URS

DOCKET	
09-AFC-1	
DATE	NOV 16 2010
RECD.	NOV 17 2010

November 16, 2010

Dockets Unit
California Energy Commission
1516 Ninth Street, MS 4
Sacramento, CA 95814-5512

Re: Watson Cogeneration Steam and Electric Reliability Project
Application for Certification 09-AFC-1

On behalf of Watson Cogeneration Company, the applicant for the above-referenced Watson Cogeneration Steam and Electric Reliability Project, we are pleased to submit the following:

- Comments on Draft Title V Permit and Preliminary Determination of Compliance, Watson Cogeneration Steam and Electric Reliability Project.

This document is being submitted to the CEC for docketing.

Sincerely,
URS Corporation

Cindy Kyle-Fischer
Project Manager

Enclosure

cc: Proof of Service List

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VIA CERTIFIED MAIL

November 12, 2010

South Coast Air Quality Management District
Attention: Rafik Beshai
21865 Copley Drive
Diamond Bar, CA 91765-4182

Subject: **Comments on Draft Title V Permit and Preliminary Determination of Compliance, Watson Cogeneration Steam and Electric Reliability Project**

Dear Mr. Beshai,

BP would like to take the opportunity of the public comment period to provide the attached comments for the Watson Cogeneration Steam and Electric Reliability Project.

If you have any questions regarding this, then please contact me at (310) 847–5652.

Sincerely,

John Shao
Environmental Systems Supervisor

cc: Env. File 06A01-46391
Alan Solomon, California Energy Commission, 1516 9th Street, Sacramento, CA 95814-5512

ecc: ECC 2010-11-12 Comments on Draft Title V Permit and Preliminary Determination of Compliance
Ross Metersky – BP
Eric Daley - BP
Scott Hawley – BP
Ray Kelly – Edison Mission Energy

Watson Cogeneration Steam and Relability Project
Comments on Draft Title V Permit and Preliminary Determination of Compliance

Process/ System	Device ID or Condition #	Device Description	Condition ID/ Location in PDOC	Comment
Process 17, Systems 1-4	D1226, D1233, D1236, D1239	Cogeneration Units 1-4	Condition A248.1	Please update this condition to indicate that the 8 ppm Nox concentration limit is "averaged over a 60 minute period" similar to condition A248.X1.
Process 17, Systems 1-4	D1226, D1233, D1236, D1239	Cogeneration Units 1-4	Condition A248.2	Please update this condition to indicate that the 2 ppm SOx concentration limit is "averaged over a 60 minute period."
Process 17, Systems 1-4	D1226, D1233, D1236, D1239	Cogeneration Units 1-4	Condition A248.3	Please update this condition to indicate that the 2.5 ppm CO concentration limit is "averaged over a 180 minute period" similar to condition A248.X2.
Process 17, Systems 1-4	D1226, D1233, D1236, D1239	Cogeneration Units 1-4	Condition A248.4	Please update this condition to indicate that the 4.5 ppm CO concentration limit is "averaged over a 60 minute period" similar to condition A248.X3.
Process 17, Systems 1-4	D1226 D1227 D1233 D1234 D1236 D1237 D1239 D1240	Gas Turbine Burner, Duct Gas Turbine Burner, Duct Gas Turbine Burner, Duct Gas Turbine Burner, Duct	Condition D28.1	Condition A63.X2 requires annual source testing for PM-10. Condition D28.1 should be updated to require source testing for both PM and PM-10 in order to align with the requirements of condiiton A63.X2.
Process 17, Systems 1-4	D1227 D1234 D1237 D1240	Duct Burners	Emissions and Requirements Column	The NSPS Db emissions limit of 0.2 lbs/mmbtu was removed from the "Emissions and Requirements" column for these devices. These devices are subject to NSPS Db (see permit condition H23.19) and the 0.2 lbs/mmbtu emissions limit should be included in the permit.

Process 17, Systems 1-5	D1228 D1229 D1231 D1232 D2111 D2112 D2113 D2740 D2775 D2741	Steam Turbine Steam Turbine Condenser Condenser Heat Exchanger RPV 4830 Drum, Knock Out RPV 4831 Heat Exchanger RPV 4832 Compressor, No. 1, RW-0045-087.32 Compressor, No. 2, RW-0046-087.32 Drum, RPV-4800, Slop Collecting	Process 17, Systems 1-5	With the exception of D2111, D2112 and D2113 (Heat Exchanger RPV 4830, Drum Knock Out Pot RPV 4831 and Heat Exchanger RPV 4832), these devices are common to Cogeneration Systems 1-5. These devices should be listed in Process 17, System 9 (Cogeneration System 5) similar to how they are listed in Process 17, Systems 1-4 (Cogeneration Systems 1-4).
Process 17, System 2	D1233	Gas Turbine	Emissions and Requirements Column	The SO2 emissions limit of 150 ppmv in the "Emissions and Requirements" column is incorrectly footnoted with "5B" denoting a limit imposed by a command and control permit. This limit is imposed based on NSPS GG and should be footnoted with a designation "8."
Process 17, System 3	D1236	Gas Turbine	Emissions and Requirements Column	The SO2 emissions limit of 150 ppmv in the "Emissions and Requirements" column is incorrectly footnoted with "5B" denoting a limit imposed by a command and control permit. This limit is imposed based on NSPS GG and should be footnoted with an "8."
Process 17, System 4	D1239	Gas Turbine	Emissions and Requirements Column	The SO2 emissions limit of 150 ppmv in the "Emissions and Requirements" column is incorrectly footnoted with "5B" denoting a limit imposed by a command and control permit. This limit is imposed based on NSPS GG and should be footnoted with an "8."
Process 17, System 9	DX2	Steam Boiler and Duct Burner	Device Description and Emissions and Requirements Column	This device has two parts: 1) an unfired steam generation boiler and 2) a duct burner. Please remove reference to the terms "natural gas", "refinery gas", and "510 mmbtu/hr" in the unfired boiler portion of this equipment description.

Process 17, System 10	CX1	SCR	Device Description	Please remove 1600 CU. FT from the device description as the control device has not yet been designed and may not match this volume specification. Notably, similar catalyst control devices (see Process 17, Systems 5-8) do not include the catalyst volume.
Process 17, System 10	CX2	CO Catalyst	Device Description	Please remove 1600 CU. FT from the device description as the control device has not yet been designed and may not match this volume specification. Notably, similar catalyst control devices (see Process 17, Systems 5-8) do not include the catalyst volume.
Process 17, System 10	DX3	Ammonia Tank	Device Description	Aqueous ammonia of various concentrations may be stored in this tank. Please correct the equipment description to include the phrase "up to 30% aqueous ammonia."
Process 17, System 10	DX2	Steam Boiler and Duct Burner	Connected To Column	The "Connected To" column of duct burner DX2 references connection to stack SX1; however, the "Connected To" column for SX1 does not include reference to DX2. DX2 should be referenced in the "Connected To" column of SX1.
Process 17, System 10	CX1 CX2 CX3 DX3 SX1	SCR, No. 5 Reactor, CO Oxidation Ammonia Injection Storage Tank, Horizontal Stack, Exhaust System for SCR No. 5	S7.X2	This condition specifies that "The operator shall submit to the District for review and approval, final drawings and specifications of the selective catalytic reduction system and carbon monoxide oxidation catalytic reactor to be installed, at least 30 days prior to construction." Please remove the phrase "...for review and approval..." or clarify what type of "approval" process will be required.
Process 17, System 9	DX1 DX2	Gas Turbine and Duct Burner	A63.X1	**Please see comments in the attached Word file.**
Process 17, System 10	CX1	SCR, No. 5	Condition A99.X1	**Please see comments in the attached Word file.**
Process 17, System 9	DX1, DX2	Gas Turbine and Duct Burner	Condition A99.X2	**Please see comments in the attached Word file.**
Process 17, System 9	DX1, DX2	Gas Turbine and Duct Burner	Condition A99.X3	**Please see comments in the attached Word file.**
Process 17, System 9	DX1, DX2	Gas Turbine and Duct Burner	Condition A99.X4	**Please see comments in the attached Word file.**

Process 17, System 10	CX1	SCR, No. 5	Condition 195.X1	Please add additional parentheis to the equation listed in this permit condition as listed below: NH3(ppmv) = [a-(b*c)/1E6]*1E6/b
Process 17, System 9	DX1 DX2	Gas Turbine and Duct Burner	Condition B61.X1	Please remove the last sentence of this condition stating "Refinery gas is defined as a mixture of refinery fuel gas, produced within the refinery, and natural gas obtained from a utility regulated by the Public Utilities Commission (PUC), for which the natural gas component of the mixture shall not exceed 50% of the total, by Higher Heating Value (HHV) content" *and replace with* "Refinery gas is defined as a mixture of refinery fuel gas, produced within the refinery that may be mixed with natural gas obtained from a utility regulated by the Public Utilities Commission (PUC) in order to balance heat content of the fuel gas mixture"
Process 17, System 9	DX1	Gas Turbine	Condition C1.X1	Please update this condition to indicate that the firing rate limit is determined as the firing rate limit averaged over one calendar day.
Process 17, System 9	DX2	Steam Boiler and Duct Burner	Condition C1.X2	Please update this condition to indicate that the firing rate limit is determined as the firing rate limit averaged over one calendar day.
Process 17, System 10	DX3	Ammonia Storage Tank	Condition C157.X	Please remove this condition from this device as the pressure release setting is a safety code requirement and does not have any association with emissions releases from this device.
Process 17, System 9	DX1 DX2	Gas Turbine and Duct Burner	Condition D12.X1	Please remove the last sentence of this condition stating "The purpose of this condition is to demonstrate compliance with the limitation of refinery fuel gas, as having natural gas accounting for no more than 50% of the Higher Heating Value (HHV) of the mixture."
Process 17, System 10	CX1	SCR, No. 5	Condition D12.X2	Many types of thermocouples cannot be "calibrated." Please modify this condition to remove the requirement to calibrate and indicate that the thermocouple must be "...tested at least annually and replaced as needed."

Process 17, System 10	CX1	SCR, No. 5	Condition D12.X3	As this device will be monitored by a CEMS, there is no need for differential pressure monitoring to determine compliance. Please remove this condition from this device.
Process 17, System 10	CX2	CO Catalyst	Condition D12.X5	As this device will be monitored by a CEMS, there is no need for differential pressure monitoring to determine compliance. Please remove this condition from this device.
Process 17, System 10	CX1	SCR, No. 5	Condition D29.X2	This condition requires submittal of the source test repor to the SCAQMD within 45 days of performance of the source test. Please modify this condition to allow for up to 60 days from the date of the test similar to other source testing conditions in the permit.
Process 17, System 10	CX1	SCR, No. 5	Condition E57.X1	Please remove this condition from this device as the catalyst used in the SCR unit is not in a pelletized form and does not generate "catalyst fines."
Process 17, System 10	CX1	SCR, No. 5	Condition E73.X1	**Please see comments in the attached Word file.**
Process 17, System 9	DX1 DX2	Gas Turbine and Duct Burner	Condition K40.X	Please remove the sentence "All moisture concentration shall be expressed in terms of percent corrected to 15 percent oxygen." The intent of this requirement is not clear and appears to be redundant to similar wording in this condition requiring that the results must be reported corrected to 15% O2.
Process 17, Systems 9 and 10	Entire System	Cogeneration System 5	PDOC NSR Discussion (Page 23)	Please include in the PDOC SCAQMD's evaluation of compliance with EPA's PM-2.5 transition policy.
Process 17, Systems 9 and 10	Entire System	Cogeneration System 5	PDOC PSD Discussion (Page 38)	Please update the Regulatoin XVII evaluation of the PDOC to indicate that VOC (precursor to ozone) is considered a non-attainment pollutant.
Process 17, Systems 9 and 10	Entire System	Cogeneration System 5	PDOC CAM Discussion (Page 41)	40 CFR Part 64 (PDOC Page 41): Monitoring of a surrogate parameter may require a CAM plan?
Process 17, Systems 1-4	D1226 D1227 D1233 D1234 D1236 D1237 D1239 D1240	Cogeneration Units 1-4 and Associated duct Burners	Equipment Descriptions/Proposed New Conditions	Please add a permit condition to each of these devices to indicate that the firing rate limit listed in the equipment descriptions for these devices are determined as the firing rate limit averaged over one calendar day.

Process 17, Systems 9 and 10	Entire System	Cogeneration System 5	PDOC Attachment 3 (Page 72)	Attachment 3, Footnote 6 (Page 72 of the PDOC) should be corrected to indicate that the natural gas and refinery fuel gas rations are in "volume percent" not "weight percent."
Process 17, Systems 9 and 10	--	Cogneration System 5	NSPS QQQ	PDOC indicates that NSPS QQQ applies, however it is not referenced in the draft permit for Cogeneration Unit 5.

Watson Cogeneration Steam and Electric Reliability Project
Comments on Draft Title V Permit and Preliminary Determination of Compliance

Condition A63X.1 We note that the standard condition referenced Attachment 4 is incorrect. The equations use an erroneous ft^3/lb-mole value of 385, which corresponds to a "standard condition" of 68 degrees F, but SCAQMD specifies standard conditions at 60 degrees F at one atmosphere, so the correct value in both of the equations should read 379.5 ft^3/lb-mole in the compliance equation. Specifically, Rule 102 (9-11-09) states:

STANDARD CONDITIONS are a gas temperature of 60 degrees F and a gas pressure of 760 mm Hg (14.7 pounds per square inch) absolute.

The standard condition for RECLAIM pollutants is 68 degrees F, but VOCs are not a RECLAIM pollutant. Thus, Rule 102 standard conditions should be applied. Therefore, the ft^3/lb-mole should be 379.5 ft3/lb-mole.

Additionally, the compliance method track VOC emissions are ultimately based on lbs/mmbtu. The emission factors used to develop the VOC emissions were based on lbs/MMSCF where the lower the GCV, the higher the fuel use and thus, the higher the emissions. The emissions for NOx, CO and VOC for the Watson Cogen 5th train are proportional to the lb/h of fuel going to the CTG and duct burners. Fuel flow in lb/h is calculated using the heat input in MMBtu/h corresponding to a particular operating load case divided by the fuel heat of combustion (heat content) in Btu/lb.

Therefore, for a specific operating load case (e.g. CTG at 100% with max fired HRSG duct burners), a higher fuel heat content (calorific value) results in reduced fuel flow in pounds per hour and reduced emissions. The hourly, daily, monthly, and annual limits were based on a refinery gas heat of combustion of 999 Btu/scf. We propose that the emission factor for refinery gas based VOC emissions be based on fuel use rather than the fuel heat rate.

Conditions A99X.1 through A99X.4 and E73X.1 We would like to include the following definitions for cold, warm, hot, and shutdown events.

Gas Turbine Cold Start-up	A gas turbine startup that occurs more than 48 hours after a gas turbine shutdown, and is limited in time to the lesser of (i) the first 180 minutes of continuous fuel flow to the Gas Turbine after fuel flow is initiated or (ii) the period of time from Gas Turbine fuel flow initiation until the Gas Turbine achieves the first of two consecutive CEM data points in compliance with the emission concentration limits of A248.X1-X2.
Gas Turbine Hot/Warm Start-up	A gas turbine startup that occurs within 48 hours of a gas turbine shutdown, and is limited in time to the lesser of (i) the first 60 minutes of continuous fuel flow to the Gas Turbine after fuel flow is initiated or (ii) the period of time from Gas Turbine fuel flow initiation until the Gas Turbine achieves the first of two consecutive CEM data points in compliance with the

	emission concentration limits of A248.X1-X2.
Gas Turbine Shutdown:	The lesser of the 60-minute period immediately prior to the termination of fuel flow to the Gas Turbine or the period of time from non-compliance with any requirement listed in Parts of A248.X1-X2 until termination of fuel flow to the Gas Turbine

Additionally, following the proposed definitions summarized above, BP would like to increase the number of warm/hot startup and shutdown events to 24 warm/hot starts and 29 shutdowns. The proposed changes will not affect the worst case hourly, daily, monthly or annual emissions listed in the PDOC. For example, the worst case hour would still be considered a cold startup event. The worst-case day emissions would still be based on two cold start events (6 hours) plus 18 hours of full duct firing. The worst-case month would still be based on two cold starts plus one warm start. Based on the *Attachment 2 Annual NO_x Calculation*, we present the following identical approach below. Note: no changes to the annual limits as presented in the PDOC are proposed. The following calculation method is presented to demonstrate that the proposed changes to the startup/shutdown events will not increase the emissions above those listed in the application or the PDOC.

NO_x

For Average Annual Case (63.1°F Ambient Temperature/60% Relative Humidity)

100% Combustion Turbine/Unfired Duct Burner Emissions = 7.88 lbs NOx/hr
100% Combustion Turbine/Minimum Fired Duct Burner Emissions = 8.26 lbs NOx/hr
100% Combustion Turbine/Maximum Fired Duct Burner Emissions = 11.35 lbs NOx/hr

Annual Events:

4 Cold Start-Ups = 4 events (3 hours each) x 211.24 lbs/event = 844.96 lbs
24 Warm/Hot Start-Ups = 24 events (1 hour each) x 21.32 lbs/event = 511.68 lbs
29 Shutdowns = 29 events (1 hour each) x 12.85 lbs/event = 372.65 lbs
6568 hours Minimum Duct Fired Case = 6568 hours x 8.26 lbs/hr = 54,251.68 lbs
2100 hours Maximum Duct Fired Case = 2100 hours x 11.35 lbs/hr = 23,835.00 lbs
= 79,816.97 lbs / 2000 lbs/ton = 39.9 tons NOx/year

CO

For Average Annual Case (63.1°F Ambient Temperature/60% Relative Humidity)

100% Combustion Turbine/Unfired Duct Burner Emissions = 7.20 lbs CO/hr
100% Combustion Turbine/Minimum Fired Duct Burner Emissions = 7.54 lbs CO/hr
100% Combustion Turbine/Maximum Fired Duct Burner Emissions = 10.37 lbs CO/hr

Annual Events:

4 Cold Start-Ups = 4 events (3 hours each) x 300.65 lbs/event = 1,202.6 lbs
24 Warm/Hot Start-Ups = 24 events (1 hour each) x 58.72 lbs/event = 1,409.28 lbs
29 Shutdowns = 29 events (1 hour each) x 57.60 lbs/event = 1,670.4 lbs
6568 hours Minimum Duct Fired Case = 6568 hours x 7.54 lbs/hr = 49,522.72 lbs
2100 hours Maximum Duct Fired Case = 2100 hours x 10.37 lbs/hr = 21,777.00 lbs
= 75,582.0lbs / 2000 lbs/ton = 37.79 tons CO/year

VOC

For Average Annual Case (63.1°F Ambient Temperature/60% Relative Humidity)

100% Combustion Turbine/Unfired Duct Burner Emissions = 2.75 lbs VOC/hr
100% Combustion Turbine/Minimum Fired Duct Burner Emissions = 2.88 lbs VOC/hr
100% Combustion Turbine/Maximum Fired Duct Burner Emissions = 3.96 lbs VOC/hr

Annual Events:

4 Cold Start-Ups = 4 events (3 hours each) x 9.95 lbs/event = 39.80 lbs
24 Warm/Hot Start-Ups = 24 events (1 hour each) x 2.61 lbs/event = 62.64 lbs
29 Shutdowns = 29 events (1 hour each) x 4.11 lbs/event = 119.19 lbs
6568 hours Minimum Duct Fired Case = 6568 hours x 2.88 lbs/hr = 18,915.84 lbs
2100 hours Maximum Duct Fired Case = 2100 hours x 3.96 lbs/hr = 8,316.00 lbs
= 27,453.5lbs / 2000 lbs/ton = 13.7 tons VOC/year

For SO_2 and PM10/2.5, the startup emissions are slightly less than full load operation and are not affected by the proposed changes in the number of startups/shutdowns.

Thus, BP proposes to change the annual warm/hot startup and shutdown events to 24 warm/hot starts and 29 shutdown events per year. Based on the preceding methodology, no changes to the short-term or annual emissions are proposed.

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 *WATSON COGENERATION STEAM AND ELECTRICITY RELIABILITY PROJECT*

Docket No. 09-AFC-1

PROOF OF SERVICE LIST
(Revised 2/8/10)

APPLICANT

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DECLARATION OF SERVICE

I, Cindy Kyle-Fischer, declare that on November 16, 2010, I served and filed copies of the attached *Comments on Draft Title V Permit and Preliminary Determination of Compliance, Watson Cogeneration Steam and Electric Reliability Project*, dated November 12, October 2010. 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: **[www.energy.ca.gov/sitingcases/watson]**.

The document has 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 Denver, Colorado 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 ___ paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-1
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.

_____:
Cindy Kyle-Fischer