

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512

August 3, 2010

DOCKET	
08-AFC-8	
DATE	<u>AUG 03 2010</u>
RECD.	<u>AUG 03 2010</u>

Mr. David Warner
 Director of Permit Services
 San Joaquin Valley Unified Air Pollution Control District
 34946 Flyover Court
 Bakersfield, CA 93308

**Re: Comments on Preliminary Determination of Compliance (PDOC)
 Hydrogen Energy California Project (08-AFC-8)**

Dear Mr. Warner,

Energy Commission staff have reviewed the San Joaquin Valley Unified Air Pollution Control District's (District's) Preliminary Determination of Compliance (PDOC) for the Hydrogen Energy California (HECA) Project and have the following comments for your consideration for inclusion in the Final Determination of Compliance (FDOC).

Comments on PDOC Engineering Evaluation

Stack Heights and Good Engineering Practice

The PDOC specifically notes the stack height for the CO₂ Vent exceeds the *de-minimus* good engineering practice (GEP) height of 65 meters, but does not indicate either in the engineering evaluation discussion on page 20 or in the Air Quality Impact Analysis (AQIA) (Appendix H) whether and how this stack or all of the other proposed stacks that are above the *de-minimus* height meet GEP regulation requirements. This question about compliance with GEP stack height concerns all of the following:

<u>Emissions Stack</u>	<u>Height (meters)</u>
CO ₂ Vent	79.2
SRU Flare	76.2
Gasification Flare	76.2
Rectisol Flare	76.2

Staff believes that a brief note regarding compliance with GEP stack height should be added to the FDOC to complete the discussion regarding these sources/stacks.

Combined Cycle Combustion Turbine Generator (S-7616-9) Particulate Emissions

The particulate matter (PM₁₀/PM_{2.5}) emission levels requested by the applicant for this emission unit are well above similar gas turbine emission rate limits considering fuel firing heat input levels. The applicant has not provided compelling technical rationale to explain why this gas turbine would need a particulate matter (PM) emission rate that is so much higher than other similar gas turbines, and staff believes that the other recently permitted turbine projects have established a reasonable Best Available Control Technology (BACT) emissions level, which based on staff's review of available source test data generally provides a 50 percent safety factor (i.e. actual emissions are

generally no more than half the allowable emissions, which for example would mean that the expected actual PM emissions for the Carlsbad project turbines would be somewhere between 4 to 5 lbs/hour, or about half of the allowable 9.5 lbs/hour). A comparison of the estimated HECA-proposed PM emissions compared to similar, recently approved and on-going projects are as follows:

Project	Gas Turbine	Lb/hr	Lb/MMBtu	Lb/MW gross
HECA – H ₂ Fuel	GE 7FB	18 (19.8)	0.0084 (0.0079)	(0.051) (0.051)
HECA – Natural Gas		18 (19.8)	0.0090 (0.0078)	0.066 (0.060)
Allowable Emissions on Natural Gas:				
Avenal	GE 7FA	8.91 (11.78)	0.0050 (0.0052)	0.034 (0.039)
Inland Empire	GE 107H	10	0.0040	0.026
Carlsbad	Siemens SGT6- PAC5000F	9.5	0.0046	0.034

Value in “()” is duct firing value for projects with duct burners.

Staff believes that the District should consider reducing the Particulate Matter (PM₁₀/PM_{2.5}) emission rate down to no more than 15 lbs/hour without duct firing and 16.8 lbs/hour with duct firing as BACT emission rates. These rates should provide an adequate safety margin compared to expected actual emissions and would also serve to reduce the total permitted annual PM_{2.5} emission rate to a level where the PM_{2.5} fraction of the cooling tower emissions are no longer an issue in regards to the potential for the site to exceed 100 tons per year of PM_{2.5} emissions, which would trigger the need for the project to obtain federal PM_{2.5} offsets.

Cooling Tower PM_{2.5} Fraction Assumption

Staff believes that the rationale used by the applicant for the ratio of particulate matter less than 2.5 microns (PM_{2.5}) to particulate matter less than 10 microns (PM₁₀) of 0.6:1 for the cooling tower emissions is flawed. The rationale provided by the applicant notes that this ratio is cited in the South Coast Air Quality Management District’s (SCAQMD’s) particulate size fraction in the California Emission Inventory Development and Reporting System (CEIDARS) table from the SCAQMD CEQA website. However, the CEIDARS particulate size fraction data was originally produced by the California Air Resource Board (ARB) and review of the original CEIDARS particulate size fraction table from ARB shows that there is no cooling tower category and that the “other” category values have been used by SCAQMD in lieu of other available data for cooling towers in their version of the CEIDARS table. This shows that this particulate size fraction data is not specific to cooling towers and is not technically supportable. Staff is willing to accept a defensible cooling tower particulate size fraction reference; however, to date staff is not aware of such a defensible reference. Staff believes that the District should investigate this further and if possible provide a more technically defensible

particulate size fraction reference and revise the cooling tower particulate matter (PM10 and PM2.5) emissions appropriately. If no specific particulate size fraction data reference for cooling towers is available, the District should assume 100 percent of the PM10 is PM2.5.

Comments on PDOC Conditions

General Permit Conditions (All Permit Units)

The generic permit conditions that start and end the conditions for each permit unit are not provided consistently. For example, the Gasification Flare (S-7616-3-0) starts with 9 general conditions before the unit specific conditions and the Gasification Cooling Tower (S-7616-3-0) starts with five general conditions before the unit specific conditions. Staff believes that most if not all of these general conditions apply for all of the permit units and requests that the District review consistency of the presentation and inclusion of these general permit conditions across the 16 permit units. Staff also requests, if it is possible based on District permitting rules and policies, that these general, facility-wide conditions be separated into one set of conditions that apply to all relevant permit units. This would provide clarity and avoid a sixteen-fold duplication of conditions.

Gasification System (S-7616-2-0) and Sulfur Recovery System (S-7616-5-0) Fugitive VOC Emission Source Inspection and Maintenance Requirements

For later compliance demonstration clarity, staff requests that the conditions for these two permit units include more specificity on what parts of these permit units are subject to Rule 4455 - COMPONENTS AT PETROLEUM REFINERIES, GAS LIQUIDS PROCESSING FACILITIES AND CHEMICAL PLANTS, and that the conditions include the specific requirements of the rule.

Flares and CO₂ Vent Conditions (S-7616-3-0, S-7616-6-0, S-7616-7-0, and S-7616-8-0) Consistency of Conditions

There are certain general conditions (such as no public nuisance, general design conditions, and recordkeeping conditions) as well as other, more unit specific conditions such as emission rate limits that are applied very differently for these four similar event-based emission sources. While staff notes that different regulations such as federal New Source Performance Standards may apply to all of these sources and would require certain differences in the conditions for these four sources, staff believes that greater consistency in the conditions for these four sources, including conditions noted to be required under District Rule 4311 – FLARES, should be investigated and implemented consistently where appropriate.

CO₂ Vent (S-7616-8-0) Condition 12

Staff requests that the methods and frequency (i.e., required for each venting event) for the vent gas composition monitoring that is required under Condition 12 be detailed in this or other conditions for this permit unit.

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Auxiliary Boiler (S-7616-13-0) Conditions 28 and 30

Conditions 28 and 30 appear to be redundant and staff recommends that one be deleted or that they be combined as necessary into a single condition.

Firewater Pump Engine (S-7616-16-0) Conditions 15 and 16

Conditions 15 and 16 appear to be redundant and staff recommends that one be deleted or that they be combined as necessary into a single condition.

If you have any questions, please contact Gerry Bemis of my staff at (916) 654-4960. Thank you for the opportunity to comment on the Hydrogen Energy California Project's Preliminary Determinations of Compliance.

Sincerely,

MATTHEW LAYTON, Manager
Engineering & Corridor Designation Office
Siting, Transmission and Environmental
Protection Division

cc: Docket



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
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APPLICATION FOR CERTIFICATION
FOR THE **HYDROGEN ENERGY**
CALIFORNIA PROJECT

Docket No. 08-AFC-8

PROOF OF SERVICE LIST
(Rev. 6/22/10)

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DECLARATION OF SERVICE

I, Teraja Golston, declare that on August 3, 2010, I served and filed copies of the attached (08-AFC-8) Hydrogen Energy - Staff Comments on Preliminary Determination of Compliance (PDOC), dated August 3, 2010. The original documents, 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: [www.energy.ca.gov/sitingcases/hydrogen_energy].

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:

- sent electronically to all email addresses on the Proof of Service list;
 by personal delivery;
 by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

- 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. 08-AFC-8
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, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Original Signature in Dockets
Teraja`Golston