

# RICE SOLAR ENERGY, LLC

An Affiliate of SOLARRESERVE

## DOCKET

### 09-AFC-10

DATE MAY 07 2010

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May 7, 2010

Eldon Heaston  
Executive Director  
Mojave Desert Air Quality Management District  
14306 Park Avenue  
Victorville, CA 92392-2310

Subject: Application for Authority to Construct – Rice Solar Energy Project Wet Surface  
Air Cooler

Dear Mr. Heaston:

SolarReserve, LLC (SolarReserve) is committed to swiftly advance our permit application with the District and application for certification with the California Energy Commission (CEC) for the Rice Solar Energy Project (RSEP). In our April 28<sup>th</sup> conference call with District and CEC staff, District staff discussed certain internal policies that appear to be inconsistent with our reading of current District Rules.

We understand that this approach is being contemplated in order to establish consistency across all proposed solar projects in the region, despite real differences in plant technology, features, and configurations unique to any project. We remain nonetheless wary of such homogenization as inconsistent with applicable regulations and statutes. Specifically, Solar Reserve respectfully disagrees with the District and CEC's decision to require a permit for the RSEP WSAC unit.

As detailed in the RSEP Application for Certification (AFC), the WSAC would have a recirculation rate of less than 10,000 gallon per minute, not be used for evaporative cooling of process water, and not use any chromium based compounds. Therefore, the WSAC unit meets the permit exemption requirements outlined in the Mojave Desert Air Quality Management District's (MDAQMD) Rule 219 (E)(4)(C).

Additionally, the maximum particulate emissions from the proposed WSAC unit (originally) would be less than 4 pounds/day using the industry standard drift eliminator efficiency of 0.005%. For this class equipment, the proposed drift elimination system would be considered *best available control technology* (BACT) as achievable and cost effective. Further, District Rule 1303 (A)(1) would in effect only specify BACT requirements for sources emitting more than 25 pounds/day – a significantly higher threshold than the RSEP design would emit. In responding to the CEC's request to meet the 0.0005% drift factor, the proposed unit would conform with the requirements for a major source (which, for certainty, the RSEP is not) imposing a *lowest achievable emission rate* (LAER) for much larger and higher emitting sources.

As shown in the attached worksheet, emissions at the LAER level would be approximately 0.02 lb/hr and 0.03 tons/year.

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While we continue to hold the position that the WSAC unit should be exempt from District permitting and that a drift eliminator efficiency of 0.005% would meet the industry control standard for particulate, SolarReserve voluntarily elects to comply with the District's request in the interest of providing the highest possible protection of ambient air quality in the basin while reducing the potential schedule risk to the project if we were to exert the case for exemption.

We thus agree to accommodate the District's request. Attached is a permit application for the RSEP wet surface air cooler (WSAC) which includes a modification of the original specifications to increase the drift eliminator from the industry BACT standard of 0.005% for this equipment class to 0.0005%.

This attached WSAC application form is being submitted to supplement the application forms originally submitted for the RSEP. A check for \$226 is included to cover the application fee. If you have any questions regarding this information, please contact me at (310) 315-2212, Jerry Salamy (CH2MHILL) at (916) 286-0270 or Keith McGregor (CH2MHILL) at (916) 286-0221.

Sincerely,



Matthew Held  
VP, Project Management & Construction  
SolarReserve, LLC  
Rice Solar Energy, LLC

Attachments

cc: CEC Docket List  
CH2MHILL Project File

**MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT**

14306 Park Avenue, Victorville, CA 92392-2310  
 (760) 245-1661 Facsimile: (760) 245-2022


www.mdaqmd.ca.gov

*Eldon Heaston*  
 Executive Director

**APPLICATION FOR AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE**

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REMIT \$226.00 WITH THIS DOCUMENT (\$129.00 FOR CHANGE OF OWNER)

|   |   |   |                                   |
|---|---|---|-----------------------------------|
| 1. Permit To Be Issued To (company name to receive permit):<br><b>Rice Solar Energy, LLC.</b>   |   | 1a. Federal Tax ID No.:<br><b>27-0967061</b>  |                                   |
| 2. Mailing/Billing Address (for above company name):<br><b>2425 Olympic Blvd., Suite 500 East, Santa Monica, CA 90404</b>   |   |   |                                   |
| 3. Facility or Business License Name (for equipment location):<br><b>Rice Solar Energy, LLC.</b>  |   |   |                                   |
| 4. Facility Address - Location of Equipment (if same as for company, enter "Same"):<br><b>Rural Address: Rice, CA</b>   |   | Location UTM or Lat/Long:<br><b>Reference AFC</b>   |                                   |
| 5. Contact Name/Title:<br><b>Jeff Benoit / SR. Project Manager</b>  | Email Address:<br><b>Jeff.Benoit@SolarReserve.com</b> | Phone/Fax Nos.:   |                                   |
| 6. Application is hereby made for Authority To Construct (ATC) and Permit To Operate (PTO) the following equipment:<br><b>Wet Surface Air Cooler (WSAC)</b>   |   |   |                                   |
| Air Pollution Control Equipment, if any (note that most APCE require a separate application):<br><b>* See Sections 5.1.4.1.3 of the Application for Certification (AFC)</b>   |   |   |                                   |
| 7. Application is for:<br><input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Modification* <input type="checkbox"/> Change of Owner*   |   | For modification or change of owner:<br>*Current Permit Number: _____   |                                   |
| 8. Type of Organization (check one):<br><input type="checkbox"/> Individual Owner <input type="checkbox"/> Partnership <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Utility <input type="checkbox"/> Local Agency <input type="checkbox"/> State Agency <input type="checkbox"/> Federal Agency |   |   |                                   |
| 9. General Nature of Business:<br><b>Solar Powered Electrical Generating Facility</b>   |   | Principal Product:<br><b>Electricity</b>  |                                   |
|   |   | SIC Code (if known):  |                                   |
| 10. Distances (feet and direction to closest):<br><b>N A   Fenceline   79200 NE   Residence   89760 W   Business   121440   E School</b>  |   |   |                                   |
| 11. Facility Annual Throughput by Quarters (percent):<br><b>25 %   25 %   25 %   25 %</b><br><b>Jan-Mar   Apr-Jun   Jul-Sep   Oct-Dec</b>   |   | 12. Expected Facility Operating Hours:<br><b>24   7   52   8760</b><br><b>Hrs/Day   Days/Wk   Wks/Yr   Total Hrs/Yr</b> |                                   |
| 13. Do you claim Confidentiality of Data (if yes, state nature of data on reverse in Remarks)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |   |   |                                   |
| 14. Signature of Responsible Official:<br>   |   | Official Title:<br><b>Sr. Project Manager</b>   |                                   |
| Typed or Printed Name of Responsible Official:<br><b>Jeff Benoit</b>  |   | Phone Number:<br><b>(310) 315-2212</b>  | Date Signed:<br><b>05/07/2010</b> |
| - For District Use Only -   |   |   |                                   |
| Application Number:   | Invoice Number:                                       | Permit Number:  | Company/Facility Number:          |

**MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT  
GENERAL APPLICATION, continued**

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**15. Stack Emissions Information:**

| <u>Stack No.</u> | <u>Stack Height</u> | <u>Stack Diameter</u> | <u>Exhaust Temp</u> | <u>Exhaust Flow Rate</u> | <u>Exhaust Velocity</u> |
|------------------|---------------------|-----------------------|---------------------|--------------------------|-------------------------|
| WSAC1-4          | 12.7 feet           | 9.5 feet (each)       | 67.7 °F             | 99,397 acfm (each)       | 23.6 ft/s (each)        |
| 2                |                     |                       |                     |                          |                         |
| 3                |                     |                       |                     |                          |                         |

\*WSAC 1-4 corresponds to the stack numbering convention used for the AFC dispersion modeling files.

(list additional stacks on a separate sheet)

Stack Height is the distance above ground level to discharge point (feet)

Stack Diameter is the diameter (or equivalent circular diameter) of discharge point (nearest tenth foot)

If using cross-sectional area (A in square feet), equivalent diameter is  $D = (1.273A)^{0.5}$

Exhaust Temp in degrees F, actual or estimated to nearest 50 deg F

Exhaust Flow Rate at discharge point in actual cubic feet per minute (ACFM)

Exhaust Velocity in feet per second, design or measured

**16. Remarks (basis for confidentiality of data, process description, modification description, etc.):**

The WSAC unit will be installed to provide for equipment cooling, including the steam turbine lubricating oil system, generator air coolers, and balance-of-plant ancillary systems. The WSAC unit will have a recirculation rate of approximately 2,736 gallons per minute (gpm). The particulate emissions from the WSAC were estimated based on the measured total dissolved solids concentration in the groundwater and an assumed cooling tower drift eliminator efficiency of 0.0005%. Although the WSAC unit is expected to operate less than 3,286 hours, the emission calculations were conservatively estimated assuming a 50 percent annual capacity factor (i.e., 4,400 hours), a margin of some 33 percent over expected operation. See attached revised emission calculation sheet.

If you wish to specify process information as proprietary or confidential, space is provided for this purpose.  
The kinds and rates of emissions may not be held confidential; emissions are subject to public disclosure.

**Table 5.1B-8R**  
**Rice Solar Energy Project**  
**Wet Surface Air Cooling Unit Particulate Emissions**  
May 2010

**Assumed**

The WSAC operates 4,400 hours per year at the design recirculation rate with 5 cycles of concentration. <sup>a</sup>

Influent WSAC concentration based on a 50% raw water and 50% steam generator blowdown blend.

The water chemistry feeding the WSAC does not change between peak and annual

**Givens**

|   |                 |                     |
|---|-----------------|---------------------|
| WSAC Flow Rate <sup>b</sup>               | 2,736 GPM       | 1,369,094 Pounds/Hr |
| WSAC Drift <sup>c</sup>                   |                 | 0.0005 Percent      |
| WSAC Cycles of Concentration <sup>d</sup> |                 | 5                   |
| Drift                                     | 6.8 Pounds/Hr   |                     |
| TDS Concentration                         | 885 mg/L        |                     |
| Raw Water Blend                           | 50 %            |                     |
| Hours of Operation                        | 4400 hours/year |                     |

| Component <sup>e</sup> | Max Design Case Cooling Tower Influent (mg/L) | Average Case Cooling Tower Influent (mg/L) | Max. TDS for Cooling Tower Discharge (mg/L) | Annual Average TDS for Cooling Tower Discharge (mg/L) | Max Hourly Cooling Tower PM10/2.5 Emissions (Lb/Hr) | Annual Cooling Tower PM10/2.5 Emissions (Tons/Year) |
|------------------------|---|--|---|---|---|---|
| Total Dissolved Solids | 443   | 443  | 2213  | 2213  | 0.02  | 0.03  |

**References:**

<sup>a</sup> Conservative hours of operation estimate provided by Applicant

<sup>b</sup> WSAC flow rate provided by WorleyParsons

<sup>c</sup> Drift Eliminator Efficiency is 0.0005% of flow rate

<sup>d</sup> WSAC Cycles of Concentration provided by WorleyParsons

<sup>e</sup> Water quality source from WorleyParsons



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 *RICE SOLAR ENERGY POWER  
PLANT PROJECT***

**Docket No. 09-AFC-10**

***PROOF OF SERVICE*  
(Revised 3/4/2010)**

**APPLICANT**

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**ENERGY COMMISSION**

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Public Adviser's Office  
publicadviser@energy.state.ca.us

## DECLARATION OF SERVICE

I, Mary Finn, declare that on May 7, 2010, I served and filed copies of the attached, 09-AFC-10-RSEP Application for Authority to Construct – Rice Solar Energy Project Wet Surface Air Cooler. 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: [\[http://www.energy.ca.gov/sitingcases/ricesolar\]](http://www.energy.ca.gov/sitingcases/ricesolar).

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;

\_\_\_\_ 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 the 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:

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-10

1516 Ninth Street, MS-4

Sacramento, CA 95814-5512

[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

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



\_\_\_\_\_  
Mary Finn