Delta Energy Center; Plant #12095
1200 Arcy Lane, Pittsburg CA 94565

BACKGROUND

The Delta Energy Center (DEC; plant #12095) and Calpine Pittsburg Power Plant (CPPP; plant #11928) are applying for a change of permit conditions governing the following equipment:

S-1 Combustion Gas Turbine #1, Westinghouse 501FD; 2,003 MM BTU per hour, equipped with dry low-NO_x Combustors, abated by A-1 Selective Catalytic Reduction System

S-2 Heat Recovery Steam Generator #1, equipped with dry low-NO_x Duct Burners, 200 MM BTU per hour, abated by A-1 Selective Catalytic Reduction System

S-3 Combustion Gas Turbine #2, Westinghouse 501FD; 2,003 MM BTU per hour, equipped with dry low-NO_x Combustors, abated by A-2 Selective Catalytic Reduction System

S-4 Heat Recovery Steam Generator #2, equipped with dry low-NO_x Duct Burners, 200 MM BTU per hour, abated by A-2 Selective Catalytic Reduction System

S-5 Combustion Gas Turbine #3, Westinghouse 501FD; 2,003 MM BTU per hour, equipped with dry low-NO_x Combustors, abated by A-3 Selective Catalytic Reduction System

S-6 Heat Recovery Steam Generator #3, equipped with dry low-NO_x Duct Burners, 200 MM BTU per hour, abated by A-3 Selective Catalytic Reduction System

S-67 Gas Turbine T-1, Pratt & Whitney Model FT4A-9GF; 262 MM BTU/hr, abated by A-188 Shell Denox Selective Catalytic Reduction Unit

S-68 Waste Heat Boiler B-1, Struthers-Wells, 155.5 MM BTU/hr, abated by A-188 Shell Denox Selective Catalytic Reduction Unit

S-70 Gas Turbine T-2, Pratt & Whitney Model FT4C-1DGF; 292 MM BTU/hr abated by A-189 Shell Denox Selective Catalytic Reduction Unit

S-71 Waste Heat Boiler B-2, Struthers-Wells, 155.5 MM BTU/hr, abated by A-189 Shell Denox Selective Catalytic Reduction Unit

S-73 Gas Turbine T-3, Pratt & Whitney Model FT4C-1DGF; 330 MM BTU/hr abated by A-190 Shell Denox Selective Catalytic Reduction Unit

S-74 Waste Heat Boiler B-3, Struthers-Wells, 155.5 MM BTU/hr, abated by A-190 Shell Denox Selective Catalytic Reduction Unit

Sources 67, 68, 70, 71, 73, and 74 were originally owned and operated by Dow Chemical Company to provide process steam for their chemical plant. They were sold to Calpine in 1995 and have been operated since then as the Calpine Pittsburg Power Plant. Sources 1 through 6 were permitted as the Delta Energy Center, an 880-MW, combined cycle merchant power plant. DEC started up in March of 2002. Because CPPP and DEC are contiguous, they are considered one facility and will be "merged" together under one plant name and number.

For clarity, S-1, S-3, and S-5 Gas Turbines will be referred to as the Delta Energy Center (DEC) turbines and the S-67, S-69, and S-73 Gas Turbines will be referred to as the Calpine Pittsburg Power Plant (CPPP) turbines. DEC/CPPP is requesting the following condition changes:

- Reduce the annual POC and NO_x emission limits for the DEC gas turbines and HRSGs; eliminate the annual POC limit and increase annual NO_x limit for the CPPP turbines and waste heat boilers
- Reduce the hourly, daily, and annual PM_{10} limits for the DEC gas turbines and HRSGs; eliminate the annual PM_{10} limit for the CPPP turbines and waste heat boilers
- Eliminate the annual CO, SOx, and fuel use limits for the CPPP turbines and waste heat boilers

When the DEC was originally permitted, a baseline was established for the CPPP turbines/waste heat boilers so that contemporaneous emission reductions could be determined. These reductions are summarized in the following table. As grandfathered sources, the CPPP turbines/waste heat boilers were not subject to any permit conditions limiting annual POC, NO_x, CO, PM_{10}, or SO_2 emission rates prior to the permitting of the DEC. Therefore, the annual POC and PM_{10} limits imposed on CPPP during the permitting of the DEC turbines can be removed since they were imposed to insure the permanency of the contemporaneous emission reduction credits. In addition, the CO and SO_2 emission limits for CPPP will be removed.

Table 1
Contemporaneous Emission Reduction Credits Resulting from Reduced Operation of CPPP Gas Turbines and Waste Heat Boilers

Pollutant	Baseline Emissions (lb/yr)	Baseline Emissions (ton/yr)	Proposed Annual Emission Limitations[a] (ton/yr)	Contemporaneous Emission Reductions (ton/yr)
NO_x (as NO_2)	192,414	96.21	18.5	77.71
PM_{10}	40,850.9	20.425	7.1	13.325
POC (as CH_4)	27,233.9	13.62	4.7	8.92

[a]imposed as a permit condition with the permit for DEC; applies to combined emissions from all three CPPP turbines and all three waste heat boilers

Table 2 Summary of Proposed Emission Changes for DEC and CPPP

Pollutant	Current CPPP Annual Emission Limits (ton/yr)	Proposed CPPP Annual Emission Limits (ton/yr)	Current DEC Annual Emission Limits (ton/yr)	Proposed DEC Annual Emission Limits (ton/yr)	Net Change in DEC Annual Emission Limits (ton/yr)
NO_x (as NO_2)	18.5	54.90	276.60	240.20	(18.5)
PM_{10}	7.1	None	136.37	118.26	(18.11)[a]
POC (as CH_4)	4.7	None	73.60	64.68	(8.92)[b]
SO_2	0.6	None	18.42	18.42	0
CO	113.3	None	1,105.40	1,105.40	0

[a]outstanding balance of 18.11-13.325 = 4.785 tons of PM_{10} will be refunded to Calpine

As shown in Table 2, the CPPP annual NO_x emission rate would increase by 34.60 tons per year and the DEC annual NO_x emission rate would decrease by 34.60 tons per year, resulting in no net increase in NO_x emissions. Because the CPPP turbines will still be providing contemporaneous NO_x emission reduction credits (96.21 – 54.90 = 41.31 tons) an annual NO_x emission limit of 54.90 tons per year is required for the CPPP turbines and waste heat boilers.

As shown in Table 2, the DEC annual POC emission rate will decrease by 8.92 tons per year. This equals the contemporaneous emission reduction that occurred at the CPPP turbines as shown in Table 1. Because the offsets are no longer required, the CPPP annual POC limit of 4.7 tons per year will be deleted.

The DEC PM_{10} emission rate would be reduced from 136.37 tpy to 119.26 tpy, as a result of a decrease in the hourly PM_{10} emission rates from 10 lb/hr (gas turbine only) and 12 lb/hr (gas turbine with duct burner firing) to a single emission rate of 9 lb/hr that would apply during all operating modes. This reduction is based upon source testing results from the Los Medanos Energy Center and Calpine Sutter Energy Center which showed PM_{10} emission rates of much less than 9 lb/hr. The annual emission estimates for DEC are based upon the following operating scenario:

- 6,844 hours of baseload (100% load) operation per year for each gas turbine @ 30^{o}F
- 1,500 hours of duct burner firing per HRSG per year with steam injection power augmentation at gas turbine combustors
- 260 one-hour hot start-ups per gas turbine per year
- 52 three-hour cold start-ups per gas turbine per year

Table 3
Revised Annual PM_{10} Emission Rates for DEC Gas Turbines and HRSGs

Source (Operating Mode)	PM_{10} (lb/yr)
S-1, S-3, & S-5 Gas Turbines (780 total 1-hour hot start-ups)	7,020
S-1, S-3, & S-5 Gas Turbines (156 total three-hour cold start-ups)	4,212
S-1, S-3, & S-5 Gas Turbines (20,532 total hours @ 100% load)	184,788
S-1, S-3, & S-5 Gas Turbines and S-2, S-4, & S-5 HRSGs (4,500 total hours w/duct burner firing and steam injection power augmentation)	40,500
Total Emissions (lb/yr)	236,520
(ton/yr)	**118.26**

CRITERIA-POLLUTANT EMISSION SUMMARY

Annual Average Project Emissions Increase:

Pollutant	lb/day	ton/yr
POC	0	0
NO_x	0	0
SO_2	0	0
CO	0	0
PM_{10}	0	0
NPOC	0	0

Daily Maximum Emissions by Source (lb/day):

There will no increase in daily maximum regulated air pollutant emissions.

FACILITY CUMULATIVE INCREASE
(since April 5, 1991)

Not applicable

TOXIC RISK SCREENING ANALYSIS

Compound	**Project Annual Emission Rate (lb/yr)**	**Risk Screening Trigger Level (lb/yr)**
None	N/A	N/A

The proposed condition changes will not result in any increase in toxic air contaminant emissions. Therefore, no health risk assessment is required.

BACT/OFFSET ANALYSIS

Because the proposed permit condition changes will not result in any increase in emissions, the BACT and offset provisions of NSR do not apply.

FEE SUMMARY

Source	Fee Schedule	Filing Fee	Initial Fee	Late Fee	Permit to Operate Fee	Source Sub-Total
Condition Change		$228.00	$0.00	$0.00	$0.00	$238.00
					Grand Total	**$238.00**
					Amount Paid	**$238.00**
					Log Number	**H345U**

STATEMENT OF COMPLIANCE

Because the proposed permit condition changes will not result in any increase in regulated air pollutant emissions, NSR does not apply. The DEC turbines and HRSGs and CPPP gas turbines and waste heat boilers are expected to continue to comply with all applicable regulations and permit conditions.

This project is **categorically exempt** from District CEQA Regulation 2-1-311 pursuant to Regulation 2-1-312.11 (Permit applications for a new/modified source(s) or for process changes which will satisfy the "No Net Emission Increase" provisions of Regulation 2, Rule 2, and for which there is no possibility that the project may have any significant environmental effect in connection with any environmental media or resources other than air quality) and therefore is not subject to CEQA review.

The DEC/CPPP facility is **not** located within 1000 feet of the outer boundary of a K-12 school and is therefore not subject to the public notification requirements of Regulation 2-1-412.

A Toxics Risk Screening Analysis is not required since the proposed permit condition changes will not result in any increase in TAC emission rates. TBACT does not apply to this project.

BACT, PSD, NSPS, and NESHAPS do not apply to this project.

PERMIT CONDITIONS

Condition #17154 will be modified as follows:

Definitions:

Clock Hour:	Any continuous 60-minute period beginning on the hour.
Calendar Day:	Any continuous 24-hour period beginning at 12:00 AM or 0000 hours.

Year:	Any consecutive twelve-month period of time
Heat Input:	All heat inputs refer to the heat input at the higher heating value (HHV) of the fuel, in BTU/scf.
Rolling 3-hour period:	Any three-hour period that begins on the hour and does not include start-up or shutdown periods.
Firing Hours:	Period of time during which fuel is flowing to a unit, measured in fifteen minute increments.
MM BTU:	million british thermal units
Gas Turbine Start-up Mode:	The lesser of the first 180 minutes of continuous fuel flow to the Gas Turbine after fuel flow is initiated or the period of time from Gas Turbine fuel flow initiation until the Gas Turbine achieves two consecutive CEM data points in compliance with the emission concentration limits of conditions ~~27~~22(b) and ~~27~~22(d).
Gas Turbine Shutdown Mode:	The lesser of the 30 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 Conditions ~~27~~22(b) through ~~27~~22(d) until termination of fuel flow to the Gas Turbine.
~~Auxiliary Boiler Start-up:~~	~~The lesser of the first 120 minutes of continuous fuel flow to an Auxiliary Boiler after fuel flow is initiated; or the period of time from fuel flow initiation until the Boiler achieves two consecutive CEM data points in compliance with the emission concentration limits of conditions 37(b) and 37(d).~~
~~Auxiliary Boiler Shutdown:~~	~~The lesser of the 30 minute period immediately prior the termination of fuel flow to the Auxiliary Boiler; or the period of time from non-compliance with any requirement listed in Conditions 37(a) through 37(d) until termination of fuel flow to the auxiliary boiler.~~
Specified PAHs:	The polycyclic aromatic hydrocarbons listed below shall be considered ~~to~~ Specified PAHs for these permit conditions. Any emission limits for Specified PAHs refer to the sum of the emissions for all six of the following compounds. Benzo[a]anthracene Benzo[b]fluoranthene Benzo[k]fluoranthene Benzo[a]pyrene Dibenzo[a,h]anthracene Indeno[1,2,3-cd]pyrene
Corrected Concentration:	The concentration of any pollutant (generally NO_x, CO, or NH_3) corrected to a standard stack gas oxygen concentration. For emission point P-1 (S-1 Gas Turbine and S-2 HRSG), emission

	point P-2 (S-3 Gas Turbine and S-4 HRSG), and emission point P-3 (S-5 Gas Turbine and S-6 HRSG) the standard stack gas oxygen concentration is 15% O_2 by volume on a dry basis. ~~For emission point P-4 (S-7 Auxiliary Boiler #1) and emission point P-5 (S-8 Auxiliary Boiler #2), the standard stack gas oxygen concentration is 3% O_2 by volume on a dry basis.~~
Commissioning Activities:	All testing, adjustment, tuning, and calibration activities recommended by the equipment manufacturers and the DEC construction contractor to insure safe and reliable steady state operation of the gas turbines, heat recovery steam generators, steam turbine, auxiliary boiler, and associated electrical delivery systems.
Commissioning Period:	The Period shall commence when all mechanical, electrical, and control systems are installed and individual system start-up has been completed, or when a gas turbine is first fired, whichever occurs first. The period shall terminate when the plant has completed performance testing, is available for commercial operation, and has initiated sales to the power exchange. The commissioning period shall not exceed 180 days under any circumstances.
Precursor Organic Compounds (POCs):	Any compound of carbon, excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate
CEC CPM:	California Energy Commission Compliance Program Manager
DEC:	Delta Energy Center

Conditions for the Commissioning Period

1. The owner/operator of the Delta Energy Center (DEC) shall minimize emissions of carbon monoxide and nitrogen oxides from S-1, S-3, & S-5 Gas Turbines and S-2, S-4, & S-6 Heat Recovery Steam Generators (HRSGs) to the maximum extent possible during the commissioning period. Conditions 1 through 13 shall only apply during the commissioning period as defined above. Unless otherwise indicated, Conditions 14 through 59 shall apply after the commissioning period has ended. (PSD for NOx and CO)

2. At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the combustors of S-1, S-3, & S-5 Gas Turbines, and S-2, S-4, & S-6 Heat Recovery Steam Generators, shall be tuned to minimize the emissions of carbon monoxide and nitrogen oxides. (PSD for NOx and CO)

3. At the earliest feasible opportunity in accordance with the recommendations of the equipment manufacturers and the construction contractor, the A-1, A-2, and A-3 SCR Systems shall be installed, adjusted, and operated to minimize the emissions of carbon monoxide and nitrogen oxides from S-1, S-3, & S-5 Gas Turbines and S-2, S-4, & S-6 Heat Recovery Steam Generators. (PSD for NOx and CO)

4. Coincident with the steady-state operation of A-1, A-2, & A-3 SCR Systems pursuant to conditions 3, 8, 9, and 10, the Gas Turbines (S-1, S-3, & S-5) and the HRSGs (S-2, S-4, & S-6) shall comply with the NO_x and CO emission limitations specified in conditions 22(a) through 22(d). (BACT)

5. The owner/operator of the DEC shall submit a plan to the District Permit Services Division and the CEC CPM at least four weeks prior to first firing of S-1, S-3, or S-5 Gas Turbines describing the procedures to be followed during the commissioning of the turbines, HRSGs, and steam turbine. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the Dry-Low-NO_x combustors, the installation and operation of the SCR systems and oxidation catalysts, the installation, calibration, and testing of the CO and NO_x continuous emission monitors, and any activities requiring the firing of the Gas Turbines (S-1, S-3, & S-5) and, HRSGs (S-2, S-4, & S-6), without abatement by their respective SCR Systems. (PSD for NOx and CO)

6. During the commissioning period, the owner/operator of the DEC shall demonstrate compliance with conditions 8 through 10 and 12 through the use of properly operated and maintained continuous emission monitors and data recorders for the following parameters:

   firing hours
   fuel flow rates
   stack gas nitrogen oxide emission concentrations,
   stack gas carbon monoxide emission concentrations
   stack gas oxygen concentrations.

   The monitored parameters shall be recorded at least once every 15 minutes (excluding normal calibration periods or when the monitored source is not in operation) for the Gas Turbines (S-1, S-3, & S-5) and HRSGs (S-2, S-4, & S-6). The owner/operator shall use District-approved methods to calculate heat input rates, nitrogen dioxide mass emission rates, carbon monoxide mass emission rates, and NO_x and CO emission concentrations, summarized for each clock hour and each calendar day. All records shall be retained on site for at least 5 years from the date of entry and made available to District personnel upon request. (BACT, offsets)

7. The District-approved continuous monitors specified in condition 6 shall be installed, calibrated, and operational prior to first firing of the Gas Turbines (S-1, S-3, & S-5) and Heat Recovery Steam Generators (S-2, S-4, & S-6). After first firing of the turbines, the detection range of these continuous emission monitors shall be adjusted as necessary to accurately measure the resulting range of CO and NO_x emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval. (BACT, offsets)

8. The total number of firing hours of S-1 Gas Turbine and S-2 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-1 SCR System shall not exceed 300 hours during the commissioning period. Such operation of S-1 Gas Turbine and S-2 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 300 firing hours without abatement shall expire. (PSD for NOx and CO)

9. The total number of firing hours of S-3 Gas Turbine and S-4 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-3 SCR System shall not exceed 300 hours during the commissioning period. Such operation of S-3 Gas Turbine and S-4 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 300 firing hours without abatement shall expire. (PSD for NOx and CO)

10. The total number of firing hours of S-5 Gas Turbine and S-6 Heat Recovery Steam Generator without abatement of nitrogen oxide emissions by A-3 SCR System shall not exceed 300 hours during the commissioning period. Such operation of S-3 Gas Turbine and S-4 HRSG without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR system in place. Upon completion of these activities, the owner/operator shall provide written notice to the District Permit Services and Enforcement Divisions and the unused balance of the 300 firing hours without abatement shall expire. (PSD for NOx and CO)

11. The total mass emissions of nitrogen oxides, carbon monoxide, precursor organic compounds, PM_{10}, and sulfur dioxide that are emitted by the Gas Turbines (S-1, S-3, & S-5) and Heat Recovery Steam Generators (S-2, S-4, & S-6) during the commissioning period shall accrue towards the consecutive twelve-month emission limitations specified in condition ~~49~~37. (offsets)

12. Combined pollutant mass emissions from the Gas Turbines (S-1, S-3, & S-5 and Heat Recovery Steam Generators (S-2, S-4, & S-6) shall not exceed the following limits during the commissioning period. These emission limits shall include emissions resulting from the start-up and shutdown of the Gas Turbines (S-1, S-3, & S-5). (PSD for NOx and CO)

NO_x (as NO_2)	5,266 pounds per calendar day	400.4 pounds per hour
CO	16,272 pounds per calendar day	1,192 pounds per hour
POC (as CH_4)	686 pounds per calendar day	
PM_{10}	756 pounds per calendar day	
SO_2	82.5 pounds per calendar day	

13. Prior to the end of the Commissioning Period, the Owner/Operator shall conduct a District and CEC approved source test using external continuous emission monitors to determine compliance with condition ~~28~~23. The source test shall determine NO_x, CO, and POC emissions during start-up and shutdown of the gas turbines. The POC emissions shall be analyzed for methane and ethane to account for the presence of unburned natural gas. The source test shall include a minimum of three start-up and three shutdown periods. Twenty calendar days before the execution of the source tests, the Owner/Operator shall submit to the District and the CEC Compliance Program Manager (CPM) a detailed source test plan designed to satisfy the requirements of this condition. The District and the CEC CPM will notify the Owner/Operator of any necessary modifications to the plan within 20 working days of receipt of the plan; otherwise, the plan shall be deemed approved. The Owner/Operator shall incorporate the District and CEC CPM comments into the test plan. The Owner/Operator shall notify the District and the CEC CPM within seven (7) working days prior to the planned source testing date. Source test results shall be submitted to the District and the CEC CPM within 30 days of the source testing date. (PSD for NOx and CO)

Conditions for the Gas Turbines (S-1, S-3, & S-5) and the Heat Recovery Steam Generators (HRSGs; S-2, S-4, & S-6).

14. The Gas Turbines (S-1, S-3, and S-5) and HRSG Duct Burners (S-2, S-4, and S-6) shall be fired exclusively on natural gas. (BACT for SO_2 and PM_{10})

15. The combined heat input rate to each power train consisting of a Gas Turbine and its associated HRSG (S-1 & S-2, S-3 & S-4, and S-5 & S-6) shall not exceed 2,125 MM BTU per hour, averaged over any rolling 3-hour period. (PSD for NO_x)

16. The combined heat input rate to each power train consisting of a Gas Turbine and its associated HRSG (S-1 & S-2 and S-3 & S-4) shall not exceed 50,024 MM BTU per calendar day. (PSD for PM_{10})

17. The combined cumulative heat input rate for the Gas Turbines (S-1, S-3, & S-5) and the HRSGs (S-2, S-4, & S-6) shall not exceed 53,188,532 MM BTU per year. (Offsets)

18. The HRSG duct burners (S-2, S-4, and S-6) shall not be fired unless its associated Gas Turbine (S-1, S-3, and S-5, respectively) is in operation. (BACT for NO_x)

19. S-1 Gas Turbine and S-2 HRSG shall be abated by the properly operated and properly maintained A-1 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-1 catalyst bed has reached minimum operating temperature. (BACT for NO_x)

20. S-3 Gas Turbine and S-4 HRSG shall be abated by the properly operated and properly maintained A-2 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-2 catalyst bed has reached minimum operating temperature. (BACT for NO_x)

21. S-5 Gas Turbine and S-6 HRSG shall be abated by the properly operated and properly maintained A-3 Selective Catalytic Reduction (SCR) System whenever fuel is combusted at those sources and the A-3 catalyst bed has reached minimum operating temperature. (BACT for NO_x)

22. The Gas Turbines (S-1, S-3, & S-5) and HRSGs (S-2, S-4, & S-6) shall comply with requirements (a) through (h) under all operating scenarios, including duct burner firing mode and steam injection power augmentation mode. Requirements (a) through (h) do not apply during a gas turbine start-up or shutdown.
(BACT, PSD, and Toxic Risk Management Policy)

    (a) Nitrogen oxide mass emissions (calculated as NO_2) at P-1 (the combined exhaust point for the S-1 Gas Turbine and the S-2 HRSG after abatement by A-1 SCR System) shall not exceed 19.2 pounds per hour or 0.00904 lb/MM BTU (HHV) of natural gas fired. Nitrogen oxide mass emissions (calculated as NO_2) at P-2 (the combined exhaust point for the S-3 Gas Turbine and the S-4 HRSG after abatement by A-3 SCR System) shall not exceed 19.2 pounds per hour or 0.00904 lb/MM BTU (HHV) of natural gas fired. Nitrogen oxide mass emissions (calculated as NO_2) at P-3 (the combined exhaust point for the S-5 Gas Turbine and the S-6 HRSG after abatement by A-3 SCR System) shall not exceed 19.2 pounds per hour or 0.00904 lb/MM BTU (HHV) of natural gas fired. (PSD for NO_x)

    (b) The nitrogen oxide emission concentration at emission points P-1, P-2, and P-3 each shall not exceed 2.5 ppmv, on a dry basis, corrected to 15% O_2, averaged over any 1-hour period. (BACT for NO_x)

(c) Carbon monoxide mass emissions at P-1, P-2, and P-3 each shall not exceed 0.022 lb/MM BTU (HHV) of natural gas fired or 46.75 pounds per hour, averaged over any rolling 3-hour period. If compliance test results or continuous emissions monitoring data indicate that this level cannot be achieved during power steam augmentation operations, the owner/operator may seek approval for a higher CO mass emission limit for this operating mode, not to exceed 113.7 pounds per hour or 0.0535 lb/MM BTU of natural gas fired. (PSD for CO)

(d) The carbon monoxide emission concentration at P-1, P-2, and P-3 each shall not exceed 10 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling 3-hour period. If compliance test results or continuous emissions monitoring data indicate that this level cannot be achieved during power steam augmentation operations, the owner/operator may seek approval for a higher CO emission limit for this operating mode, not to exceed 24.3 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling 3-hour period. (BACT for CO)

(e) Ammonia (NH_3) emission concentrations at P-1, P-2, and P-3 each shall not exceed 10 ppmv, on a dry basis, corrected to 15% O_2, averaged over any rolling 3-hour period. This ammonia emission concentration shall be verified by the continuous recording of the ammonia injection rate to A-1, A-2, and A-3 SCR Systems. The correlation between the gas turbine and HRSG heat input rates, A-1, A-2, and A-3 SCR System ammonia injection rates, and corresponding ammonia emission concentration at emission points P-1, P-2, and P-3 shall be determined in accordance with permit condition #~~52~~42. (TRMP for NH_3)

(f) Precursor organic compound (POC) mass emissions (as CH_4) at P-1, P-2, and P-3 each shall not exceed 5.33 pounds per hour or 0.00251 lb/MM BTU of natural gas fired. (BACT)

(g) Sulfur dioxide (SO_2) mass emissions at P-1, P-2, and P-3 each shall not exceed 1.49 pounds per hour or 0.0007 lb/MM BTU of natural gas fired. (BACT)

(h) Particulate matter (PM_{10}) mass emissions at P-1, P-2, and P-3 each shall not exceed ~~12~~ 9 pounds per hour or ~~0.00565~~ 0.00424 lb/MM BTU of natural gas fired. (BACT)

23. The regulated air pollutant mass emission rates from each of the Gas Turbines (S-1, S-3, and S-5) during a start-up or a shutdown shall not exceed the limits established below. (PSD)

	~~Cold~~ Start-Up (lb/start-up)	~~Hot Start-Up (lb/start-up)~~	Shutdown (lb/shutdown)
Oxides of Nitrogen (as NO_2)	240	~~80~~	~~18.1~~ 80

Carbon Monoxide (CO)	2,514	~~902~~	~~44.1~~ 902
Precursor Organic Compounds (as CH_4)	48	~~16~~	~~8~~ 16

24. No more than one of the Gas Turbines (S-1, S-3, and S-5) shall be in start-up mode at any one time. (PSD)

25. The heat recovery steam generators (S-2, S-4, & S-6) and associated ducting shall be designed such that an oxidation catalyst can be readily installed and properly operated if deemed necessary by the APCO to insure compliance with the CO emission rate limitations of conditions ~~27~~22(c) and ~~27~~22(d). (BACT)

Conditions for Existing Sources
(S-67, S-70 & S-73 Gas Turbines and S-68, S-71, & S-74 Waste Heat Boilers)

26. Cumulative combined emissions from the Calpine/Dow Gas Turbines (S-67, S-70, and S-73) and Waste Heat Boilers (S-68, S-71, and S-74), including emissions generated during Gas Turbine Start-ups and Shutdowns shall not exceed the following limits during any consecutive twelve-month period:

(a) ~~18.5~~ 54.9 tons of NO_x (as NO_2) per year	(Offsets)
~~(b) 113.3 tons of CO per year~~	~~(Cumulative increase)~~
~~(c) 4.7 tons of POC (as CH_4) per year~~	~~(Offsets)~~
~~(d) 7.1 tons of PM_{10} per year~~	~~(Offsets)~~
~~(e) 0.6 tons of SO_2 per year~~	~~(Cumulative increase)~~

27. Deleted ~~The cumulative combined heat input rate to the Calpine/Dow Gas Turbines (S-67, S-70, and S-73) and Waste Heat Boilers (S-68, S-71, and S-74) shall not exceed 2,060,652 million BTU per consecutive twelve-month period. (offsets)~~

28. The combined exhaust gas from S-67 Gas Turbine T-1 and S-68 Waste Heat Boiler #1 shall be abated by A-188 Selective Catalytic Reduction System whenever fuel is combusted at S-67 or S-68 and the A-188 catalyst bed has reached minimum operating temperature. (Regulation 9-9-301.3)

29. The combined exhaust gas from S-70 Gas Turbine T-2 and S-71 Waste Heat Boiler #2 shall be abated by A-189 Selective Catalytic Reduction System whenever fuel is combusted at S-70 or S-71 and the A-189 catalyst bed has reached minimum operating temperature. (Regulation 9-9-301.3)

30. The combined exhaust gas from S-73 Gas Turbine T-3 and S-74 Waste Heat Boiler #3 shall be abated by A-190 Selective Catalytic Reduction System whenever fuel is combusted at S-73 or S-74 and the A-190 catalyst bed has reached minimum operating temperature. (Regulation 9-9-301.3)

31. The owner/operator of S-67, S-70, and S-73 Gas Turbines shall perform a source test to determine the NO_x, ~~CO, and POC~~ mass emission rate~~s~~ and the accuracy of the NO_x CEMs during gas turbine start-ups and shutdowns. ~~The source test shall also determine the accuracy of the NOx CEMs during gas turbine start-ups and shutdowns.~~ If the NO_x CEMs do not accurately assess emissions during start-ups and/or shutdowns (as determined by APCO), then the District-approved source test results for NO_x mass emissions shall be utilized as an emission factor for the purposes of determining compliance with condition 26(a). ~~The District-approved source test results for CO and POC mass emissions shall be utilized as emission factors for the purposes of determining compliance with conditions 26(b) and 26(c).~~ (offsets, cumulative increase)

32 The owner/operator of S-67, S-70, and S-73 Gas Turbines and S-68, S-71, and S-74 Waste Heat Boilers shall perform a District-approved source test for NO_x ~~POC, and PM10~~ mass emission rate~~s~~ in lb/hr and lb/MM BTU of natural gas fired at maximum operating rates at least once every 8,000 hours of turbine operation or every three calendar years, whichever comes first. (offsets, cumulative increase)

33. The owner/operator shall demonstrate compliance with conditions 26(a), 26(c), 26(d), and 27 by using properly operated and maintained continuous monitors (during all hours of operation including equipment Start-up and Shutdown periods) for all of the following parameters:

    (a) Firing Hours and Fuel Flow Rates for each of the following sources: S-67, S-68, S-70, S-71, S-73, and S-74
    (b) Oxygen (O_2) Concentrations and Nitrogen Oxides (NO_x) Concentrations at each of the following exhaust points: P-67, P-73, and P-79.

    The owner/operator shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, the owner/operator shall calculate and record the total firing hours, the average hourly fuel flow rates, and pollutant emission concentrations.

    The owner/operator shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

(c) Combined Heat Input Rate for S-67, S-68, S-70, S-71, S-73, and S-74
(d) Corrected NO_x concentrations, and NO_x mass emissions (as NO_2) at each of the following exhaust points: P-67, P-73, and P-79.

For each source, source grouping, or exhaust point, the owner/operator shall record the parameters specified in conditions 33(c) and 33(d) at least once every 15 minutes (excluding normal calibration periods). As specified below, the owner/operator shall utilize the data specified in 33(c) and 33(d) and the source test results specified in condition 32 to calculate and record the following data:

(e) total combined Heat Input Rate for the previous consecutive twelve month period
(f) on a monthly basis, the cumulative total NO_x mass emissions (as NO_2) ~~POC mass emissions, and PM10 mass emissions~~ for the previous consecutive twelve month period for all six sources (S-67, S-68, S-70, S-71, S-73, and S-74) combined.

(1-520.1, 9-9-501, Offsets)

~~**Conditions for All New Sources**~~
~~**(S-1, S-3, & S-5 Gas Turbines and S-2, S-4, & S-6 HRSGs,)**~~

34. Deleted~~The combined heat input rate to the Gas Turbines (S-1, S-3, and S-5)and HRSGs (S-2, S-4, and S-6) shall not exceed 150,072 million BTU per calendar day. (PSD, CEC Offsets)~~

35. Deleted ~~The cumulative heat input rate to the Gas Turbines (S-1, S-3, and S-5) and HRSGs (S-2, S-4, S-6) combined shall not exceed 53,187,840 million BTU per year. (Offsets)~~

36. Total combined emissions from the Gas Turbines,and HRSGs (S-1, S-2, S-3, S-4, S-5, and S-6) including emissions generated during Gas Turbine start-ups and shutdowns, shall not exceed the following limits during any calendar day:

(a)	2,123.5 pounds of NO_x (as NO_2) per day	(CEQA)
(b)	13,204.4 pounds of CO per day	(PSD)
(c)	503.6 pounds of POC (as CH_4) per day	(CEQA)
(d)	~~876.3~~ 648 pounds of PM_{10} per day	(PSD)
(e)	105.2 pounds of SO_2 per day	(BACT)

37. Cumulative combined emissions from the Gas Turbines, and HRSGs, (S-1, S-2, S-3, S-4, S-5, and S-6) including emissions generated during gas turbine start-ups, and gas turbine shutdowns, shall not exceed the following limits during any consecutive twelve-month period:

(a) ~~276.6~~ 240.2 tons of NO_x (as NO_2) per year (Offsets, PSD)
(b) 1,105.4 tons of CO per year (Cumulative Increase)
(c) ~~73.6~~ 64.68 tons of POC (as CH_4) per year (Offsets)
(d) ~~136.37~~ 118.26 tons of PM_{10} per year (Offsets, PSD)
(e) 18.42 tons of SO_2 per year (Cumulative Increase)

38. The maximum projected annual toxic air contaminant emissions (per condition ~~52~~45) from the Gas Turbines, and HRSGs, combined (S-1, S-2, S-3, S-4, S-5, and S-6) shall not exceed the following limits:

(a) 5,945 pounds of formaldehyde per year
(b) 709 pounds of benzene per year
(c) 120.5 pounds of Specified polycyclic aromatic hydrocarbons (PAHs) per year

unless requirement (d) is satisfied:

(d) The owner/operator shall perform a health risk assessment using the emission rates determined by source test and the most current Bay Area Air Quality Management District approved procedures and unit risk factors in effect at the time of the analysis. This risk analysis shall be submitted to the District and the CEC CPM within 60 days of the source test date. The owner/operator may request that the District and the CEC CPM revise the carcinogenic compound emission limits specified above. If the owner/operator demonstrates to the satisfaction of the APCO that these revised emission limits will result in a cancer risk of not more than 1.0 in one million, the District and the CEC CPM may, at their discretion, adjust the carcinogenic compound emission limits listed above. (TRMP)

39. The owner/operator shall demonstrate compliance with conditions ~~20~~19 through ~~23~~21, 22(a) through 22(d), ~~28~~23, ~~29~~24, ~~32 through 34, 37(a) through 37(d), 46, 47,~~ ~~48~~36(a), ~~48~~36(b), ~~49~~37(a), and ~~49~~37(b) by using properly operated and maintained continuous monitors (during all hours of operation including equipment Start-up and Shutdown periods) for all of the following parameters:

(a) Firing Hours and Fuel Flow Rates for each of the following sources: S-1 and S-2 combined, S-3 and S-4 combined, and S-5 and S-6 combined, ~~S-7, and S-8~~.
(b) Oxygen (O_2) Concentrations, Nitrogen Oxides (NO_x) Concentrations, and Carbon Monoxide (CO) Concentrations at each of the following exhaust points: P-1, P-2, and P-3, ~~P-4, and P-5~~.
(c) Ammonia injection rate at A-1, A-2, and A-3, ~~A-5, and A-7~~ SCR Systems
(d) Steam injection rate at S-1, S-3, & S-5 Gas Turbine Combustors

The owner/operator shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, the owner/operator shall calculate and record the total firing hours, the average hourly fuel flow rates, and pollutant emission concentrations.

The owner/operator shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

(e) Heat Input Rate for each of the following sources: S-1 and S-2 combined, S-3 and S-4 combined, and S-5 and S-6 combined.

(f) Corrected NO_x concentrations, NO_x mass emissions (as NO_2), corrected CO concentrations, and CO mass emissions at each of the following exhaust points: P-1, P-2, and P-3, ~~P-4, and P-5~~.

For each source, source grouping, or exhaust point, the owner/operator shall record the parameters specified in conditions ~~51~~39(e) and ~~51~~39(f) at least once every 15 minutes (excluding normal calibration periods). As specified below, the owner/operator shall calculate and record the following data:

(g) total Heat Input Rate for every clock hour and the average hourly Heat Input Rate for every rolling 3-hour period.

(h) on an hourly basis, the cumulative total Heat Input Rate for each calendar day for the following: each Gas Turbine and associated HRSG combined and all eight sources (S-1, S-2, S-3, S-4, S-5, & S-6) combined.

(i) the average NO_x mass emissions (as NO_2), CO mass emissions, and corrected NO_x and CO emission concentrations for every clock hour and for every rolling 3-hour period.

(j) on an hourly basis, the cumulative total NO_x mass emissions (as NO_2) and the cumulative total CO mass emissions, for each calendar day for the following: each Gas Turbine and associated HRSG combined and all eight sources (S-1, S-2, S-3, S-4, S-5, and S-6) combined.

(k) For each calendar day, the average hourly Heat Input Rates, Corrected NO_x emission concentrations, NO_x mass emissions (as NO_2), corrected CO emission concentrations, and CO mass emissions for each Gas Turbine and associated HRSG combined

(l) on a daily basis, the cumulative total NO_x mass emissions (as NO_2) and cumulative total CO mass emissions, for the previous consecutive twelve month period for all eight sources (S-1, S-2, S-3, S-4, S-5, and S-6) combined.

(1-520.1, 9-9-501, BACT, Offsets, NSPS, PSD, Cumulative Increase)

40. To demonstrate compliance with conditions 22(f), 22(g), 22(h), 23, 36(c) through 36(e), and 37(c) through 37(e), the owner/operator shall calculate and record on a daily basis, the Precursor Organic Compound (POC) mass emissions, Fine Particulate Matter (PM_{10}) mass

emissions (including condensable particulate matter), and Sulfur Dioxide (SO_2) mass emissions from each power train. The owner/operator shall use the actual Heat Input Rates calculated pursuant to condition ~~51~~39, actual Gas Turbine Start-up Times, actual Gas Turbine Shutdown Times, and CEC and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

(a) For each calendar day, POC, PM_{10}, and SO_2 Emissions shall be summarized for: each power train (Gas Turbine and its respective HRSG combined) and all eight sources (S-1, S-2, S-3, S-4, S-5, and S-6) combined.
(b) on a daily basis, the cumulative total POC, PM_{10}, and SO_2 mass emissions, for each year for all eight sources (S-1, S-2, S-3, S-4, S-5, and S-6) combined.

(Offsets, PSD, Cumulative Increase)

41. To demonstrate compliance with Condition ~~50~~38, the owner/operator shall calculate and record on an annual basis the maximum projected annual emissions of: Formaldehyde, Benzene, and Specified PAH's. Maximum projected annual emissions shall be calculated using the maximum Heat Input Rate of 32,912,920 MM BTU/year and the highest emission factor (pounds of pollutant per MM BTU of Heat Input) determined by any source test at any Gas Turbine, and HRSG. (TRMP)

42. Within 60 days of start-up of the DEC, the owner/operator shall conduct a District-approved source test on exhaust point P-1, P-2, or P-3 to determine the corrected ammonia (NH_3) emission concentration to determine compliance with condition ~~27~~22(e). The source test shall determine the correlation between the heat input rates of the gas turbine and associated HRSG, A-1, A-2, or A-3 SCR System ammonia injection rate, and the corresponding NH_3 emission concentration at emission point P-1, P-2, or P-3. The source test shall be conducted over the expected operating range of the turbine and HRSG (including, but not limited to minimum, 70%, 85%, and 100% load) to establish the range of ammonia injection rates necessary to achieve NO_x emission reductions while maintaining ammonia slip levels. Continuing compliance with condition ~~27~~22(e) shall be demonstrated through calculations of corrected ammonia concentrations based upon the source test correlation and continuous records of ammonia injection rate. (TRMP)

43. Within 60 days of start-up of the DEC and on an annual basis thereafter, the owner/operator shall conduct a District-approved source test on exhaust points P-1, P-2, and P-3 while each Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum load (including steam injection power augmentation mode) to determine compliance with Conditions ~~27~~22(a), (b), (c), (d), (f), (g), and (h), while each Gas Turbine and associated Heat Recovery Steam Generator are operating at minimum load to determine compliance with Conditions ~~27~~22(c) and (d), and to verify the accuracy of the continuous emission monitors

required in condition ~~50~~39. The owner/operator shall test for (as a minimum): water content, stack gas flow rate, oxygen concentration, precursor organic compound concentration and mass emissions, nitrogen oxide concentration and mass emissions (as NO_2), carbon monoxide concentration and mass emissions, sulfur dioxide concentration and mass emissions, methane, ethane, and particulate matter (PM_{10}) emissions including condensable particulate matter. (BACT, offsets)

44. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section and the CEC CPM prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements for continuous emission monitors as specified in Volume V of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section and the CEC CPM in writing of the source test protocols and projected test dates at least 7 days prior to the testing date(s). As indicated above, the Owner/Operator shall measure the contribution of condensable PM (back half) to the total PM_{10} emissions. However, the Owner/Operator may propose alternative measuring techniques to measure condensable PM such as the use of a dilution tunnel or other appropriate method used to capture semi-volatile organic compounds. Source test results shall be submitted to the District and the CEC CPM within 60 days of conducting the tests. (BACT)

45. Within 60 days of start-up of the DEC and on an biennial basis (once every two years) thereafter, the owner/operator shall conduct a District-approved source test on exhaust point P-1, P-2, or P-3 while the Gas Turbine and associated Heat Recovery Steam Generator are operating at maximum allowable operating rates to demonstrate compliance with Condition ~~50~~38. Unless the requirements of condition ~~59~~45(b) have been met, the owner/operator shall determine the formaldehyde, benzene, and Specified PAH emission rates (in pounds/MM BTU). If any of the above pollutants are not detected (below the analytical detection limit), the emission concentration for that pollutant shall be deemed to be one half (50%) of the detection limit concentration. (TRMP)

    (a) The owner/operator shall calculate the maximum projected annual emission rate for each pollutant by multiplying the pollutant emission rate (in pounds/MM BTU; determined by source testing) by 53,770,760 MM BTU/year.

    (b) If three consecutive biennial source tests demonstrate that the annual emission rates calculated pursuant to part (a) for any of the compounds listed below are less than the BAAQMD Toxic Risk Management Policy trigger levels shown, then the owner/operator may discontinue future testing for that pollutant:

Benzene	≤	221 pounds/year
Formaldehyde	≤	1,834 pounds/year
Specified PAH's	≤	38 pounds/year

(TRMP)

46. The owner/operator of the DEC shall submit all reports (including, but not limited to monthly CEM reports, monitor breakdown reports, emission excess reports, equipment breakdown reports, etc.) as required by District Rules or Regulations and in accordance with all procedures and time limits specified in the Rule, Regulation, Manual of Procedures, or Enforcement Division Policies & Procedures Manual. (Regulation 2-6-502)

47. The owner/operator of the DEC shall maintain all records and reports on site for a minimum of 5 years. These records shall include but are not limited to: continuous monitoring records (firing hours, fuel flows, emission rates, monitor excesses, breakdowns, etc.), source test and analytical records, natural gas sulfur content analysis results, emission calculation records, records of plant upsets and related incidents. The owner/operator shall make all records and reports available to District and the CEC CPM staff upon request. (Regulation 2-6-501)

48. The owner/operator of the DEC shall notify the District and the CEC CPM of any violations of these permit conditions. Notification shall be submitted in a timely manner, in accordance with all applicable District Rules, Regulations, and the Manual of Procedures. Notwithstanding the notification and reporting requirements given in any District Rule, Regulation, or the Manual of Procedures, the owner/operator shall submit written notification (facsimile is acceptable) to the Enforcement Division within 96 hours of the violation of any permit condition. (Regulation 2-1-403)

49. The stack height of emission points P-1, P-2, and P-3 shall each be at least 144 feet above grade level at the stack base. (PSD, TRMP)

50. The Owner/Operator of DEC shall provide adequate stack sampling ports and platforms to enable the performance of source testing. The location and configuration of the stack sampling ports shall be subject to BAAQMD review and approval.
(Regulation 1-501)

51. Within 180 days of the issuance of the Authority to Construct for the DEC, the Owner/Operator shall contact the BAAQMD Technical Services Division regarding requirements for the continuous monitors, sampling ports, platforms, and source tests required by conditions 42, 43, and 45. All source testing and monitoring shall be conducted in accordance with the BAAQMD Manual of Procedures. (Regulation 1-501)

52. Deleted ~~Prior to the issuance of the BAAQMD Authority to Construct for the Delta Energy Center, the Owner/Operator shall demonstrate that valid emission reduction credits in the amount of 4.67 tons/year of PM_{10} or equivalent as defined by District Regulations 2-2-302.1, 2-2-302.2, and 2-2-303.1 are under their control through enforceable contract or option to purchase agreements or equivalent binding legal documents. (Offsets)~~

53. Deleted ~~Prior to the start of construction of the Delta Energy Center, the Owner/Operator shall provide to the District valid emission reduction credit banking certificates in the amount of 4.67 tons/year of PM_{10} or equivalent as defined by District Regulations 2-2-302.1, 2-2-302.2, and 2-2-303.1. (Offsets)~~

54. Pursuant to BAAQMD Regulation 2, Rule 6, section 404.3, the owner/operator of DEC shall submit an application to the District for a significant modification to the DEC's Federal (Title V) Operating Permit within 12 months of the initial operation of the gas turbines (S-1, S-3, & S-5) or HRSGs (S-2, S-4, & S-6). (Regulation 2-6-404.3)

55. Pursuant to 40 CFR Part 72.30(b)(2)(ii) of the Federal Acid Rain Program, the owner/operator of the Delta Energy Center shall submit an application for a Title IV operating permit at least 24 months prior to the initial operation of any of the gas turbines (S-1, S-3, & S-5) or HRSGs (S-2, S-4, & S-6). (Regulation 2, Rule 7)

56 The Delta Energy Center shall comply with the continuous emission monitoring requirements of 40 CFR Part 75. (Regulation 2, Rule 7)

57. The owner/operator shall take monthly samples of the natural gas combusted at the DEC. The samples shall be analyzed for sulfur content using District-approved laboratory methods. The test results shall be retained on site for a minimum of five years from the test date. (cumulative increase)

58. The cooling towers shall be properly installed and maintained to minimize drift losses. The cooling towers shall be equipped with high-efficiency mist eliminators with a maximum guaranteed drift rate of 0.0005%. The maximum total dissolved solids (TDS) measured at the base of the cooling towers or at the point of return to the wastewater facility shall not be higher than 5,233 ppmw (mg/l). The owner/operator shall sample the water at least once per day. (PSD)

59. The owner/operator shall perform a visual inspection of the cooling tower drift eliminators at least once per calendar year, and repair or replace any drift eliminator components which are broken or missing. Prior to initial operation of the Delta Energy Center, the owner/operator shall have the cooling tower vendor's field representative inspect the cooling tower drift eliminators and certify that the installation was performed in a

satisfactory manner. The CPM may, in years 5 and 15 of cooling tower operation, require the owner/operator to perform a source test to determine the PM_{10} emission rate from the cooling tower to verify continued compliance with the vendor-guaranteed drift rate specified in condition #58. (PSD)

RECOMMENDATION

Issue a **Change of Conditions Letter** for the following sources:

S-1 Combustion Gas Turbine #1, Westinghouse 501FD; 2,003 MM BTU per hour, equipped with dry low-NO_x Combustors, abated by A-1 Selective Catalytic Reduction System

S-2 Heat Recovery Steam Generator #1, equipped with dry low-NO_x Duct Burners, 200 MM BTU per hour, abated by A-1 Selective Catalytic Reduction System

S-3 Combustion Gas Turbine #2, Westinghouse 501FD; 2,003 MM BTU per hour, equipped with dry low-NO_x Combustors, abated by A-2 Selective Catalytic Reduction System

S-4 Heat Recovery Steam Generator #2, equipped with dry low-NO_x Duct Burners, 200 MM BTU per hour, abated by A-2 Selective Catalytic Reduction System

S-5 Combustion Gas Turbine #3, Westinghouse 501FD; 2,003 MM BTU per hour, equipped with dry low-NO_x Combustors, abated by A-3 Selective Catalytic Reduction System

S-6 Heat Recovery Steam Generator #3, equipped with dry low-NO_x Duct Burners, 200 MM BTU per hour, abated by A-3 Selective Catalytic Reduction System

S-67 Gas Turbine T-1, Pratt & Whitney Model FT4A-9GF; 262 MM BTU/hr, abated by A-188 Shell Denox Selective Catalytic Reduction Unit

S-68 Waste Heat Boiler B-1, Struthers-Wells, 155.5 MM BTU/hr, abated by A-188 Shell Denox Selective Catalytic Reduction Unit

S-70 Gas Turbine T-2, Pratt & Whitney Model FT4C-1DGF; 292 MM BTU/hr abated by A-189 Shell Denox Selective Catalytic Reduction Unit

S-71 Waste Heat Boiler B-2, Struthers-Wells, 155.5 MM BTU/hr, abated by A-189 Shell Denox Selective Catalytic Reduction Unit

S-73 Gas Turbine T-3, Pratt & Whitney Model FT4C-1DGF; 330 MM BTU/hr abated by A-190 Shell Denox Selective Catalytic Reduction Unit

S-74 Waste Heat Boiler B-3, Struthers-Wells, 155.5 MM BTU/hr, abated by A-190 Shell Denox Selective Catalytic Reduction Unit

Issue a **banking certificate** in amount of **4.785 tons per year of PM_{10}** to Calpine Corporation.

EXEMPT SOURCES

None

Air Quality Engineer II **Date**