or changes to the piping or control fitting of the vapor recovery system require prior approval from the District. **[Rule 204]**.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-53 Pursuant to ~~EO VR-401-A~~ **current ARB Executive Orders (EOs)**, vapor vent pipes are to be equipped with ~~Husky 5885~~ pressure relief valves **~~or as otherwise~~ allowed by current EOs [~~EO VR-401;~~ Rule 204]**.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-54 The project owner shall perform the following tests within 60 days of construction completion and annually thereafter in accord with the following test procedures:

a. Determination of Static Pressure Performance of Vapor Recovery Systems at Gasoline Dispensing Facilities with Aboveground Storage Tanks shall be conducted per **current ARB Executive Orders** ~~EO VR-401-A Exhibit 4~~. and,

b. Phase I Adapters, Emergency Vents, Spill Container Drain Valve, Dedicated gauging port with drop tube and tank components, all connections, and fittings shall NOT have any detectable leaks; test

methods shall be per **current ARB Executive Orders** ~~EO VR-401-A Table 2-1~~, and

c. Liquid Removal Test (if applicable) per TP-201.6, and

Summary of Test Data shall be documented on a Form similar to ~~EO VR-401-A Form 1~~**the form in current ARB Executive Orders**.

The District shall be notified a minimum of 10 days prior to performing the required tests with the final results submitted to the District within 30 days of completion of the tests.

The District shall receive passing test reports no later than six (6) weeks prior to the expiration date of this permit. **[Rule 204]**

Verification: The project owner shall notify the District at least 10 days prior to performing the required tests. The test results shall be submitted to the District within 30 days of completion of the tests and shall be made available to the CPM if requested.

AQ-55 Pursuant to California Health and Safety Code sections 39600, 39601 and 41954, this aboveground tank shall be installed and maintained in accordance with ~~Executive Order (EO) VR-401-A~~ **current ARB Executive Orders** for EVR Phase I, and Standing Loss requirements~~:~~. ~~http://www.arb.ca.gov/vapor/eos/eo-vr401/eo-vr401a/eo-401a.pdf~~**eo-401.htm**~~.~~

Additionally, Phase II Vapor Recovery System shall be installed and maintained per **current ARB Executive Orders** ~~G-70-116-F~~**132-A** with the exception that hanging hardware shall be EVR Balance Phase II type hanging hardware (VST or other ~~G~~ARB Approved EVR Phase II Hardware). **[Rule 204]**

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-56 Pursuant to ~~EO VR-401-A~~ **current ARB Executive Orders**: Maintenance and repair of ~~**EVR Phase I OPW**~~ system components, including removal and installation of such components in the course of any required tests, shall be performed by ~~OPW~~ **Vendor** Certified Technicians. ~~**[EO VR-401]**~~

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-57 Pursuant to ~~EO VR-401-A~~ **current ARB Executive Orders**, Maintenance Intervals for ~~OPW~~**ARB approved phase I EVR vendors**; Tank Gauge Components; Dust Caps Emergency Vents; Phase I Product and Vapor Adapters, and Spill Container Drain Valve, shall be conducted by a~~n~~ ~~OPW~~ **Vendor** trained technician annually. ~~**[EO VR-401]**~~

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-58 The annual throughput of gasoline shall not exceed 600,000 gallons per year. Throughput Records shall be kept on site and available to District personnel upon request. Before this annual throughput can be increased the facility may be required to submit to the District a site specific Health Risk Assessment in accord with a District approved plan. In addition public notice and/or comment period may be required. **[Regulation XIII; Rule 204]**

Verification: The project owner shall submit to the CPM gasoline throughput records demonstrating compliance with this condition as part of the Annual Compliance Report. The project owner shall maintain on site the annual gasoline throughput records and shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-59 The project owner shall install, maintain, and operate **Enhanced Vapor Recovery (**EVR**)** Phase I **and Phase II** in compliance with ~~CARB Executive Order VR-401-A, and Phase II vapor recovery in accordance with G-70-116-F~~**~~132-A~~ current ARB Executive Orders with the exception that hanging hardware shall be EVR Balance Phase II type hanging hardware (Vapor Systems Technologies [VST] or other ARB Approved EVR Phase II Hardware)**. In the event of conflict between these permit conditions and/or the referenced EO's the more stringent requirements shall govern. **[Rule 204]**

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-60 The project owner shall install, maintain, and operate this equipment in compliance with these permit conditions and 40 CFR Part 63 Subpart CCCCC; in the event of conflict the more stringent requirements shall govern. [Rule 204]

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

Application No. MD100000tbd and MD100000tbd (Two Air Pollution Control Devices- Carbon Adsorption System for the HTF Ullage/Expansion system)

EQUIPMENT DESCRIPTION

Two Air Pollution Control Devices- Carbon Adsorption System for the HTF Ullage/Expansion system

AQ-61 Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.

Verification: The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-62 **This equipment must be in use and operating properly at all times the HTF ullage/expansion system with valid District Permit TBD is venting.**

Verification: **The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.**

AQ-63 **This carbon adsorption system shall provide at a minimum 95% control efficiency of VOC emissions vented from the HTF ullage/expansion system under valid District Permit TBD. Control efficiency shall be demonstrated by sampling VOC emissions per US EPA Method 25 at the inlet and outlet of the carbon beds during initial and annual compliance tests.**

Verification: **The project owner shall notify the District and the CPM within fifteen (15) working days before the execution of the compliance test required in this condition. The initial test results shall be submitted to the District and to the CPM within 180 days of initial start up. As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with control efficiency.**

AQ-64 **The project owner shall prepare and submit a monitoring and change-out plan for the carbon adsorption system which ensures that the system is operating at optimal control efficiency at all times for District approval 60 days prior to commercial operation date (COD). Once approved, any subsequent changes to the monitoring and change-out plan must be submitted in writing to the District for approval prior to implementation.**

Verification: **The project owner shall provide the District for review and approval and the CPM for review the required monitoring and change-out plan within the timeframe required by this condition.**

AQ-65 **Total emissions of volatile organic compounds (VOC) to the atmosphere shall not exceed 792.1 lbs/year, calculated based on the most recent test results.**

Verification: **As part of the Annual Compliance Report, the project owner shall include the test results demonstrating compliance with this condition and the project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.**

AQ-66 **Total emissions of benzene to the atmosphere shall not exceed 507.4 lbs/year, calculated based on the most recent test results.**

Verification: **As part of the Annual Compliance Report, the project owner shall include the test results demonstrating compliance with this condition and the project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.**

AQ-67 During operation, the project owner shall monitor VOC (as hexane) measured at outlet from the carbon beds. Sampling is to be performed at a minimum on a weekly basis. Samples shall be analyzed using a District approved photo ionization detector (PID).

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-68 The photo Ionization detector shall be considered invalid if not calibrated in accordance with the manufactures recommended calibration procedures.

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-69 The project owner shall maintain an operations log (in electronic or hardcopy format) current and onsite for a period of five (5) years. The log shall contain at a minimum the following information and shall be provided to District personnel upon request.

a. Date and time of VOC monitoring;

b. Results of VOC monitoring; and

c. Date and description of all maintenance, malfunctions, repairs, and carbon change out(s).

Verification: The project owner shall make the site available for inspection of records and equipment by representatives of the District, ARB, and the Energy Commission.

AQ-70 Prior to January 31 of each new year, the project owner of this unit shall submit to the District a summary report of all VOC emissions (based on annual source test results).

Verification: As part of the Annual Compliance Report, the project owner shall include the test results demonstrating compliance with this condition and the project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.

AQ-71 The project owner shall provide stack sampling ports and platforms necessary to perform source tests required to verify compliance with District rules, regulations and permit conditions. The location of these ports and platforms shall be subject to District approval.

Verification: **The project owner shall make the site available for inspection of records by representatives of the District, ARB, and the Energy Commission.**

AQ-72 **The project owner shall conduct all required compliance/certification tests in accordance with a District-approved test plan. Thirty (30) days prior to the compliance/certification tests the operator shall provide a written test plan for District review and approval. Written notice of the compliance/certification test shall be provided to the District ten (10) days prior to the tests so that an observer may be present. A written report with the results of such compliance/certification tests shall be submitted to the District within forty-five (45) days after testing is completed.**

Verification: **The project owner shall provide a compliance test protocol to the District for approval and CPM for review at least thirty (30) days prior to the compliance tests. The project owner shall notify the District and the CPM within ten (10) working days before the execution of the compliance tests required in AQ-73 and AQ-74, and the test results shall be submitted to the District and to the CPM within forty-five (45) days after the tests are conducted.**

AQ-73 **The project owner shall perform the following initial compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District within 180 days of the commercial operation date (COD). The following compliance tests are required:**

a. VOC as hexane in ppmvd and lb/hr (measured per USEPA Reference Methods 25 and 18 or equivalent).

b. Benzene in ppmvd and lb/hr (measured per ARB Method 410 or equivalent).

Verification: **The project owner shall notify the District and the CPM within thirty (30) working days before the execution of the compliance test required in this condition. The test results shall be submitted to the District and to the CPM within 180 days of initial start up.**

AQ-74 **The project owner shall perform the following annual compliance tests on this equipment in accordance with the MDAQMD Compliance Test Procedural Manual. The test report shall be submitted to the District no later than six weeks prior to the expiration date of this permit. The following compliance tests are required:**

a. VOC as hexane in ppmvd and lb/hr (measured per US EPA Reference Methods 25A and 18 or equivalent).

b. Benzene in ppmvd and lb/hr (measured per ARB Method 410 or equivalent).

Additionally, records of all compliance tests shall be maintained on site for a period of five (5) years and presented to District personnel upon request.

Verification: As part of the Annual Compliance Report, the project owner shall include information demonstrating compliance with operating emission rates.

REFERENCES

ARB 2014a—California Air Resources Board. Air Designation Maps available on ARB website. http://www.arb.ca.gov/desig/adm/adm.htm. Accessed 2014.

ARB 2014b—California Air Resources Board. California Ambient Air Quality Data Statistics available on ARB website. http://www.arb.ca.gov/adam/welcome.html. Accessed 2014.

EPA 2014a—Environmental Protection Agency. The Green Book Nonattainment Areas for Criteria Pollutants. http://www.epa.gov/oar/oaqps/greenbk/index.html. Accessed 2014.

EPA 2014b—Environmental Protection Agency. AirData database ambient air quality data. http://www.epa.gov/airquality/airdata/. Accessed 2014.

MDAQMD 2014—Mohave Desert Air Quality Management District/Eldon Heaston, *Final Determination of Compliance (New Source Review Document) Abengoa Mojave Solar Project*, dated 02/24/2014.

MS 2013—Mojave Solar, LLC. *Revised Petition to Amend the Commission's Certification of the Abengoa Mojave Solar Project*, dated 10/29/2013. Submitted to CEC/Dockets on 10/29/2013.

ABENGOA MOJAVE SOLAR PROJECT (09-AFC-5C)

Revised Petition to Amend the Final Decision
PUBLIC HEALTH
Huei-An (Ann) Chu, Ph.D.

INTRODUCTION

On October 29, 2013, Mojave Solar L.L.C. (MSLLC), filed a Revised Petition to Amend the Energy Commission's Final Decision (Decision) for the Abengoa Mojave Solar (AMS) Project. According to the petition, proposed changes and modifications include (Ellison, Schneider & Harris L.L.P. 2013, p. 1):

- Modifications to the general arrangement of the AMS Alpha and Beta power blocks;
- Removal of the existing low boilers and high boilers cleaning distillation VOC control systems and installation of a scrubbing and carbon adsorption VOC control system;
- Update the two vertical Heat Transfer Fluid storage tank condensers on the vent stacks with a scrubber on the vent stream for each plant;
- Update of the facility component counts with revision to the fugitive emissions inventory;
- Reduction from five to four of the vertical ASME-rated expansion vessels (based on a reduction of HTF quantity) per plant;
- Replacement of the currently permitted two Tier 2 4,190-bhp (3,125-kW) emergency generators with two Tier 2 2,280-kW units;
- Reduction of the currently permitted Tier 2 emergency generators' stack height to 30 feet above ground level;
- Replacement of the currently permitted two 346 bhp-Tier 3 fire pump engines with two larger 575-617 bhp-Tier 3 engines; and
- Removal of the operational testing restriction of one emergency engine per hour.

CONSTRUCTION

The emissions from construction activities include fugitive dust and diesel exhaust. Results from staff's previous health risk assessment (HRA) for diesel particulate matter (DPM) from construction equipment emissions indicated there would be no significant incremental public health risks. Mitigation measures to reduce air-polluting emissions from construction are being implemented as described in the Air Quality section. No additional construction-related activities are being proposed by the project owner in this amendment. Therefore, staff concludes that no significant public health effects are expected during the construction phase.

OPERATION

As described previously, several modifications have been proposed by the project owner in the proposed amendment. The modifications related to Public Health that have been analyzed in the current HRA include:

- Deletion of the auxiliary boiler emissions;
- Revisions (short-term increase in pounds per hour, or lb/hr, but no increase in tons per year, or tpy) to the VOC control systems emissions;
- Revisions (increase) to the fugitive emissions due to updated component counts;
- Revisions to the emergency equipment air emissions;
- Revisions to stack parameters, i.e., heights, diameters, temperatures, flow rates, etc.;
- Revisions to the site processes and equipment layout.

The revised HRA done by the project owner also incorporated the emissions from mobile source activities occurring during operations, i.e., mirror washing equipment activities.

Staff has reviewed the project owner's Revised Petition to Amend for potential environmental effects and consistency with applicable LORS. Based on this review, staff does not expect any significant adverse cancer, or short- or long-term noncancer health effects from changes to the project's toxic air emissions that would result from the proposed modification to the project description. According to **Public Health Table 1**, all the risk values are below the threshold. Based on this review, staff concludes that the proposed project modifications would not result in a significant adverse impact to Public Health or cause the project to be noncompliant with applicable LORS.

Public Health Table 1
Operation Hazard/Risk of the Proposed Amendment at Point of Maximum Impact

Type of Hazard/Risk	Hazard Index/Risk	Significance Level	Significant?
Acute Noncancer	0.0096	1.0	No
Chronic Noncancer	0.0309	1.0	No
Individual Cancer	0.677 in 1 million	10 in 1 million	No

CONCLUSIONS

Staff has analyzed potential public health risks associated with construction and operation of the modifications proposed in the Revised Petition to Amend the Energy Commission's Final Decision for the Abengoa Mojave Solar (AMS) Project and does not expect any significant adverse cancer, short-term, or long-term health effects to any

members of the public, including low income and minority populations, from project toxic emissions. Staff also concludes that no change to conditions of certification in Public Health are needed.

REFERENCES

Ellison, Schneider & Harris L.L.P. 2013 (tn201073). Mojave Solar Project's Revised Petition to Amend (09-AFC-5). Submitted to CEC/Docket Unit on 10/29/2013.