

Bay Area Air Quality Management District

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**Permit Evaluation
and
Statement of Basis
For
Minor Revision of the
MAJOR FACILITY REVIEW PERMIT**

for
**Dynegy Oakland LLC
Facility #B1887**

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July 2007

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Application: #16243

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Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the “potential to emit,” as defined by BAAQMD Regulation 2-6-218, of more than 100 tons per year of a regulated air pollutant.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is B1887.

Dynegy Oakland LLC (Dynegy) has requested a temporary Permit to Operate (TPO) to test fire based biofuel blends in an existing gas turbine, S-5, at Plant #11887 located in Oakland. Three biofuel formulations (soybean, palm, or used cooking oil based) are being proposed for test firing. The TPO is valid for 3 months after issuance during which Dynegy will make a determination whether the biofuel blends are viable fuels for the turbines.

Testing of the biofuels at S-5, one of six turbines, would cause it to be non-compliant with the following requirements of Permit Condition 2571 in the Title V permit:

- #1: Sources S1-S6, Turbines, shall be fired on No. 2 distillate oil or lighter fuel oil exclusively. (basis: NAAQS) [biofuels are not an allowable fuel]
- #2: Fuel usage for each turbine shall not exceed 2,610 gal/hr. (basis: NAAQS) [biofuels have lower heat content than diesel oil, therefore the fuel rate for biofuel than that of diesel oil to achieve the same turbine capacity]
- #8: NO_x emissions from each turbine shall be controlled at all times by water injection except during startup and shutdown. Water-to-fuel ratio shall be maintained in

the range of 60% to 90% (volume basis) during all periods of operation. (basis: NAAQS)
[Water injection rate to be decreased due to high water content in biofuel blends]

For the TPO testing period, it is proposed that S-5 not be subject to sections 1, 2, and 8 of Permit Condition 2571. In addition, S-5 will be subject to TPO permit conditions during the three-month test period (see NSR Permit Evaluation in Appendix).

B. NSR Permit Evaluation

See Appendix for the Permit Evaluation.

C. Supplemental Information

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities.

The proposed Minor Permit Revision does not change this section of the permit.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24).

The proposed Minor Permit Revision does not change this section of the permit.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit

The proposed Minor Permit Revision does not change this section of the permit.

IV. Source-Specific Applicable Requirements

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit.

Complex Applicability Determinations

This permit did not require any complex applicability determinations.

Other changes in this action

The title of Table IV – A will be amended such that the requirements are applicable to Sources S1-S4, and S6 (turbines that are not included in the TPO). A new Table IV – A1 will be created for Source S5, the turbine that will be used for test firing of the biofuels.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

“409.10 A schedule of compliance containing the following elements:

- 10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;
- 10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and
- 10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.”

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 and 2-6-409.10.2.

VI. Permit Conditions

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO which limits a source’s operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- TRMP: This term is used for a condition imposed by the APCO to ensure compliance with limits that arise from the District’s Toxic Risk Management Policy.

All changes to existing permit conditions are clearly shown in “strike-out/underline” format in the proposed permit. When the permit is issued, all “strike-out” language will be deleted and all “underline” language will be retained, subject to consideration of comments received.

Additional monitoring has been added, where appropriate, to assure compliance with the applicable requirements.

Condition #2571:

For S1-S6, Gas Turbines, Conditions #1, #2, and #8 do not apply to S5 during the three month TPO period that will end on 12/4/07.

1. Sources S1-S4, and ~~S6~~S6, Turbines, shall be fired on No. 2 distillate oil or lighter fuel oil exclusively. (basis: NAAQS)
2. Fuel usage for each turbine shall not exceed 2,610 gal/hr. (basis: NAAQS)
- 3a. The maximum NOx emission concentration shall be limited to 75 PPM @ 15% O2, 3-hr average, for each gas turbine exhaust. (basis: NAAQS)
- 3b. The maximum NOx emission concentration shall be limited to 65 PPM @ 15% O2, for each gas turbine exhaust except for startup and shutdown periods per Regulation 9-9-114. (basis: 9-9-302)
4. The fuel used shall have sulfur content less than 0.3% by weight. (basis: NAAQS)
5. The maximum amount of non-methane hydrocarbon emissions shall not exceed 40 lbs/hr total (actual operating time) for all 6 gas turbines. (basis: NAAQS)
6. The maximum total operating time of the 6 gas turbines shall be limited to 5000 hours in any calendar year. (basis: NAAQS)
7. The gas turbine generating units shall not be operated in any single-single-double combination. (basis: NAAQS) Condition #2571:
8. NOx emissions from each turbine shall be controlled at all times by water injection except during startup and shutdown. Water-to-fuel ratio shall be maintained in the range of 60% to 90% (volume basis) during all periods of operation. (basis: NAAQS)
9. All shipments of fuel oil to the facility shall have either a vendor certification or a laboratory analysis of the sulfur and nitrogen contents of the fuel. A composite sample shall be used for the analysis. (basis: District Regulation 2-6-503, 40 CFR 64)
10. A source test shall be conducted at each turbine for every 2,000 hours of operation to verify compliance with the above NOx limits, NMOC limit, and the Regulation 9, Rule 9 limit. (basis: 2-6-409.2)
11. A visible emissions check shall be performed on every turbine for every 400 hours of operation. The visible emissions check shall take place while the equipment is operating and during daylight hours. If any visible emissions are detected, the operator shall take corrective action, and check for visible emissions the next time that the turbine is operated. If no visible emissions are detected, the operator shall continue to check for visible emissions every 400 hours of operation. (basis: 2-6-409.2)

12. To ensure compliance with parts 2, 3, 4, 6, 7, 8, 9, 10, and 11 of this condition, the permit holder shall keep the following records:
 - a. Fuel usage at each turbine
 - b. The water to fuel volume ratio for each turbine on a daily basis when operating.
 - c. Vendor certification of sulfur content of all shipments of fuel to the facility
 - d. Total number of hours of operation for each turbine, totaled on a monthly basis by turbine
 - e. Records of all source tests
 - f. Records of all visible emissions checks, the person performing the check, and any corrective actions taken
(basis: 2-6-409.2)

13. The owner/operator shall record the water-to-fuel ratio during operation on at least a daily basis. (basis: District Regulation 2-6-503, 40 CFR 64)

14. The water and fuel meters shall be accurate to within plus or minus 5 percent. (basis: 40 CFR 64)

15. The water and fuel meters shall be calibrated every two years using the meter manufacturer's specifications for calibration. (basis: 40 CFR 64)

16. The owner/operator shall conduct source testing in accordance with the District's Manual of Procedures to confirm compliance at the water-to-fuel ratio of 60% to 90% on a volume basis and at the current fuel nitrogen content. The owner/operator shall conduct the testing within the first 877 hours of operation after issuance of the renewal permit or two years after issuance of the renewal permit, whichever is earlier. The owner/operator shall submit a testing protocol to the Manager of the District's Source Test Section at least seven (7) days prior to the test for review. The owner/operator shall notify the Manager of the District's Source Test Section at least seven (7) days prior to the test, to provide the District staff the option of observing the testing. Within 45 days of test completion, a comprehensive report of the test results shall be submitted to the Manager of the District's Source Test Section for review and disposition. The test shall be used to verify compliance with the CARB's diesel fuel nitrogen content limit of 500 ppmw. If a turbine has not operated during the permit term, testing is not required. (basis: Regulations 2-1-403, 2-6-503)

Condition No. 23645
For S5 Gas Turbine

1. This Temporary Permit to Operate #16260 shall be effective only during the 3 month period that expires on 12/4/07. (3 months after date of issuance). Source S-5 shall be subject to Permit Condition No. 2571, Parts 1, 2, and 8 after the expiration of the Temporary Permit to Operate #16260.

[Basis: Regulation 2-1-302.3: Permit to Operate, Temporary Operations]

2. The owner/operator shall not exceed a heat release rate of 365 MMBtu/hr at S-5. The

heat release rate shall be calculated using the higher heating value (HHV) of the fuel. [Basis: offsets, cumulative increase]

3. The owner/operator shall fire only No. 2 distillate oil or biofuel at S-5 during Temporary Permit to Operate period as specified in Condition #1. [Basis: offsets, cumulative increase]
4. During the three-month period in Condition 1, the owner/operator may conduct District-approved source tests for each biofuel formulation tested at S-5 for PAH, aldehyde, and aromatic emissions. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall notify the District's Source Test Section in writing of the source test protocols and projected test date(s) at least 7 days prior to the testing date(s). The owner/operator shall submit the source test results to the District within 45 days of the completion of the laboratory sample analysis. The owner/operator may submit a request in writing to the District Engineering Division to modify the source testing requirements. The APCO will determine whether the reasons provided support the request. [Regs 7, and Reg 1-301]
5. During the three-month period in Condition 1, the owner/operator may conduct District-approved source tests for each biofuel formulation tested at S-5 for NO_x, CO, PM₁₀, POC, O₂ and CO₂. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall notify the District's Source Test Section in writing of the source test protocols and projected test date(s) at least 7 days prior to the testing date(s). The owner/operator shall submit the source test results to the District within 45 days the completion of the laboratory sample analysis. The owner/operator may submit a request in writing to the District Engineering Division to modify the source testing requirements. The APCO will determine whether the reasons provided support the request. [Regs 7, and Reg 1-301]
6. The owner/operator shall provide to the District a laboratory analysis of each biofuel formulation. SO₂ emissions shall be determined based on fuel analysis. [Basis: offsets, cumulative increase]
7. The owner/operator shall not exceed NO_x, POC and PM₁₀ baseline emission concentrations at S-5 established in the June, 2007 source test for Distillate oil firing. The owner/operator shall surrender emissions credits as require to offset emissions above baseline concentration levels. [Basis: offsets, cumulative increase]
8. The owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:
 - a. The total amount (in gallons) of each biofuel blend used at S-5 on a daily basis with monthly total
 - b. The total amount (in gallons) of No. 2 distillate used at S-5 on a daily basis with monthly total

- c. The heat release rates, averaged hourly, at S-5 on a daily basis with monthly total.
- d. The number of hours of operation at S-5 on a daily basis with monthly total.

All records shall be retained on-site for five years, from the date of entry, and be made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations. [Basis: offsets, cumulative increase]

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

The District has reviewed all monitoring and has determined the existing monitoring is adequate. Table VII-A1 has been added to include additional requirements for S5 during the TPO period.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section IV of the permit.

IX. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has no permit shields.

X. Revision History

This section contains the details of issuance and revisions for each permit.

D. Alternate Operating Scenarios:

No alternate operating scenario has been requested for this facility.

XI. Glossary

This section contains terms that may be unfamiliar to the general public or EPA.

ACT

Federal Clean Air Act

APCO

Air Pollution Control Officer

ARB

Air Resources Board

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

Basis

The underlying authority which allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CAPCOA

California Air Pollution Control Officers Association

CEM

Continuous Emission Monitor

CEQA

California Environmental Quality Act

CFR

The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CO

Carbon Monoxide

Cumulative Increase

The sum of permitted emissions from each new or modified source since a specified date pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Cumulative increase is used to determine whether threshold-based requirements are triggered.

District

The Bay Area Air Quality Management District

dscf

Dry Standard Cubic Feet

EPA

The federal Environmental Protection Agency.

Excluded

Not subject to any District regulations.

FDOC

Final Determination of Compliance (FDOC), prepared pursuant to District Regulation 2, Rule 3, Power Plants.

Federally Enforceable, FE

All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPs), Part 63 (MACT), and Part 72 (Permits Regulation, Acid Rain), including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP

Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

HAP

Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

HRSG

Heat Recovery Steam Generator

Major Facility

A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MFR

Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Federal Clean Air Act and implemented by District Regulation 2, Rule 6.

MOP

The District's Manual of Procedures.

NAAQS

National Ambient Air Quality Standards

NESHAPS

National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Parts 61 and 63.

NMHC

Non-methane Hydrocarbons (Same as NMOC)

NMOC

Non-methane Organic Compounds (Same as NMHC)

NO_x

Oxides of nitrogen.

NSPS

Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR

New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

Offset Requirement

A New Source Review requirement to provide federally enforceable emission offsets for the emissions from a new or modified source. Applies to emissions of POC, NO_x, PM₁₀, and SO₂.

Phase II Acid Rain Facility

A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC

Precursor Organic Compounds

PM

Particulate Matter

PM₁₀

Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PSD

Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40

CFR Part 52 and District Regulation 2, Rule 2.

PUC

Public Utilities Commission (California)

SIP

State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO₂

Sulfur dioxide

THC

Total Hydrocarbons (NMHC + Methane)

Title V

Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

TOC

Total Organic Compounds (NMOC + Methane, Same as THC)

TPH

Total Petroleum Hydrocarbons

TRMP

Toxic Risk Management Plan

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cfm	=	cubic feet per minute
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m ²	=	square meter

min	=	minute
mm	=	million
MMbtu	=	million btu
MMcf	=	million cubic feet
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
yr	=	year

APPENDIX A
EVALUATION REPORT
APPLICATION 16243

ENGINEERING EVALUATION REPORT
Dynergy Oakland LLC
PLANT NUMBER 11887
APPLICATION NUMBER 16260

I. BACKGROUND

Dynergy Oakland LLC (Dynergy) has submitted an application for a temporary Permit to Operate (TPO) to test fire biofuel blends in an existing gas turbine at Plant #11887 located in Oakland. Three biofuel formulations are being proposed for test firing. According to the applicant, the formulations can be soybean, palm, or used cooking oil based.

The facility is a peaking power plant that generally operates only when there is a high demand for electricity. There are six 27.5 MW (365 MMBtu/hr) distillate oil-fired gas turbines (S1-S6) at this facility. These turbines are arranged such that 2 turbines are connected to a single electric generator via a common shaft. Thus, six turbines are paired with three generators in a “Twin-Pac” configuration. Each turbine runs less than 877 hours/yr pursuant to District Regulation 9-9-302.

The company is proposing conduct test firing at one of the six turbines, Source S-5. Existing Permit Condition 2571 for S-5 limits: fuel to No. 2 distillate or lighter oil (#1), fuel usage at 2,610 gallons per year (#2), and a water-to-fuel injection ratio range of 60% to 90% (#8). The test firing will require that S-5 deviate from the aforementioned requirements. Since this facility is operating under a Title V Permit, Dynergy has also applied to revise the Major Facility Permit under Application # 16243.

The TPO is valid for 3 months (Regulation 2-1-302.2), during which Dynergy will make a determination whether the biofuel blends are viable fuels for the turbines. In addition to performance testing, the applicant will also conduct source tests for emissions of criteria pollutants, including toxics such as aldehydes and PAHs.

Dynergy has applied for a TPO, pursuant to District Regulation 2-1-302, to test biofuel at:

**S-5 Gas Turbine Unit No. 3-Engine B, Turbo Power & Marine 27.5 MW TP4 Twin Pac
365 mmbtu/hr; 38,000 hp; 27.5 MW; w/water injection**

II. EMISSION CALCULATIONS

The testing period will be completed within a three-month period as allowed by the Temporary PO (Regulation 2-1-302.3.2). Neither the District nor the applicant is aware of emissions data from the combustion of biofuels at turbines. The applicant, however, provided emissions data from testing performed in Europe and the data are summarized below.

Table I: Emissions Data For Automobile Internal Combustion Engines^a

Engine	Fuel	O ₂	CO	SO _x	NO _x
		%	ppm	ppm	ppm
1.9 liter	Diesel	20.6	147	51.1	35
1.9 liter	Biofuel	20.6	123	1	1
1.7 liter	Diesel	18.4	330	57	36
1.7 liter	Biofuel	18.4	313	1	33
Normalized to 15% Oxygen ^b					

Engine	Fuel	O ₂	CO	SO _x	NO _x
		%	ppm	ppm	ppm
1.9 liter	Diesel	15	2499	868.7	595
1.9 liter	Biofuel	15	2091	17	17
1.7 liter	Diesel	15	770	133	84
1.7 liter	Biofuel	15	730	2	77

^a test conducted on Fiat automobiles with compression ignition diesel engines.

^b average values

Table II: Emissions Data from Boiler Test^a

Fuel	PM10	NO _x	CO	SO _x	VOC	O ₂	CO ₂
	mg/Nm ³	%	%				
BTZ ^b	17.1	589.3	12.4	359.1	n/a	5.2	13
BTZ/Water	11	487.6	22.8	347.9	n/a	5.3	13.2
BTZ/Biofuel	10.7	559	12.4	339.2	n/a	5.4	13.2
Normalized to 3% Oxygen							
BTZ ^b	19.5	671.6	14.1	409.3	n/a	3	14.8
BTZ/Water	12.6	559.3	26.2	399.0	n/a	3	15.1
BTZ/Biofuel	12.4	645.3	14.3	391.6	n/a	3	15.2
Biofuel	13.4	122.0	138.0	n/a	17.5	3	n/a

^a test conducted on bench scale boiler rated at 75 to 200 kW (~0.25 to 0.68 MMBtu/hr)

^b fuel oil with 0.22% sulfur content

The applicant proposes to conduct source testing (see Exhibit 4) for emissions of criteria pollutants (VOC, CO, NO_x, SO_x, PM), O₂, CO₂, and toxics (PAHs, aldehydes) during the test firing of biofuels. Based on the emissions data above, the criteria pollutant emissions concentrations for diesel and biofuel firing are expected to be similar, with slightly lower concentrations from biodiesel firing.

III. CUMULATIVE EMISSIONS

Regulation 2-1-302.3.3 requires offsets at a ratio of 1.15:1 for increased emissions of NO_x, POC and PM₁₀ during the testing period. Biofuel blends will be used in place of diesel fuel at S-5 turbine for the temporary PO period. Since biofuel firing is expected to emit less NO_x, POC and PM₁₀ than the diesel firing, a displacement of diesel fuel provides contemporaneous emissions credits to offset the NO_x, POC and PM₁₀ emissions increase from testing the biofuels.

The applicant conducted source testing in June, 2007 for diesel oil firing. The results of the tests, when they become available, will form the baseline NO_x, POC and PM₁₀ emissions for S-5. In the event that source testing shows an increase in emissions from biofuel firing, Dynegy has agreed to surrender emissions credits to provide any required offsets.

Table III: Fuel Data^a

Property	No. 2 Diesel	Biodiesel	Biodiesel ^b
Higher (liquid fuel-liquid water) Btu/lb	19,200–20000		
Lower (liquid fuel-water vapor) Btu/lb	18,000–19,000	16,113	11,720
Higher (liquid fuel-liquid water) Btu/gal	138,700		
Lower (liquid fuel-water vapor) Btu/gal @ 60° F	128,400		

^a Data from Exhibit 1: Extraction from the Investigative Report: Fuel Samples

^b Data from Exhibit 3: Fuel #1 Analysis

Permit conditions limiting the maximum firing rate will ensure the total heat release from the combustion of fuel during the test period will not exceed permit levels. Since the fuel characteristics for different biofuel blends can differ significantly (see above Table III), the maximum firing rate will be limited to 360 MMBtu/hr and the number of hours fired will count toward the maximum 877 hours per year of operation.

IV. APPLICABLE REQUIREMENTS

A. Regulation 2-1-302.3: Temporary Permit to Operate

1. Rule Compliance Requirements (2-1-302.3.1)
S-5 is expected to comply with Regulation 1: General Provisions and Definitions; Regulation 6: Particulate Matter and Visible Emissions; Regulation 7: Odorous Substances, Regulation 9: Inorganic Gaseous Pollutants.

The temporary Permit to Operate is not subject to the Best Available Control Technology (BACT) of Regulation 2-2. This will allow Dynegy to test the new biofuels without risking a BACT violation if the new fuels do not work as expected.

2. Offset Requirements (2-1-302.3.3)
Contemporaneous emission offsets generated from the displacement of diesel fuel oil with lower emitting biofuels will satisfy the offsets requirement.

B. CEQA

This project is to be considered exempt from District’s CEQA Regulation 2-1-312.11, which requires that new Projects comply with Regulation 2-2.

C. Regulation 6: Particulate Matter and Visible Emissions

Source S-5 is expected to comply with Regulation 6, including sections 301 (Ringelmann No. 1 Limitation), 302 (Opacity Limitation) with visible emissions not to exceed 20% opacity, and 310 (Particulate Weight Limitation) with particulate matter emissions of less than 0.15 grains per dry standard cubic foot of exhaust gas volume.

Condition No. 2571, Section 11 ensures proper maintenance with the following requirement: A visible emissions check shall be performed on every turbine for every 400 hours of operation. The visible emissions check shall take place while the equipment is operating and during daylight hours. If any visible emissions are detected, the operator shall take

corrective action, and check for visible emissions the next time that the turbine is operated. If no visible emissions are detected, the operator shall continue to check for visible emissions every 400 hours of operation. (basis: 2-6-409.2)

D. Regulation 7: Odorous Substances

Regulation 7-302 prohibits the discharge of odorous substances which remain odorous beyond the facility property line after dilution with four parts odor-free air. The burning of biofuels is expected to comply with this requirement.

E. Regulation 9: Inorganic Gaseous Pollutants

Regulation 9, Rule 1, Sulfur Dioxide

This regulation establishes emission limits for sulfur dioxide from all sources and applies to S-5. Section 301 (Limitations on Ground Level Concentrations) prohibits emissions which would result in ground level SO₂ concentrations in excess of 0.5 ppm continuously for 3 consecutive minutes, 0.25 ppm averaged over 60 consecutive minutes, or 0.05 ppm averaged over 24 hours. Section 302 (General Emission Limitation) prohibits SO₂ emissions in excess of 300 ppmv (dry). Firing biofuel with a nominal 0.8 ppm sulfur content is not expected to cause ground level SO₂ concentrations in excess of the limits specified in Regulation 9-1-301 and should easily comply with section 302.

Regulation 9, Rule 9, Nitrogen Oxides from Stationary Gas Turbines

S-5 is limited by permit conditions and complies with NO_x emissions of 65 ppmvd @ 15% O₂, and 877 hours per year pursuant to 9-9-302.

F. Regulation 10: Standards of Performance for New Stationary Sources

The Major Facility Permit for Dynegy indicate that S-5 is not subject the requirements of Title 40 CFR Part 60. However it is subject to and in compliance with 40 CFR 64 for compliance monitoring requirements.

V. PERMIT CONDITIONS

1. This Temporary Permit to Operate #16260 shall be effective only during the 3 month period that expires on 12/4/07. (3 months after date of issuance). Source S-5 shall be subject to Permit Condition No. 2571 Parts 1, 2 and 8 after the expiration of the Temporary Permit to Operate #16260. [Basis: Regulation 2-1-302.3: Permit to Operate, Temporary Operations]
2. The owner/operator shall not exceed a heat release rate of 365 MMBtu/hr at S-5. The heat release rate shall be calculated using the higher heating value (HHV) of the fuel. [Basis: offsets, cumulative increase]
3. The owner/operator shall fire only No. 2 distillate oil or biofuel at S-5 during the Temporary Permit to Operate period as specified in Condition #1. [Basis: offsets, cumulative increase]
4. During the three-month period in Condition 1, the owner/operator may conduct at District-approved source tests for each biofuel formulation tested at S-5 for PAH, aldehyde, and aromatic emissions. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall notify the District's Source Test Section in writing of the source test protocols and projected test date(s) at least 7 days prior to the testing date(s).

The owner/operator shall submit the source test results to the District within 45 days of the completion of the laboratory sample analysis. The owner/operator may submit a request in writing to the District Engineering Division to modify the source testing requirements. The APCO will determine whether the reasons provided support the request. [Regs 7, and Reg 1-301]

5. During the three-month period in Condition 1, the owner/operator may conduct District-approved source tests for each biofuel formulation tested at S-5 for NO_x, CO, PM₁₀, POC, O₂ and CO₂. The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall notify the District's Source Test Section in writing of the source test protocols and projected test date(s) at least 7 days prior to the testing date(s). The owner/operator shall submit the source test results to the District within 45 days of the completion of the laboratory sample analysis. The owner/operator may submit a request in writing to the District Engineering Division to modify the source testing requirements. The APCO will determine whether the reasons provided support the request. [Regs 7, and Reg 1-301]

6. The owner/operator shall provide to the District a laboratory analysis of each biofuel formulation. SO₂ emissions shall be determined based on fuel analysis. [Basis: offsets, cumulative increase]

7. The owner/operator shall not exceed NO_x, POC and PM₁₀ baseline emission concentrations at S-5 established in the June 2007 source test for distillate oil firing. The owner/operator shall surrender emissions credits as required to offset emissions above baseline concentration levels. [Basis: offsets, cumulative increase]

8. The owner/operator shall maintain the following records and provide all of the data necessary to evaluate compliance with the above parts, including the following information:

- The total amount (in gallons) of each biofuel blend used at S-5 on a daily basis with monthly total.
- The total amount (in gallons) of No. 2 distillate used at S-5 on a daily basis with monthly total.
- The heat release rates, averaged hourly, at S-5 on a daily basis with monthly total.
- The number of hours of operation at S-5 on a daily basis with monthly total.

All records shall be retained on-site for five years, from the date of entry, and be made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations. [Basis: offsets, cumulative increase]

VI. RECOMMENDATIONS

It is recommended that a temporary Permit to Operate be issued for the following:

**S-5 Gas Turbine Unit No. 3-Engine B, Turbo Power & Marine 27.5 MW TP4 Twin Pac
365 mmbtu/hr; 38,000 hp; 27.5 MW; w/water injection**

VII. EXEMPTIONS

None

By: _____

Date: _____