

DOCKETED

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Project Title:	Kern River Cogeneration Application for Certification Compliance
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Document Title:	Order Approving Amendments to the Air Quality Conditions of Certification
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STATE OF CALIFORNIA

SRB - 7 199:

ENERGY RESOURCES CONSERVATION
AND
DEVELOPMENT COMMISSION

IN THE MATTER OF:)	ORDER NO. 95-0201-02(a)
)	DOCKET NO. 82-AFC-2
KERN RIVER COGENERATION COMPANY,)	(P800-83-011)
KERN RIVER COGENERATION PROJECT)	ORDER APPROVING Amendments
)	to the Air Quality Conditions
)	of Certification.
)	

The Kern River cogeneration Company (Kern River) submitted a request to amend their air quality conditions of certification. Kern River's amendment request is composed of three parts: 1) to incorporate the San Joaquin Valley Air Pollution Control District's (District) determination of compliance (DOC), into the air quality conditions of certification, 2) to incorporate changes to air quality conditions of certification reflecting their new Rule 4703; and 3) to remove the requirement for fuel oil as a backup to natural gas.

Rule 4703 was adopted by the District on August 18, 1994 in response to the California Clean Air Act of 1988. Under Rule 4703, KRCC must reduce emissions by the year 2000. To accomplish the reduction, KRCC will retrofit each of their existing four 75 MWe turbine generators with a dry low NO_x combustor system.

KRCC does not foresee any need for fuel oil backup due to the current supply of natural gas and has removed the fuel oil support equipment. References to fuel oil backup have been deleted.

STAFF RECOMMENDATION

Staff has analyzed the amendment request and based on its analysis, recommends that the Commission adopt this order. No potential new or additional unmitigated significant impacts are anticipated as a result of the reduced and/or modified environmental monitoring requirements.

Based upon staff's analysis and recommendation, the Commission finds:

1. The proposed modifications to the Air Quality Conditions of Certification are consistent with the intent of the Conditions adopted in the Kern River Commission decision;
2. The proposed modifications to the air quality conditions are beneficial to the public and the interest of any previous parties to the certification proceeding;
3. Kern River and San Joaquin Valley Unified Air Pollution Control District are in agreement with the proposed modifications to the air quality conditions;

4. The proposed modifications are based on information which was not available to the parties prior to Commission Certification;
5. There are no new or additional unmitigated environmental impacts associated with the proposed modifications and reduction in monitoring.

CONCLUSION AND ORDER

The California Energy Commission (CEC) hereby adopts staff's recommendations and findings as its own and hereby orders that the Kern River Cogeneration Project Air Quality Conditions of Certification be amended to read as follows:

AQ-1 For the purpose of implementing Section 25532 of the Public Resources Code, the SJVUAPCD shall monitor compliance of the construction and operation of the facility with the conditions related to air quality laws, regulations, and standards as contained in the Determination of Compliance (Appendix B) and as adopted in the decision. The SJVUAPCD shall immediately inform the CEC of any failure to meet the requirements and conditions of certification, including the requirements and conditions for a Permit to Operate. Upon completion of construction, the SJVUAPCD shall issue a Permit to Operate if it determines that the facility complies with the Determination of Compliance.

Verification: The Applicants shall provide the CEC with a copy of the Permit to Operate within 30 days of their receipt of the permit. The Applicants shall summarize in an annual compliance report to the CEC any significant interactions with the SJVUAPCD related to this project. The Applicants shall inform the CEC and ARB in writing within 30 days of any formal appeals filed with the SJVUAPCD.

AQ-2 Kern River Cogeneration Company shall design the Kern River Project using the following design conditions and specific equipment:

Equipment Description:

- A. Four natural gas or light oil fired General Electric, Model G7111E, combustion turbine generators (CTG's) each rated at 8.25×10^8 Btu/hr (LHV) maximum heat input (APCD No.'s 4128001-004),
- B. Four unfired heat recovery steam generators (HRSG's), each rated at 450,000 lbm/hr steam production one for each gas turbine engine assembly,
- C. Four CTG combustor water or steam injection systems for NO_x control, one for each CTG,
- D. Continuous emission monitoring system for NO_x , CO and CO_2 serving each CTG flue gas stream,
- E. Two 600 gpm demineralizes to provide steam or water, respectively to injection systems,

- F. 2000 hp diesel I.C. engine driving "black-start" electrical generator (APCD No. 4128005),
- G. Facility will include one 250 hp diesel I.C. engine driving 1500 gpm fire water pump.
- H. Turbine maximum heat input rate shall not exceed 1,020 MMBtu/hr when fired on natural gas without prior District approval.

General Design Requirements:

- A. Exhaust gas ducting from CTGs through HRSGs to the atmosphere shall be gas-tight.
- B. Bypass stack valve preceding each HRSG shall be designed to be gas tight.
- C. Each CTG shall have a fuel consumption monitor/recorder.

Design Requirements for CTG - DLN Retro Fit:

- A. The combustion turbine generators (CTGs) shall be retro fitted with dry low NO_x (DLN) combustors, capable of achieving 16.4 ppm or better at 15% O₂ based on a three hour rolling average and a one hour maximum of 19.2 ppm at 15% O₂ according to the schedule in Condition AQ-27.
- B. CTGs using multiple combustors shall be designed to be capable of achieving proposed emission levels.

Verification: Kern River Cogeneration Company shall maintain and make available for inspection the "Approved for Construction Drawings" to the SJVUAPCD, CARB, and CEC upon reasonable notice (1 hour for weekdays, 8 hours for weekends and holidays). Kern River Cogeneration Company shall make the site available for inspection by the SJVUAPCD, CARB, and CEC during both construction and operation upon reasonable notice (1 hour for weekdays, 8 hours for weekends and holidays).

AQ-3 Kern River Cogeneration Company shall comply with the mitigation measures required pursuant to SJVUAPCD Rules and Regulations. These mitigation measures are summarized below:

- A. To offset SO₂, NO₂, TSP and HC emissions, banked SO₂, NO₂, TSP and HC credits will be withdrawn.
- B. To mitigate CO emissions, efficient combustion design will be employed in the gas turbines.

C. All steam generators which are required to be scrubbed as offsets for this project shall be controlled to at least following control efficiencies (fixed emission factors assumed) at all times:

PM 42% Control
 SO₂ 95.3% Control
 SO₄ 30% Control

D. Texaco Exploration & Production, Inc.'s Kern River Stationary Source steam generator emissions, upon startup of the Kern River cogeneration project shall not exceed the following emission sampling limits (lbm/hr each).

On January 18, 1995, the following Kern River Stationary Source steam generator permit identification numbers were provided by the San Joaquin Valley Unified Air Pollution District. This equipment is part of the original project mitigation. The Kern County Air Pollution Control District's numbering sequence is retained for convenience. Please note that the units identified in Group "G" and Group "H" are no longer in service.

APCD #	Input Rating	PM	SO ₂	SO ₄	NO _x	HC	CO
Kern County	MM BTU/hr						
4003-							
<u>Group "A" (Uncontrolled Oil-fired)</u>							
585	3.5	0.46	4.00	0.24	1.83	0.02	0.12
053,063,066, 095,119	27.0	3.51	30.87	1.89	10.26	0.18	0.90
107,109,116 121	29.0	3.77	33.16	2.03	11.02	0.19	0.96
<u>Group "B" (Gas Fired w/O₂ Controllers)</u>							
610 - 618	31.0	0.15	0.02	0.00	4.34	0.09	1.09
<u>Group "C" (Gas Fired w/O₂ Controllers)</u>							
338 - 351	62.5	0.31	0.04	0.00	8.75	0.42	2.08
<u>Group "D" (Unscrubbed Oil-Fired w/O₂ Controllers & NH₃ Injection)</u>							
235,236,237 239,241,243, 245,251,268,269,323,324,328,364,367,369,388-393,407,408,426, 427,431,444,445,452	62.5	8.13	3.41	1.60	23.81	0.42	2.1

Group "E"(Oil-Fired w/O₂ Controller, NH₃ Injection and Scrubber)

201,202,203, 62.5 4.38 2.51 3.06 12.5 0.42 2.08
205,207,209,
218,278,292-300,302-308,314,315,316,318,319,320,333-335,356-361,
372,379,380,395,396,402,403,404,408,425,432,437,442,443,465

Group "F"(Oil-Fired, w/O₂ Controller, NH₃ Injection and Scrubber)

208,210,211, 62.5 5.16 2.51 3.06 9.38 0.42 2.08
212,219,220,
271,275,279-288,428,429

Group "G"(shutdown & Permits to Operate Surrendered)

204,213,217, 62.5 0.00 0.00 0.00 0.00 0.00 0.00
221,225-234,
238,240,242,244,247-250,253,254,261-267,270,272-274,289,290,
291,301,311,312,313,317,321,322,325,326,327,329,330,331,332,
336,362,363,365,366,368,370,371,373-378,381,382-387,394,398-
401,405,406,409,410,412,414-417,422,424,430,433,434,438,439,
440,446,447,448,451

Group "H"(shutdown & Permits to Operate retained)

206,214,215, 62.5 0.00 0.00 0.00 0.00 0.00 0.00
216,222,223,
224,246,252,255-260,276,277,310,352-355,397,411,413,418,419,420,
421,423,435,436,441,449,450

NOTE: Units 4003269, 323 & 364 are shutdown if units 4003411,
413 & 421 are operated.

Group "I"(shutdown when Group B & Omar Hill turbines are oil-fired)

279-288 62.5 0.00 0.00 0.00 0.00 0.00 0.00
388-392
428,429,431

Group "J"(shutdown when Sycamore turbines are oil-fired)

235,236,237, 62.5 0.00 0.00 0.00 0.00 0.00 0.00
239,324,328,

Verification: The Applicants shall send copies to the CEC of the official notification of valid banking certificates as issued by the SJVUAPCD. Records for the above mentioned stationary steam generators will be maintained by the SJVUAPCD and will be available to the CEC on request.

AQ-4 During the construction phase of the project, the Applicants shall use chemical or water dust suppressants to limit fugitive dust emissions.

Verification: The Applicants shall notify the SJVUAPCD when construction begins. The SJVUAPCD will verify compliance with fugitive dust abatement measures.

AQ-5 Before implementing any major change in the Air Emissions Control Systems (AECS), Emissions Monitoring System (EMS), or the Computer Control System (CCS), Kern River Cogeneration Company shall submit the proposed change to the SJVUAPCD and the CEC for approval. Examples of major changes are the use of an alternative AECS, EMS, or CCS, or a major change in the performance criteria.

Verification: Sixty (60) days before implementing any major change identified above, Kern River Cogeneration Company shall submit to the SJVUAPCD and the CEC the design details of the proposed change and a discussion of the potential change in air emissions from the project. Kern River Cogeneration Company shall receive written approval from the SJVUAPCD and CEC prior to implementing any major change.

AQ-6 Kern River Cogeneration Company shall obtain from the U.S. Environmental Protection Agency (EPA) a Prevention of Significant Deterioration (PSD) permit or exemption.

Verification: Within 30 days of receipt of the PSD permit or PSD exemption notification from EPA, Kern River Cogeneration Company shall submit a copy of the PSD permit or exemption notification to the CEC and the SJVUAPCD.

AQ-7 All areas disturbed by construction in the immediate vicinity, and under Kern River Cogeneration Company's responsibility during the construction phase, shall be properly and routinely treated for dust control by water application or paving (for access roads and construction sites), with the intent of meeting the requirements of SJVUAPCD's nuisance rule.

Verification: Kern River Cogeneration Company shall make the construction site available to the SJVUAPCD and CEC for inspection and monitoring. If any dust suppressant other than water is proposed, Kern River Cogeneration Company shall obtain approval from the SJVUAPCD.

AQ-8 Visible emissions from any single source operation shall not exhibit 20% opacity, or Ringelmann 1 or greater, for periods in excess of 3 minutes in any one hour period.

Verification: Kern River Cogeneration Company shall provide SJVUAPCD access to the project site to verify/monitor visible emissions.

AQ-9 Exhaust gas particulate matter concentration shall not exceed 0.0072 gr/scf calculated at 12% CO₂.

Verification: Kern River Cogeneration Company shall allow authorized representatives of the SJVUAPCD, CARB or CEC to enter the power plant site within one hour or sooner of notification to monitor compliance with this Condition.

AQ-10 No CTG shall fire fuel oil at any time.

Verification: Kern River Cogeneration Company shall maintain a natural gas consumption log on-site for inspection by SJVUAPCD, CARB and CEC to determine monthly fuel consumed.

AQ-11 The SJVUAPCD shall receive immediate notification of pending operational status changes of turbines and HRSGs listed in condition AQ-2. Operational records (including but not limited to fuel characteristics) shall be maintained by Kern River Cogeneration Company and made available to SJVUAPCD staff upon request.

Verification: Kern River Cogeneration Company shall make the operational logs available for inspection by the SJVUAPCD, CARB, and CEC staff. Kern River Cogeneration Company shall provide the SJVUAPCD and CEC with copies of the operational logs upon request. Monthly fuel use and fuel type logs for each turbine-generator set shall be included in the quarterly compliance reports submitted to the CEC.

AQ-12 The water injection system shall be used, as required, to control NO_x emissions at or below 140 lbm NO_x/hr until such time as the DLN combustors are operational according to the schedule in condition AQ-27.

Verification: Kern River Cogeneration Company shall maintain records on the operation of the water injection system for the turbines as a part of the operational log required in Condition AQ-11. Kern River Cogeneration Company shall provide SJVUAPCD and CEC with copies of the log upon request.

AQ-13 The Kern River Project facility shall operate as a cogeneration facility pursuant to Public Resources Code Section 25134 for thermally enhanced oil recovery operations.

Verification: Kern River Cogeneration Company shall maintain records on steam production as a portion of the operation log required in Condition AQ-11. The record shall include, but is not limited to, hours of operation of the turbines and HRSGs, lb/hr of steam produced, and temperature and pressure of steam produced.

AQ-14 Accurate records of NO_x (as NO₂) and CO flue gas concentrations corrected to 15% O₂ dry, and CTG fuel sulfur content, shall be maintained and shall be reported upon request.

Verification: Kern River Cogeneration Company shall make the continuous emission monitors and recorded measurements as well as fuel consumption records, available to the SJVUAPCD, CARB, and CEC upon request.

AQ-15 All tank welds, seams, gauge hatches, sampling ports, and pressure relief valves shall have no emissions.

Verification: Kern River Cogeneration Company shall provide access to the SJVUAPCD to inspect tank welds, seams, gauge hatches, sampling ports, and pressure relief valves.

AQ-16 Tankage water drafts, if any, shall consist of closed piping to the existing water treatment plant.

Verification: Kern River Cogeneration Company shall provide access to the SJVUAPCD to inspect the tankage water system.

AQ-17 a. Start-up or planned shutdown of a CTG shall not exceed a time period of two (2) continuous hours.

b. For all CTGs the following hourly emission limits shall apply during times of start-up or planned shutdown and shall be averaged over the two hour period allowed for start-up or planned shutdown:

NO ₂	140.0	lbm/hr not to exceed 3360 lb/day
CO	140.0	lbm/hr not to exceed 3360 lb/day

Verification: Kern River Cogeneration Company shall maintain records necessary to submit quarterly reports to show start-up or planned shutdown days and daily emissions for those days. This information shall be included in the quarterly reports to be submitted to the CEC and SJVUAPCD.

AQ-18 Pollutant emissions from each combustion turbine prior to being retrofitted with the DLN combustor shall not exceed the following limits, except during times of start-up or shutdown as defined in Condition AQ-17:

Gas Fired Case:

Particulates (PM10)	-	5.0 lbm/hr
Sulfur Compounds	-	0.5 lbm/hr as SO ₂ , 0.6 lbm/hr as SO ₄
Oxides of Nitrogen	-	140.0 lbm/hr as NO ₂
Hydrocarbons	-	12.0 lbm/hr (Non-methane)
Carbon Monoxide	-	21.0 lbm/hr

Pollutant emissions from each DLN CTG shall not exceed the following limits except during times of start-up or shutdown as defined in Condition AQ-17:

Gas Fired Case:

Particulates (PM10)	-	5.0 lbm/hr
Sulfur Compounds	-	0.5 lbm/hr as SO ₂ , 0.6 lbm/hr as SO ₄
Oxides of Nitrogen	-	1137.6 lbm/day
	-	47.4 lbm/hr as NO ₂ , 16.4 ppmv at 15% O ₂ , calculated on a 3 hour rolling average. Not to exceed 55.5 lbm/hr.
Hydrocarbons	-	12.0 lbm/hr (Non-methane)
Carbon Monoxide	-	1056 lbm/day and 25 ppmv at 15% O ₂

Verification:

- a. At least sixty (60) days before the commercial operation date of the cogeneration facility, and 60 days before the permit to operate anniversary date, Kern River Cogeneration Company shall submit to the SJVUAPCD, CARB and CEC a detailed performance test plan for the power plant's AECS. The performance test will be funded by Kern River Cogeneration Company and conducted by a third party. The SJVUAPCD will notify Kern River Cogeneration Company and the CEC of its approval, disapproval or proposed modifications to the plan within 30 days of receipt of the plan. Kern River Cogeneration Company shall incorporate the SJVUAPCD's and CEC's comments on, or modifications to, the plan.
- b. Kern River Cogeneration Company shall notify the SJVUAPCD and CEC within 5 days before the facility begins commercial operation. Kern River Cogeneration Company shall also notify the SJVUAPCD one week prior to the beginning of testing to allow the SJVUAPCD to observe and/or conduct concurrent sampling.
- c. Kern River Cogeneration Company shall submit the results of the compliance test within 30 days of completion of the tests. Kern River Cogeneration Company shall submit to the SJVUAPCD its application for a Permit to Operate via registered mail. Kern River Cogeneration Company shall submit a copy of the application to the CEC within 10 days of its submittal to the SJVUAPCD. The SJVUAPCD shall approve or disapprove the application as prescribed in SJVUAPCD rules.

AQ-19 A continuous emission monitoring system for NO_x (as NO₂), CO and CO₂ shall serve each CTG flue gas stream and shall conform to SJVUAPCD Rules and Regulations.

Verification: Kern River Cogeneration Company shall submit to the SJVUAPCD and CEC, 120 days before the start-up of the facility, a continuous emission monitoring plan. The plan will describe the monitoring equipment, monitoring locations, calibration techniques and schedules, and reporting format, procedures and schedules. Within 60 days of receipt of the plan, the SJVUAPCD will advise KRCC and the CEC of the acceptability of the plan.

AQ-20 All continuous emissions monitoring systems shall be calibrated and operated according to EPA guidelines as specified in CFR Title 40, Part 60, Appendix B.

Verification: The continuous emission monitoring plan submitted by Kern River Cogeneration Company under condition AQ-19 shall include specifications that all continuous emissions monitoring systems shall be calibrated and operated according to EPA guidelines specified in CFR Title 40, Part 60, Appendix B.

AQ-21 (condition deleted - ambient monitoring no longer required)

AQ-22 (condition deleted - ambient monitoring no longer required)

AQ-23 Quarterly continuous monitoring system reports shall be submitted to SJVUAPCD and CEC, as required by EPA regulations as specified in CFR Title 40, Part 58, Appendix B and Part 60 Appendix B for the operating life of the monitoring stations by KRCC.

Verification: Reports shall be submitted on a quarterly basis per the above requirement.

AQ-24 Audits of all monitors shall be conducted by an independent laboratory in accordance with EPA guidelines, witnessed by SJVUAPCD, and reports shall be submitted to SJVUAPCD within 30 days of such audit for the operating life of the monitoring stations by KRCC.

Verification: The audits for all continuous monitors and ambient air monitors will be funded by Kern River Cogeneration Company and performed by an independent laboratory in accordance with EPA monitoring guidelines. The SJVUAPCD, CARB, and CEC staff shall be allowed to witness the audit testing. The audit reports shall be submitted to the SJVUAPCD within 30 days of each audit.

AQ-25 Kern River Cogeneration Company shall provide to SJVUAPCD upon request, a report of fuel purchased.

Verification: Kern River Cogeneration Company shall provide upon request the fuel report, including but not limited to quantity and Btu content (LHV).

AQ-26 Prior to installation, Kern River Cogeneration Company shall provide to SJVUAPCD details of design as they relate to air contaminant generation, emission, or control potential of the following: CTG combustion systems; and NO_x control water injection system.

Verification: Kern River Cogeneration Company shall provide the above information to the SJVUAPCD and CEC 60 days before installation of the equipment identified in Condition AQ-26.

AQ-27 Of the four (4) CTGs at the Sycamore Cogeneration Facility and the four (4) CTGs at the Kern River Cogeneration Facility, five (5) of the CTGs

shall be operational with DLN combusters by August 18, 1998 and all eight (8) CTGs must be operational with DLN combusters by August 18, 2000.

Verification: The Kern River Cogeneration Company shall submit to SJVUAPCD and the CEC on or before September 18, 1998 and September 18, 2000, evidence of compliance with this condition.

AQ-28 The project's black-start diesel I.C. engine shall be used only during emergencies or during yearly maintenance for not for more than one hour per week without prior District approval. Operating records shall be maintained and made available to SJVUAPCD and the CEC staff upon request.

Verification: The Applicant shall maintain and make available to the CEC and the SJVUAPCD operational records pertaining to the emergency black-start diesel I.C. engine.

Date: February 1, 1995

Sally Rakow

SALLY RAKOW

Vice Chair