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CH2MHILL

October 22, 2009

383194.AP.PM

Ms. Felicia Miller
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Almond 2 Power Plant (09-AFC-02)
Staff Query Set 2, Responses to CEC Staff Queries 2 and 3

Dear Ms. Miller:

Attached please find 13 hard copies and 1 electronic copy on CD-ROM of the Almond 2 Power Plant's Staff Query Set 2. This Staff Query Response Set was prepared in response to California Energy Commission Staff requests regarding the Application for Certification for the Almond 2 Power Plant (09-AFC-02) dated October 7, 2009 (Air Quality - Staff Query #2) and October 15, 2009 (Visual Resources - Staff Query #3).

If you have any questions about this matter, please contact me at (916) 286-0249 or contact Susan Strachan at (530) 757-7038.

Sincerely,

CH2M HILL

Sarah Madams
AFC Project Manager

Attachment
cc: S. Strachan, Strachan Consulting
R. Baysinger, TID

APPLICATION FOR CERTIFICATION




SUBMITTED TO

California
Energy Commission

FOR

TID Almond 2 Power Plant

SUBMITTED BY

Turlock Irrigation District

TECHNICAL ASSISTANCE BY

CH2MHILL

October 2009

Staff Queries, Set 2

(Responses to Staff Queries 2 and 3)

Almond 2 Power Plant

(09-AFC-2)

Staff Queries, Set 2

(Responses to Staff Queries 2 and 3)

Submitted to

California Energy Commission

Submitted by

Turlock Irrigation District

With Assistance from

CH2MHILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

October 2009

Contents

Section Page

Attachments

Introduction

Attached are Turlock Irrigation District's (TID) responses to the California Energy Commission (CEC) Staff Query (SQ) Set 2, Air Quality (SQ-2) and Visual Resources (SQ-3) for the Almond 2 Power Plant Project's (A2PP) (09-AFC-02) Application for Certification (AFC).

Within each discipline area, the responses are presented in the same order as the CEC presented them and are keyed to the Staff Query number. New or revised graphics or tables are numbered in reference to the Staff Query number. For example, the first table used in response to Staff Query 36 would be numbered Table SQ36-1. The first figure used in response to Staff Query 42 would be Figure SQ42-1, and so on.

Air Quality (SQ-2)

Data Request

SQ-2. Please describe how TID would comply with SB 1368 Emission Performance Standards.

Response: A2PP complies with the standards set forth in SB 1368 because the project is neither designed nor intended to operate as a baseload powerplant. The Emission Performance Standard (EPS) established by SB1368 applies to "baseload generation," which is defined in the Public Utilities Code and the Energy Commission's regulations (California Code of Regulations (CCR), Title 20, Section 2901(b)) as "electricity generation from a power plant that is *designed and intended* to provide electricity at an annualized plant capacity factor of at least 60 percent." [Emphasis added.] As stated in the CPUC's decision implementing SB 1368, "the key concept here is that the documentation should relate to establishing the design and intended use of the powerplant."[1]

The decision to base the air quality impact assessment on full-load operation for 8,760 hours per year was driven by San Joaquin Valley Air Pollution Control District (SJVAPCD) permitting requirements. As discussed in Appendix 5.1F of the AFC, SJVAPCD Rule 2201 (Section 4.5) requires emission reduction credits (ERCs) to be provided on a quarterly basis. To determine quarterly ERC obligations, the applicant must calculate quarterly emissions based on assumptions about how the units will operate in each quarter, including hours in startup/shutdown and operating hours. The quarterly emissions upon which the ERC calculations are based also become quarterly permitted emissions limits.

If less-than-full load operation is assumed for any quarter in calculating emissions, A2PP would receive emissions limits for that quarter that could constrain operation of the units. However, as stated in the Project Description section of the AFC (Section 2.1.15, Generating Facility Operation), "[t]he exact operational profile of this peaking plant will depend on the variable demand in the A2PP service area." Rather than risk accepting quarterly limits that would result in operating restrictions that could prevent the units from being able to run when they are needed, TID decided to be conservative and assume full-load, full-time operation in each quarter even though they knew the units were not expected to operate that way. As stated in Section 5.1.3.2.1 of the AFC, "[although] the CTGs are not expected to be operated more than approximately 5,000 hours per year per turbine, maximum potential emissions and project impacts have been evaluated assuming full-time (8,760 hours per year) operation for each unit to provide needed operational flexibility for the plant."

This decision to allow for operating flexibility in every calendar quarter has significant environmental benefits. Specifically, the conservative assumption of full load operations is

[1] D.07-01-039 Interim Opinion on Greenhouse Gas Emissions Performance Standard, at p. 162, available at: http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/64072.pdf. Note that while the CEC has jurisdiction for enforcing the EPS as to publicly owned utilities, there was a significant amount of collaboration between the CEC and the CPUC in developing the agencies' respective regulations. Accordingly, the CPUC decision on the EPS should be instructive as to how the Energy Commission should evaluate EPS compliance decisions.

environmentally beneficial because the District will provide far more mitigation than necessary to cover actual operations. By mitigating to 8,760 hours, while operating approximately 5,000 hours, the District will effectively be "over-mitigating" to gain the operational flexibility to not take quarterly emission limits that would decrease the A2PP's value as a reliable firming resource. Conversely, if these emission credits are not designated for the A2PP project for operational flexibility, they would be available to be used for other sources. Similarly, the A2PP's Public Health analysis is based on the conservative assumption that the plant would operate 8,760 hours per year when actual operations will be less. In short, the District provides more mitigation under these conservative assumptions, to the benefit of the environment.

The expected operating schedule of approximately 5,000 hours per year per turbine corresponds to a 57 percent capacity factor on an operating hour basis, which is below the 60 percent capacity factor that defines baseload operation for EPS purposes. We further note, however, that the EPS "baseload" definition uses an annual electricity-based capacity factor, not hours of operation. Specifically, the EPS definition compares the electricity produced to the rated capacity of the power plant.

> "Baseload generation" means electricity generation from a powerplant that is designed and intended to provide electricity *at an annualized plant capacity factor* of at least 60 percent. (Public Utilities Code, Section 8340(a); emphasis added.)

This definition would allow continuous low load operation of the power plant, as long as the electricity produced was less than 60 percent of the annualized capacity factor, not 60 percent annual operating hours. TID has been clear and consistent in stating that the plant is not designed or intended to be used as a baseload generating resource.

Beyond the need to ensure that the A2PP project's operations are not limited in any one calendar quarter, a review of the AFC shows the District's intent to not operate A2PP as a baseload unit. TID's stated objectives for A2PP support this notion. The Executive Summary section states that some of the objectives of the project are to provide fast-starting, load-following peaking generating units to help maintain TID's Balancing Authority tie line schedules with neighboring Balancing Authorities; to help provide firming sources for TID's existing and future intermittent renewable resources in support of TID's Renewable Portfolio Standard (RPS) and greenhouse gas (GHG) goals; and to allow for better economic dispatch of TID's existing generation fleet system-wide.

The design of A2PP supports these objectives. The chosen design for the A2PP facility, fast starting, simple-cycle CTGs, allows A2PP to respond to sudden increases in load, or firm the sudden drop off in generation from intermittent renewable resources. In addition, with the construction of A2PP, TID will be able to enhance reliability within its Balancing Authority. A baseload plant would not be able to fulfill these objectives. This is why TID instead seeks to operate A2PP as a peaking, not a baseload, facility.

The District has also demonstrated an intent to use the facility at an annualized capacity factor less than 60 percent. As stated in the Air Quality Section of the AFC (Section 5.1.2, Project Description):

> "The turbines will be available to be operated up to 24 hours per day, 7 days per week; however, the A2PP CTGs will be frequently dispatched and are expected to operate up to approximately 5,000 hours per year on an annual average basis."

The footnote to this sentence states:

> "The air quality impact assessment is based on full-time operation (100 percent capacity) to provide maximum operational flexibility for the plant. However, as discussed here and in other sections of the AFC, TID does not intend to run the A2PP as a baseload facility, and the actual plant operation is expected to be on the order of 5000 hours per year per CTG."

Visual Resources (SQ-3)

Data Request

SQ-3. Is an FAA Form 7460-1, Notice of Proposed Construction or Alteration, required for the A2PP?**Response:** The requirements for filing a FAA Form 7460-1, Notice of Proposed Construction or Alteration with the Federal Aviation Administration is based on the following five items as identified in 14 CFR 77.13. A discussion of the A2PP status as it relates to these five items follows.

1. *The structure exceeds 200ft above ground level*
   - The three stacks at the A2PP are 80 feet in height at an elevation level of 81.6 feet, and therefore do not exceed the 200 foot requirement.
2. *The structure will be in proximity to an airport and will exceed the slope ratio*
   - The slope ratio is calculated by the FAA Notice Criteria tool[2]. As discussed in Section 3.4.3 of the AFC, a FAA Notice Criteria evaluation was performed to determine if a FAA Form 7460-1, Notice of Proposed Construction or Alteration, was needed. Appendix 3A of the AFC provides a copy of the Notice Criteria evaluation tool for a point located near the center of the site. An additional evaluation for the three stacks was performed using the FAA Notice Criteria tool to determine if any of the three stacks exceeded the slope ratio. Attachment SQ3-1 provides a copy of the FAA Notice Criteria tool for each of the three stacks, which states the Notice Criteria has not been exceeded.
3. *The structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...)*
   - The A2PP does not involve the construction of a highway, railroad, waterway, etc.
4. *The structure will be in an instrument approach area and might exceed part 77 Subpart C*
   - As shown in Figure 5.12-5 of the AFC, the A2PP is located well outside the approach, transitional, and conical zone of the Modesto City-County Harry Sham Field Airport. The A2PP is not in any airport flight patterns and not in a congested airspace. Neighboring airports and flight patterns are sufficiently distant from the A2PP that no impacts on aviation are expected.
5. *The structure will be on an airport or heliport*
   - The A2PP is not located on an airport or heliport.

Based on the discussion above, a FAA Form 7460-1 is not needed for this project.

[2] https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm

ATTACHMENT SQ3-1

Notice Criteria Tool

Federal Aviation Administration

The system will be going offline around 10 pm ET on Friday, October 23, 2009 as a result of scheduled maintenace at FAA and will be back online around 8 am ET on Saturday, October 24, 2009. We apologize for any inconvenience.

« OE/AAA

Notice Criteria Tool

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.13.

You must file with the FAA at least 30 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...)
- your structure will emit frequencies, and does not meet the conditions of the FAA Co-location Policy
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your structure will be on an airport or heliport

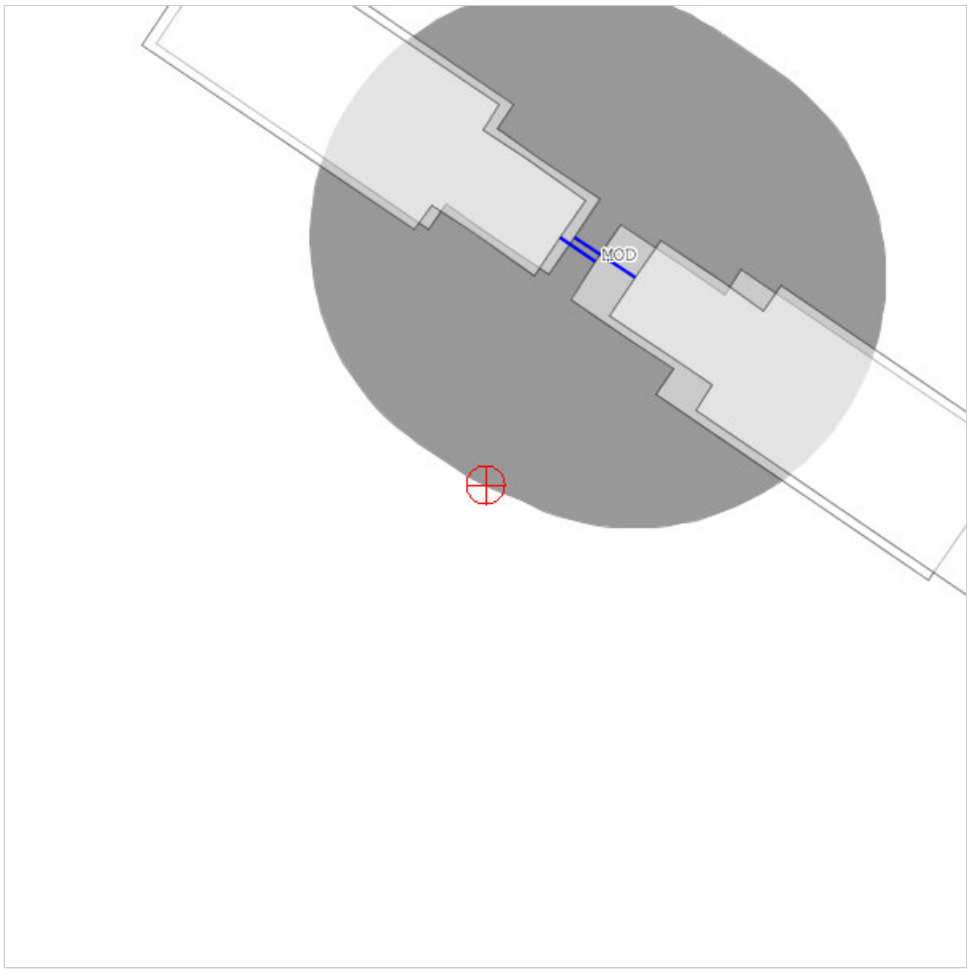
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying the appropriate slope calculations per Part 77 Notice Criteria.

Latitude:	37 Deg 34 M 29.09 S N
Longitude:	120 Deg 59 M 05.15 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	82 (nearest foot)
Structure Height (AGL):	80 (nearest foot)
Traverseway:	No Traverseway (Additional height is added to certain structures under 77.13(a)(3))
Is structure on airport:	(•) No ( ) Yes

Results

You do not exceed Notice Criteria.


MOD

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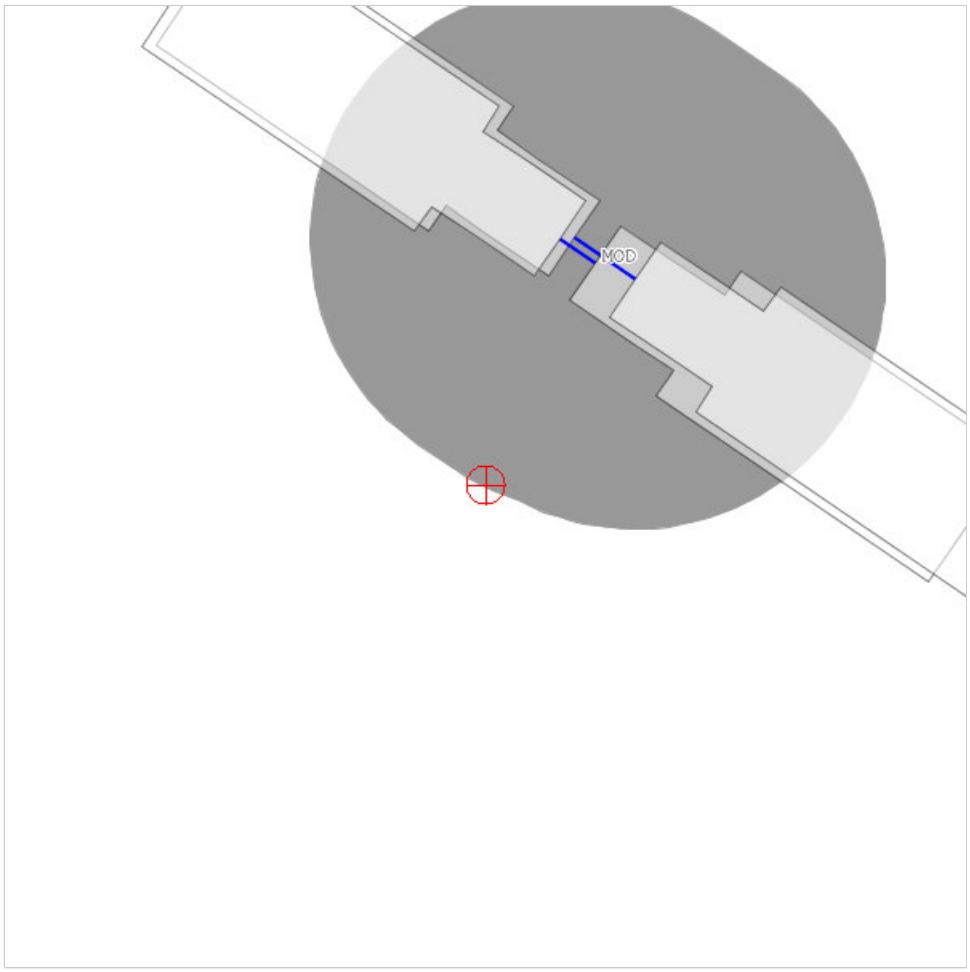
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying the appropriate slope calculations per Part 77 Notice Criteria.

Latitude:	37 Deg 34 M 30.12 S N
Longitude:	120 Deg 59 M 05.11 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	82 (nearest foot)
Structure Height (AGL):	80 (nearest foot)
Traverseway:	No Traverseway (Additional height is added to certain structures under 77.13(a)(3))
Is structure on airport:	(•) No ( ) Yes

Results

You do not exceed Notice Criteria.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The tool below will assist in applying the appropriate slope calculations per Part 77 Notice Criteria.

Latitude:	37 Deg 34 M 31.16 S N
Longitude:	120 Deg 59 M 05.07 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	82 (nearest foot)
Structure Height (AGL):	80 (nearest foot)
Traverseway:	No Traverseway (Additional height is added to certain structures under 77.13(a)(3))
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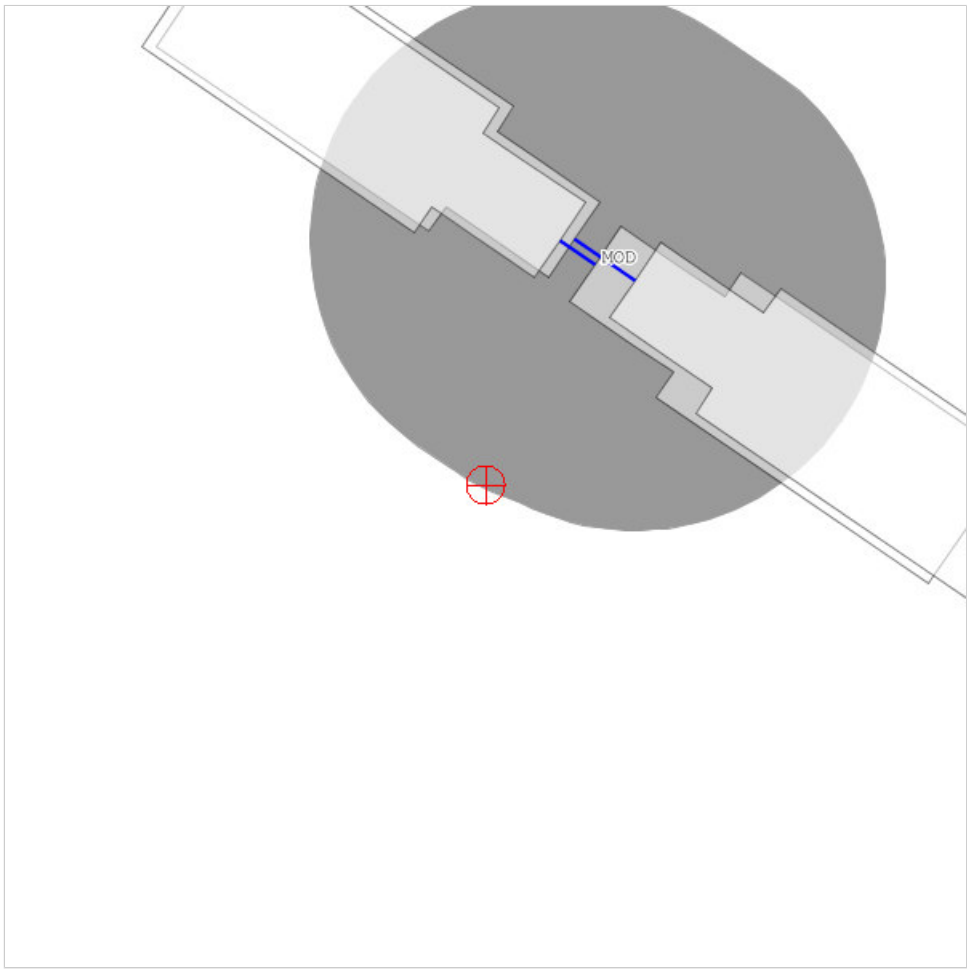
MOD

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
FOR THE TID ALMOND 2
POWER PLANT PROJECT

Docket No. 09-AFC-2

PROOF OF SERVICE
(Revised 9/3//09)

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*indicates change

DECLARATION OF SERVICE

I, Mary Finn, declare that on Thursday, October 22, 2009, I served and filed copies of the attached, Staff Query Set 2, Responses to CEC Staff Queries 2 and 3 dated October 22, 2009. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [http://www.energy.ca.gov/sitingcases/almond].

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

FOR SERVICE TO ALL OTHER PARTIES:

__x__ sent electronically to all email addresses on the Proof of Service list;

__X__ by personal delivery or by depositing in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses NOT marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

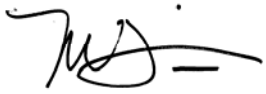
__x__ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

OR

_____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-2
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.



Mary Finn