GWF Henrietta Peaker Power Plant Project

(01-AFC-18)

Amendment 2

Prepared for

California Energy Commission

March 2013

Submitted by

GWF Energy, LLC

with assistance from

CH2MHILL®
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SECTION 1

Introduction

1.1 Background

On March 5, 2002, the California Energy Commission (CEC) approved and licensed GWF Energy, LLC's (GWF) Henrietta Peaker Plant (HPP). HPP consists of two GE LM-6000 natural gas-fired combustion turbine generator (CTG) units and is a nominal 95 megawatt (MW) plant. HPP is located on a 20-acre parcel adjacent to the existing Pacific Gas & Electric (PG&E) 70-kilovolt (kV) Henrietta Substation in Kings County, west of the City of Lemoore. HPP was placed in service on July 1, 2002, and initially operated under terms and conditions of a Power Purchase Agreement (PPA) with the California Department of Water Resources (DWR). The DWR PPA was subsequently novated and replaced by a PPA with PG&E for operation of the HPP in simple cycle mode. The HPP currently operates under the terms and conditions of the PG&E PPA.

In October 2008, GWF submitted an amendment petition to allow GWF to convert HPP to a combined cycle power plant with a nominal 25 MW (net) of additional generating capacity. The modifications to the facility would be referred to as the GWF Henrietta Combined Cycle Power Plant (GWF Henrietta) with a new nominal generating capacity of 120 MW net. The CEC approved this amendment in April 2010. GWF sought the ability to convert the HPP to combined cycle mode in anticipation of the need for additional combined cycle generation on the part of PG&E. GWF would fully implement this conversion only if a power purchase contract was secured for the additional megawatts. As it turned out, PG&E did not have a need for additional combined cycle generation, and as discussed above, has instead entered into a PPA with GWF for continued operation in a simple cycle mode. It is possible that PG&E will seek additional combined cycle generation in the future, and therefore, GWF seeks to preserve its ability to convert the HPP pursuant to the approved amendments.

By this petition, GWF seeks to install a reverse osmosis (RO) treatment system as a primary water treatment system to augment the existing treatment system. GWF also seeks to remove the existing limitation on the number of turbine startup and shutdown events to be consistent with the current PPA with PG&E. These modifications are described in more detail below.

In addition to the two proposed modifications, GWF seeks to clarify the interplay between the existing simple cycle license issued by the CEC for the HPP and the associated conditions, and the amendment subsequently approved by the CEC to allow conversion to a combined cycle mode including amendments to certain conditions. Implicit in the decision on the amendment was an understanding that the HPP would continue to comply with the conditions of certification contained in the original license until such time as the modification to combined cycle mode was completed, at which time the Project would be held to the modified conditions. Because this was not made explicit in the decision on the amendment, we believe it would be helpful to obtain clarification on this point to avoid any confusion over the applicable conditions.

1.2 Description of Proposed Amendment

Section 1769 (a)(1)(A) of the CEC Siting Regulations requires a complete description of the proposed modifications. GWF is requesting a change to the water treatment and wastewater disposal process. GWF seeks to install a reverse osmosis (RO) treatment system as a primary water treatment system to augment the existing treatment system. GWF also proposes to discharge the RO reject water to the facility's infiltration/evaporation storm water basin (storm water basin). No excavation will be required for the skid-mounted RO system because it will be installed on an existing concrete pad at the HPP site. The RO system will require the use of a small quantity (400 gallons per year) of an anti-scalant water treatment chemical.

In addition, GWF seeks to remove the existing limitation on the number of turbine startup and shutdown events to allow for an increase in the number of turbine startup and shutdown events from the current 300 to allow for 325 annual starts per turbine to be consistent with the current PPA with PG&E plus additional starts for test or

tuning schedules performed outside of the PPA. This change has been assessed by the San Joaquin Valley Air Pollution Control District (SJVAPCD).

The purpose of this filing is to request an amendment of the HPP project license to allow minor modification of the water treatment system and wastewater disposal process, as well as elimination of the limitation on the number of turbine startup and shutdown events. More detailed information on these proposed changes is provided in Section 2.

1.3 Necessity of Proposed Changes

Sections 1769 (a)(1) (B) and (C) of the CEC Siting Regulations require a discussion of the necessity for the proposed revisions to the HPP project, whether the revisions are based on information known by the petitioner during the certification proceeding. The proposed water treatment and wastewater disposal changes are being proposed to increase the efficiency and reduce the cost of producing process water, and to simplify the wastewater disposal process. The change to the number of turbine startup and shutdown events is necessary to meet GWF's contractual commitment to PG&E's existing PPA. Both requests are based on developments and new information that did not exist at the time that the license was originally granted.

1.4 Environmental Impacts and LORS Compliance

Section 1769 (a)(1)(E) of the CEC Siting Regulations requires that an analysis be conducted to address impacts the proposed revisions may have on the environment, and proposed measures to mitigate significant adverse impacts. Section 1769 (a)(1)(F) requires a discussion of the impacts of proposed revisions on the facility's ability to comply with applicable laws, ordinances, regulations, and standards (LORS). Section 3 discusses the potential impacts of the proposed changes on the environment, as well as the proposed revisions consistency with LORS.

1.5 Consistency of Changes with License

Section 1769 (a)(1)(D) of the CEC Siting Regulations requires an explanation of why the proposed revision should be permitted if it is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the Final Decision. While the proposed revisions are based on new circumstances and information that was not available when the HPP was originally licensed, as discussed in Sections 2 and 3, the new information does not materially undermine the assumptions, rationale, findings, or other bases of the Final Decision for the project.

1.6 Potential Effects on Public, Property Owners and Parties

Sections 1769 (a)(1)(G) and (I) of the CEC Siting Regulations requires a discussion of potential effects of the modifications on the public, nearby property owners and the parties in the application proceedings. This discussion is contained in Section 5.

1.7 List of Property Owners

Section 1769 (a)(1)(H) of the CEC Siting Regulations requires a list of property owners potentially affected by the modifications. This list is contained in Section 6.

SECTION 2

Description of Project Changes

Consistent with the CEC Siting Regulations Section 1769(a)(1)(A), this section includes a description of the requested project modifications, as well as the necessity for the changes.

2.1 Proposed Changes

The HPP is located in Kings County, west of Lemoore, California, and is a simple-cycle peaker plant licensed by the CEC in 2002. In 2008, GWF submitted to the CEC a Petition for License Amendment to modify the plant as a combined cycle facility. These modifications were approved by the CEC in March 2010; however, GWF will not fully implement this conversion until a power purchase contract is secured for the additional megawatts. Currently the facility is permitted to receive surface water delivered from the California Aqueduct that is treated and used for make-up water.

When HPP was originally licensed, GWF proposed installing a multi-pass RO system with an electro-deionizer polishing unit (see HPP AFC Figure 8.14-1 for the annual average water balance). However, during final design, it was determined that the RO system would result in prohibitive costs due to the low usage. GWF determined that water treatment needs could be satisfied by a contractor-based deionization system consisting of resin bottle that are periodically removed from the site for regeneration. This change in the water treatment design was discussed with the CEC CPM, who approved the change.

As noted above, HPP uses a contract-based deionization system and GWF seeks to install a permanent single pass RO treatment system as the primary raw water deionization treatment process. The existing portable water treatment system would be used to supplement or "polish" the RO effluent prior to use in the combustion turbines and the primary treatment system when the RO system is in "by-pass" or out of service.

GWF proposes to discharge the RO reject water to the facility's storm water basin. Figures 2-1a and 2-1b present water balances for peak and annual average water use, respectively. The RO treatment system would require the use of approximately 400 gallons of an anti-scalant for water treatment. This material would be contained in a single tote located near the existing water treatment area. Appendix A is a copy of the Material Safety Data Sheet for the anti-scalant.

The design changes being considered would be constructed within the licensed GWF HPP boundary and would not require any additional acreage for development. No excavation would be required for the skid- mounted RO system, because it would be installed on an existing concrete foundation at the HPP site. These changes would not require a change to the water supply or the annual water usage. The wastewater disposal volume would be significantly reduced. The only waste water requiring off-site disposal would be waste water from the combustion turbine water washes.

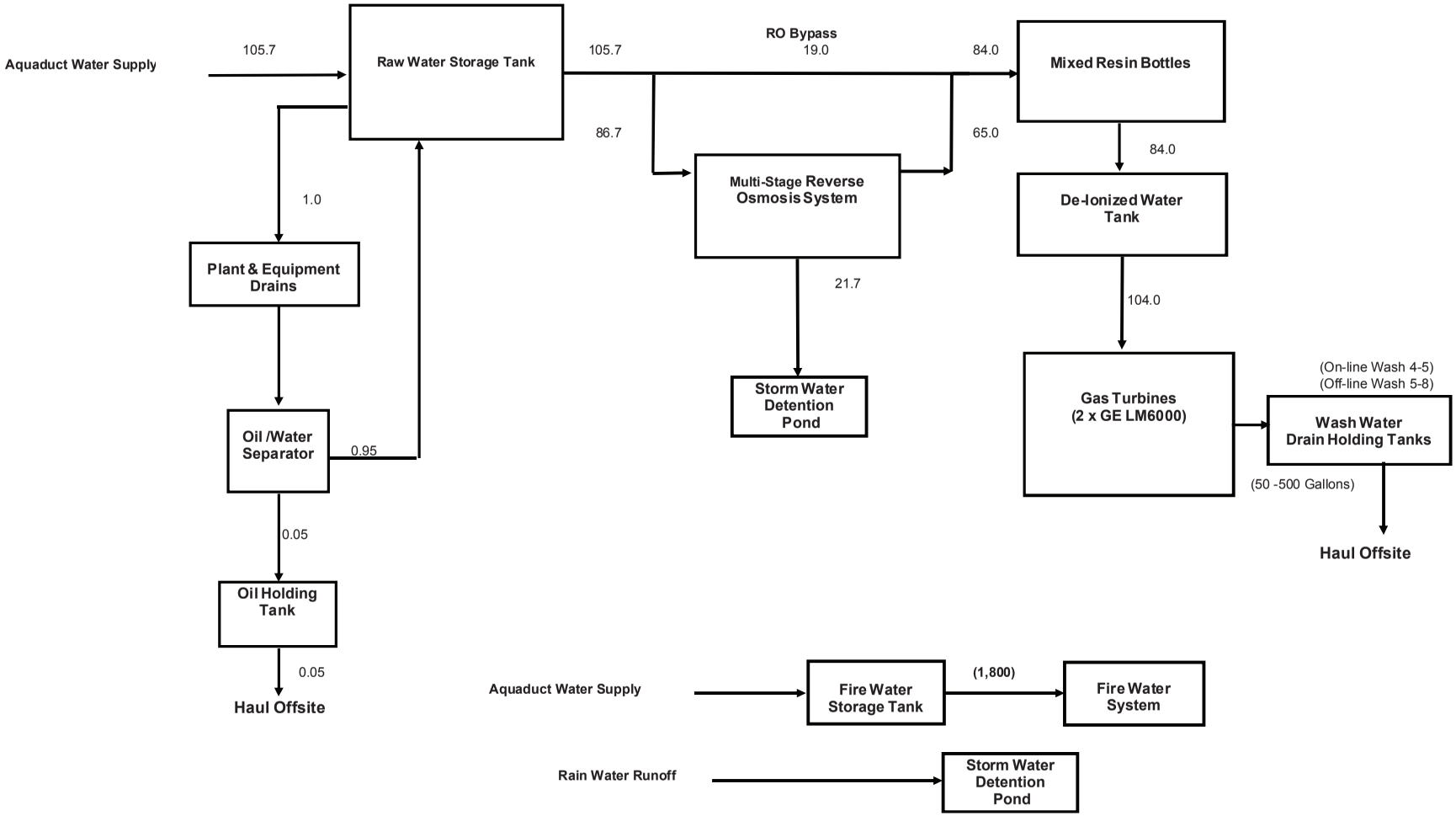
The recent PPA renewal required that the Henrietta project be capable of 325 startup and shutdown events per turbine, which exceeds the currently permitted 300 start-up and shutdown events (see Condition of Certification AQ-18). Therefore, GWF seeks to eliminate the limitation on startup and shutdown event to accommodate the incremental starts reflected in the current PPA. This change would also make the CEC conditions consistent with the Title V Operating Permit issued by the SJVAPCD, which does not contain the subject start-up shut down event limitation. Therefore, this change does not require SJVAPCD approval. Appendix B is a current copy of the HPP's Title V Operating Permit (valid through June 2016).

2.2 Necessity of Proposed Changes

Sections 1769 (a)(1)(B) and (C) of the CEC Siting Regulations require a discussion of the necessity for the proposed changes and whether this modification is based on information that was known by the petitioner during the certification proceeding. (The original design of the licensed HPP used a contractor-provided deionization system to provide make-up water for use in the combustion turbines. This system requires the system components

(treatment bottles) to be replaced periodically for offsite regeneration. The incorporation of the RO treatment system will reduce HPP's overall water treatment costs with no change in annual water use.

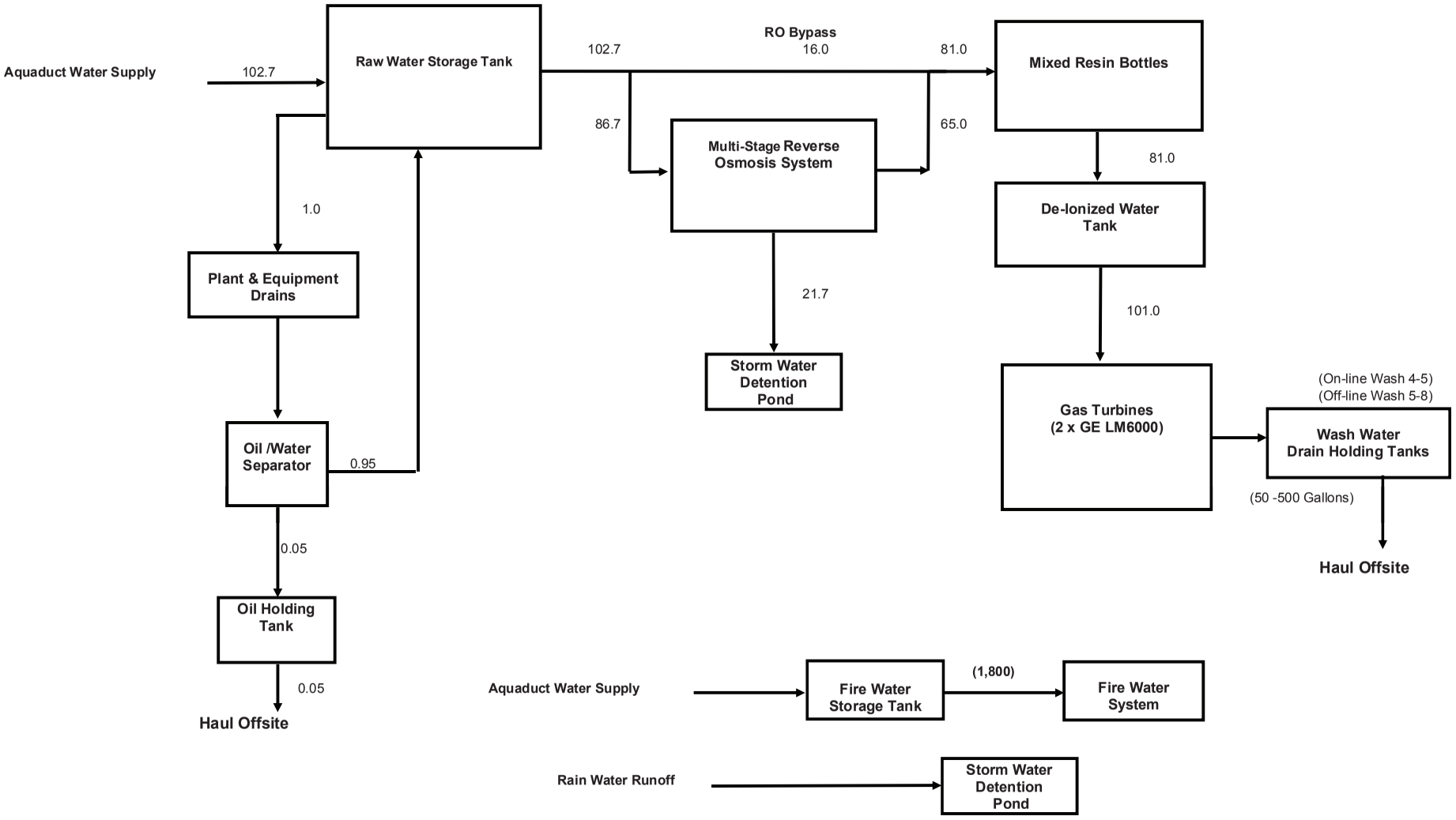
The increase in the number of startup and shutdown events is required to allow the facility to operate in a manner consistent with the terms of the recently approved PPA and prudent industry practices in plant maintenance.



Notes:

1. All water flow rates are in gallons per minute (gpm).
2. Flows indicated in parenthesis ( ) are intermittent.

FIGURE 2-1a
Water Balance, Peak
GWF Henrietta Peaker Plant



Notes:

1. All water flow rates are in gallons per minute (gpm).
2. Flows indicated in parenthesis ( ) are intermittent.

FIGURE 2-1b
Water Balance, Annual Average
GWF Henrietta Peaker Plant

SECTION 3

Environmental Analysis of the Project Changes and LORS Compliance

GWF has reviewed the modifications proposed herein to determine if the changes will result in any environmental impacts that were not originally analyzed by the CEC when it approved the project in 2002, and whether the modifications will affect the ability of the project to comply with applicable LORS. The only disciplines that could be affected by the changes described in this amendment are air quality, hazardous materials, waste management, and water resources.

3.1 Air Quality

The increase in the number of startup and shutdown events is the only change that has the potential to affect air quality. If PG&E were to exercise its rights to the incremental 25 startup and shutdown events per turbine, the result has the potential to increase air emissions on an annual basis. No increase in either hourly or daily air emissions is expected. The estimated annual increase in air emissions is 770 pounds per year for oxides of nitrogen (NO_X) and carbon monoxide (CO), and 70 pounds per year for volatile organic compounds (VOCs).[1] However, GWF is not requesting an increase in any of the emission limits contained in the CEC Decision. The reason for this two-fold: (1) the actual startup and shutdown event emissions for NOx, CO, and VOC are significantly lower than the current license condition and (2) The project is currently permitted for up to 8,000 hours of operation per turbine per year plus 300 startup and shutdown events..[2] GWF is confident that the current emission limits (on both a daily and annual basis) are sufficient to account for the relatively small increase in annual startup/shutdown emissions represented by modifying Condition of Certification AQ-18.
Because no change in the hourly, daily, or annual emissions is being requested, the bases for findings made by the CEC during the previous licensing are still applicable.

In addition, the San Joaquin Valley Air Pollution Control District (District) has removed it's version of Condition AQ-18 from the Henrietta Title V operating permit (see Appendix B).

3.1.1 Laws, Ordinances, Regulations, and Standards

The HPP currently complies with applicable LORS. Increasing the annual number of startup and shutdown events will not alter the HPP from being able to comply with applicable LORS.

3.1.2 Cumulative Impacts

The proposed changes to the HPP will not result in an increase in air emissions. Therefore, no cumulative air quality impacts are expected.

3.2 Hazardous Materials

With the addition of a RO treatment system, a new anti-scalant, which is a hazardous material, will be used onsite. Information regarding storage and use of this new hazardous material is contained in Table 3-1. Table 3-2 presents information about this material, including trade name, chemical name, Chemical Abstract Service (CAS) number, maximum quantities onsite, reportable quantities (RQ), California Accidental Release Program (CalARP) threshold planning quantities (TPQ), and status as Proposition 65 chemicals (chemicals known to be carcinogenic or to cause reproductive problems in humans). Health hazards and flammability data are summarized for this material in Table 3-4, which also contains information on incompatible chemicals (for example, sodium hypochlorite and ammonia).

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[1] Sulfur dioxide and particulate matter emissions during a startup or shutdown are expected to be equivalent or lower than the normal operating emission rates, and are therefore not included.

[2] See California Energy Commission Decision Condition of Certification AQ-13.

This change in materials poses no significant potential for onsite or offsite impacts as a result of the quantities on-site, relative toxicity, and/or environmental mobility. No new significant impacts are expected from the proposed change relative to those presented in the CEC Final Decision.

TABLE 3-1
Use and Location of Hazardous Materials

Chemical	Estimated Delivery Schedule	Use	Quantity	Storage Location	State	Type of Storage
Anti-scalant (e.g., NALCO PermaTreat® PC-191T)	One to two totes per year	Inhibit mineral scale in reverse osmosis (RO) microfiltration (MF) membranes	200 gallons	Water treatment building	Liquid	Continuously onsite

TABLE 3-2
Chemical Inventory, Description of New Hazardous Material Stored Onsite, and Reportable Quantities

Trade Name	Chemical Name	CAS Number	Maximum Quantity Onsite	CERCLA SARA RQ[a]	RQ of Material as Used Onsite[b]	EHS TPQ[c]	Regulated Substance TQ[d]	Prop 65
Anti-scalant (e.g., NALCO PermaTreat® PC-191T)	Anti-scalant	Various	400 gallons	[e]	[e]	[e]	[e]	No

[a] Reportable quantity (RQ) for a pure chemical, per the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Superfund Amendments and Reauthorization Act (SARA) (Ref. 40 Code of Federal Regulations [CFR] 302, Table 302.4). Release equal to or greater than RQ must be reported. Under California law, any amount that has a realistic potential to adversely affect the environment or human health or safety must be reported.

[b] RQ for materials as used onsite. Because some of the hazardous materials are mixtures that contain only a percentage of an RQ, the RQ of the mixture can be different than for a pure chemical. For example, if a material only contains 10 percent of a reportable chemical and the RQ is 100 lb., the RQ for that material would be (100 lb)/(10 percent) = 1,000 lb.

[c] Extremely Hazardous Substance (EHS) threshold planning quantity (TPQ) (Ref. 40 CFR Part 355, Appendix A). If quantities of extremely hazardous materials equal to or greater than the TPQ are handled or stored, they must be registered with the local Administering Agency.

[d] TQ is from 19 California Code of Regulations (CCR) 2770.5 (state) or 40 CFR 68.130 (federal).

[e] No reporting requirement. Chemical has no listed threshold under this requirement.

TABLE 3-3
Toxicity, Reactivity, and Flammability of Hazardous Substances Stored Onsite

Hazardous Materials	Physical Description	Health Hazard	Reactive and Incompatibles	Flammability*
Anti-scalant	Amber liquid	May cause slight irritation to the skin and moderate irritation to the eyes	None	Nonflammable

Notes:
Data were obtained from material safety data sheets (MSDSs) and Lewis, 1991.
Per California Department of Transportation regulations, under 49 CFR 173: “Flammable” liquids have a flash point less than or equal to 141°F; “Combustible” liquids have a flash point greater than 141°F.

3.2.1 Laws, Ordinances, Regulations, and Standards

The HPP currently complies with applicable LORS. The proposed revisions will not change the discussion related to LORS as presented in the CEC Final Decision.

3.2.2 Cumulative Impacts

Although the proposed changes to the HPP will result in a small change to the types of hazardous materials used onsite, these changes in materials pose no significant potential for onsite or offsite impacts as a result of the quantities on- site, relative toxicity, and/or environmental mobility. No new significant cumulative impacts are expected from the proposed changes relative to those presented in the CEC Final Decision. Therefore, no cumulative hazardous materials impacts are expected.

3.3 Waste Management

3.3.1 Construction Waste

During construction, small amounts of construction waste will be generated, such as waste paper, wood, glass, scrap metal, plastics (from packing material), and nonhazardous chemical containers. Managing these wastes will be the responsibility of the contractors. Wastes will be segregated where practical for recycling. Those that cannot be recycled will be placed in covered containers and removed on a regular basis by a certified waste handling contractor for disposal at an appropriate facility.

In addition, small quantities of hazardous materials will also be generated during the construction phase and will consist of used oil, waste paint, and cleaning chemicals. These wastes will be recycled or disposed of at a licensed hazardous waste treatment or disposal facility. Managing these wastes will be the responsibility of the contractor.

3.3.2 Operational Waste

The RO treatment system will generate reject water that will be discharged to the existing storm water basin. GWF has initiated permitting of the RO reject water with the Central Valley Regional Water Quality Control Board (RWQCB). Appendix C is a copy of the Draft RWQCB Waste Discharge Report requirements. The RWQCB indicates that the proposal to discharge the RO reject water to the stormwater basin will not degrade state waters, is consistent with the RWQCB's Basin Plan and is consistent with the RWQCB's Anti-Degradation Policy, as evidenced by the RWQCB's draft Waste Discharge Requirements also presented in Appendix C. Therefore, no operational waste management impacts are expected.

3.3.3 Laws, Ordinances, Regulations, and Standards

The HPP currently complies with applicable LORS. The proposed revisions will not change the discussion related to LORS as presented in the CEC Final Decision.

3.3.4 Cumulative Impacts

Amounts of waste generated are anticipated to be significantly less than those analyzed in the CEC Final Decision; therefore, capacity in local landfills in more than adequate for disposal of any additional wastes. Therefore, no new significant cumulative impacts are expected from the proposed changes relative to those presented in the CEC Final Decision.

3.4 Water Resources

The RO system is skid-mounted and will be installed on an existing foundation. No excavations are expected during the installation and supply and discharge piping for the RO system will be above ground. Minimal construction water will be required, with a majority of the construction water being used to commission the RO system. Therefore, no impacts to water resources are expected during RO system installation.

GWF is not requesting an increase in the operational water use of 160 acre-feet per year analyzed during the licensing of the HPP. Therefore, no impacts to water resources are expected as a result of operational water use.

Discharging the RO reject water to the storm water basin could affect water resources. Based on discussions between GWF and RWQCB staff, the RO reject discharge is not expected to impact state water resources (either ground or surface water).

Discharging the RO reject water to the storm water basin could affect stormwater discharges if the volume of the RO discharge were to reduce the basin's allowable storage capacity required by Kings County (stormwater basin sizing adequate to contain the runoff volume produced by a 10-year, 10-day storm with 1 foot of remaining freeboard). GWF conducted an analysis of the RO discharge's impact on the basin's storage capacity (see Appendix D) and determined that on an annual basis, the RO discharge to the basin would be lower than the expected annual evaporation. However, to avoid the potential of discharging RO reject water to the basin during rain events, GWF would not use the RO system for water treatment and would use the existing water treatment system, which does not have a wastewater discharge. Therefore, the proposed changes will not impact state water resources.

3.4.1 Laws, Ordinances, Regulations, and Standards

The proposed revisions will not change the discussion related to LORS as presented in the CEC Final Decision.

3.4.2 Cumulative Impacts

No new significant cumulative impacts are expected from the proposed changes relative to those presented in the CEC Final Decision.

SECTION 4

Proposed Modifications to the Conditions of Certification

Consistent with the requirements of the CEC Siting Regulations Section 1769 (a)(1)(A), this section addresses the proposed modifications to the project's Conditions of Certification.

GWF proposes to modify Condition of Certification AQ-18 in order to make it consistent with the current SJVAPCD Permit to Operate and the Conditions of Certification. The proposed revision to Condition of Certification AQ-18, item 1, is presented below in an underline/strike-out format. In addition, GWF proposes to modify Condition of Certification Water Quality-4 to reflect the new process wastewater discharge method.

AQ-18: Startup is defined as the period beginning with turbine initial firing until the unit meets the lb/hr and ppmvd emission limits in Condition **AQ-19**. Shutdown is defined as the period beginning with initiation of turbine shutdown sequence and ending with cessation of firing of the gas turbine engine. Startup and shutdown of gas turbine engine shall not exceed a time period of one hour each per occurrence. ~~Startup and shutdown events shall not exceed 300 occurrences per calendar year.~~ [District Rule 2201]

Verification: The project owner/operator shall provide records of compliance as part of the quarterly reports of Condition **AQ-31**.

WATER QUALITY-4: The project owner shall ~~not~~ discharge ~~any~~process waste water ~~off-site~~ to the storm water basin~~, except as delivered to licensed waste disposal contractors as described in Section 2.2.9.1 of the Application for Certification~~ consistent with the RWQCB's Waste Discharge Requirements. The project owner shall provide the CPM with copies of all correspondence with the RWQCB in a timely manner. ~~the contract between the project owner and the waste disposal contractor, as well as copies of the contractor's permits and certifications relative to the hauling and disposal of the process wastes and contact storm water wastes. To the extent practicable, notification of any changes in waste disposal contractor or subcontractors shall be made to the CPM within 30 days of the change.~~

Verification: The project owner shall maintain records consistent with the requirements of the RWQCB's Waste Discharge Requirements and shall submit all copies correspondences with the RWQCB to the CPM within 30 days.~~of wastewater hauled off-site, including hauler's Chain of Custody or other signed and dated receipts. Copies of these records shall be submitted to the CPM as part of the project owner's annual compliance report. Before operation of the power plant, the CPM will be supplied with copies of the waste disposal contract and the contractor's certifications and permits. The CPM shall be notified of any change in the contract, contractors or sub-contractors within 30 days of the change~~.

SECTION 5

Potential Effects on the Public, Property Owners and Parties

The proposed changes described in this amendment will have no effect on the public, nearby property owners, or parties to the certification proceedings beyond what was originally approved by the CEC.

The proposed water treatment and wastewater disposal processes design changes, as well as the increased number of turbine startup and shut down events, are expected to result in comparable impacts to those analyzed during project licensing. Therefore, impacts to the public, nearby property owners and parties are expected to be the same as those analyzed during the licensing of the project.

SECTION 6

List of Property Owners

There are no nearby property owners that will be affected by the proposed modifications.

Appendix A
Material Safety Data Sheet of Anti-scalant

MATERIAL SAFETY DATA SHEET

PRODUCT

PERMATREAT(R) PC-191T

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **PERMATREAT(R) PC-191T**

APPLICATION : REVERSE OSMOSIS ANTISCALANT

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 0 / 1 FLAMMABILITY : 1 / 1 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

2. COMPOSITION/INFORMATION ON INGREDIENTS

Based on our hazard evaluation, none of the substances in this product are hazardous.

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

CAUTION
May cause irritation with prolonged contact.
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water.
Wear suitable protective clothing.
May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause irritation with prolonged contact.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
May cause gastrointestinal irritation.

INHALATION :
May cause irritation of mucous membranes.

SYMPTOMS OF EXPOSURE :
Acute :
A review of available data does not identify any symptoms from exposure not previously mentioned.
Chronic :
A review of available data does not identify any symptoms from exposure not previously mentioned.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

HUMAN HEALTH HAZARDS - CHRONIC :
No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush eye with water for at least 15 minutes while holding eyelids open. If symptoms persist, call a physician.

SKIN CONTACT :
Immediately flush with plenty of water for at least 15 minutes. If symptoms persist, call a physician.

INGESTION :
Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. If symptoms develop, seek medical advice.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :
Use extinguishing media appropriate for surrounding fire. This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable.

FIRE AND EXPLOSION HAZARD :
May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Do not touch spilled material. Ventilate spill area if possible.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Do not contaminate surface water., Do not allow material to contaminate ground water system., Prevent material from entering sewers or waterways.

7. HANDLING AND STORAGE

HANDLING :
Do not take internally. Ensure all containers are labeled. Keep the containers closed when not in use. Avoid eye and skin contact. Keep away from acids and oxidizing agents.

STORAGE CONDITIONS :
Protect product from freezing. Store the containers tightly closed.

SUITABLE CONSTRUCTION MATERIAL :
HDPE (high density polyethylene), Stainless Steel 304, Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use., Polyethylene, Polypropylene, PVC, 100% phenolic resin liner, Epoxy phenolic resin

UNSUITABLE CONSTRUCTION MATERIAL :
Brass, Buna-N, EPDM, Neoprene, Polyurethane, Viton, Hypalon

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended. Local exhaust ventilation may be necessary when dusts or mists are generated.

RESPIRATORY PROTECTION :
If significant mists, vapors or aerosols are generated an approved respirator is recommended.

HAND PROTECTION :
Nitrile gloves, Butyl gloves, PVC gloves, Neoprene gloves

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear chemical splash goggles.

HYGIENE RECOMMENDATIONS :
Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Keep an eye wash fountain available.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Low

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Clear Amber - Green
ODOR	Ammoniacal

SPECIFIC GRAVITY	1.36
DENSITY	11.33 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	10.5
VOC CONTENT	0 % Calculated

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Freezing temperatures.

MATERIALS TO AVOID :
Strong oxidizing agents Strong acids

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon, Oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

The following results are for a similar product.

ACUTE ORAL TOXICITY :

Species	LD50	Test Descriptor
Rat	> 17,800 mg/kg	Similar Product

Rating : Non-Hazardous

ACUTE DERMAL TOXICITY :

Species	LD50	Test Descriptor
Rabbit	> 15,800 mg/kg	Similar Product

Rating : Non-Hazardous

PRIMARY SKIN IRRITATION :

Draize Score	Test Descriptor
0.3 / 8.0	Similar Product

Rating : Slightly irritating

PRIMARY EYE IRRITATION :

Draize Score	Test Descriptor
3.7 / 110.0	Product

Rating : Practically non-irritating

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for a similar product.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Rainbow Trout	96 hrs	> 330 mg/l	Similar Product
Bluegill Sunfish	96 hrs	> 330 mg/l	Similar Product

Channel Catfish	96 hrs	1,212 mg/l	Similar Product
Sheepshead Minnow	96 hrs	8,132 mg/l	Similar Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs		297 mg/l	Similar Product
Grass Shrimp	96 hrs	4,575 mg/l		Similar Product

AQUATIC PLANT RESULTS :

Species	Exposure	EC50/LC50	Test Descriptor
Green Algae (Selenastrum capricornutum)	96 hrs	20 mg/l	Similar Product

CHRONIC FISH RESULTS :

Species	Exposure	NOEC / LOEC	End Point	Test Descriptor
Rainbow Trout	60 Days	23 mg/l / 47.6 mg/l	Growth	Similar Product

CHRONIC INVERTEBRATE RESULTS :

Species	Test Type	NOEC / LOEC	End Point	Test Descriptor
Daphnia magna	3 Brood	25 mg/l / 50 mg/l	Reproduction	Similar Product

AVIAN RESULTS :

Species	Exposure	LC50	Test Descriptor
Bobwhite Quail	14 Days	> 2,510 mg/kg	Similar Product
Mallard Duck	14 Days	> 2,510 mg/kg	Similar Product

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Low

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name :	PRODUCT IS NOT REGULATED DURING TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Based on our hazard evaluation, none of the substances in this product are hazardous.

CERCLA/SUPERFUND, 40 CFR 117, 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found that this product is not hazardous under 29 CFR 1910.1200.

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

NSF INTERNATIONAL :
This product has received NSF/International certification under NSF/ANSI Standard 60 in the reverse osmosis antiscalant category. The official name is "Miscellaneous Water Supply Products." Maximum product application dosage is : 15 mg/l.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
None of the substances are specifically listed in the regulation.

CLEAN AIR ACT, Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
None of the substances are specifically listed in the regulation.

CALIFORNIA PROPOSITION 65 :
This product does not contain substances which require warning under California Proposition 65.

MICHIGAN CRITICAL MATERIALS :
None of the substances are specifically listed in the regulation.

STATE RIGHT TO KNOW LAWS :
None of the substances are specifically listed in the regulation.

NATIONAL REGULATIONS, CANADA :

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) :
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION :
Not considered a WHMIS controlled product.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Chemical Control Law and are listed on the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substance(s) in this preparation are included in or exempted from the EINECS or ELINCS inventories

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Ministry of International Trade & industry List (MITI).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight# CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight# CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH, (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight# (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight# CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS# CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 06/10/2008
Version Number : 1.8

Appendix B
Henrietta Peaker Plant Title V Operating Permit

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

Permit to Operate

FACILITY: C-3929 **EXPIRATION DATE:** 06/30/2016

LEGAL OWNER OR OPERATOR: GWF ENERGY LLC - HENRIETTA
MAILING ADDRESS: 4300 RAILROAD AVE
PITTSBURG, CA 94565

FACILITY LOCATION: 25TH AVE
LEMOORE, CA

FACILITY DESCRIPTION: ELECTRICAL GENERATION

The Facility's Permit to Operate may include Facility-wide Requirements as well as requirements that apply to specific permit units.

This Permit to Operate remains valid through the permit expiration date listed above, subject to payment of annual permit fees and compliance with permit conditions and all applicable local, state, and federal regulations. This permit is valid only at the location specified above, and becomes void upon any transfer of ownership or location. Any modification of the equipment or operation, as defined in District Rule 2201, will require prior District approval. This permit shall be posted as prescribed in District Rule 2010.

Seyed Sadredin
Executive Director / APCO

David Warner
Director of Permit Services

Central Regional Office • 1990 E. Gettysburg Ave. • Fresno, CA 93726 • (559) 230-5900 • Fax (559) 230-6061

San Joaquin Valley
Air Pollution Control District

FACILITY: C-3929-0-1 **EXPIRATION DATE:** 06/30/2016

FACILITY-WIDE REQUIREMENTS

1. No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
2. The owner or operator shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100, 6.1; County Rules 110 (Fresno, Stanislaus, San Joaquin); 109 (Merced); 113 (Madera); and 111 (Kern, Tulare, Kings)] Federally Enforceable Through Title V Permit
3. The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100, 7.0; County Rules 110 (Fresno, Stanislaus, San Joaquin); 109 (Merced); 113 (Madera); and 111 (Kern, Tulare, Kings)] Federally Enforceable Through Title V Permit
4. The owner or operator of any stationary source operation that emits more than 25 tons per year of nitrogen oxides or reactive organic compounds, shall provide the District annually with a written statement in such form and at such time as the District prescribes, showing actual emissions of nitrogen oxides and reactive organic compounds from that source. [District Rule 1160, 5.0] Federally Enforceable Through Title V Permit
5. Any person building, altering or replacing any operation, article, machine, equipment, or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants, shall first obtain an Authority to Construct (ATC) from the District unless exempted by District Rule 2020 (12/20/07). [District Rule 2010, 3.0 and 4.0; and 2020] Federally Enforceable Through Title V Permit
6. The permittee must comply with all conditions of the permit including permit revisions originated by the District. All terms and conditions of a permit that are required pursuant to the Clean Air Act (CAA), including provisions to limit potential to emit, are enforceable by the EPA and Citizens under the CAA. Any permit noncompliance constitutes a violation of the CAA and the District Rules and Regulations, and is grounds for enforcement action, for permit termination, revocation, reopening and reissuance, or modification; or for denial of a permit renewal application. [District Rules 2070, 7.0; 2080; and 2520, 9.9.1 and 9.13.1] Federally Enforceable Through Title V Permit
7. A Permit to Operate or an Authority to Construct shall not be transferred unless a new application is filed with and approved by the District. [District Rule 2031] Federally Enforceable Through Title V Permit
8. Every application for a permit required under Rule 2010 (12/17/92) shall be filed in a manner and form prescribed by the District. [District Rule 2040] Federally Enforceable Through Title V Permit
9. The operator shall maintain records of required monitoring that include: 1) the date, place, and time of sampling or measurement; 2) the date(s) analyses were performed; 3) the company or entity that performed the analysis; 4) the analytical techniques or methods used; 5) the results of such analysis; and 6) the operating conditions at the time of sampling or measurement. [District Rule 2520, 9.4.1] Federally Enforceable Through Title V Permit
10. The operator shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, or report. Support information includes copies of all reports required by the permit and, for continuous monitoring instrumentation, all calibration and maintenance records and all original strip-chart recordings. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit

FACILITY-WIDE REQUIREMENTS CONTINUE ON NEXT PAGE

11. The operator shall submit reports of any required monitoring at least every six months unless a different frequency is required by an applicable requirement. All instances of deviations from permit requirements must be clearly identified in such reports. [District Rule 2520, 9.5.1] Federally Enforceable Through Title V Permit

12. Deviations from permit conditions must be promptly reported, including deviations attributable to upset conditions, as defined in the permit. For the purpose of this condition, promptly means as soon as reasonably possible, but no later than 10 days after detection. The report shall include the probable cause of such deviations, and any corrective actions or preventive measures taken. All required reports must be certified by a responsible official consistent with section 10.0 of District Rule 2520 (6/21/01). [District Rules 2520, 9.5.2 and 1100, 7.0] Federally Enforceable Through Title V Permit

13. If for any reason a permit requirement or condition is being challenged for its constitutionality or validity by a court of competent jurisdiction, the outcome of such challenge shall not affect or invalidate the remainder of the conditions or requirements in that permit. [District Rule 2520, 9.7] Federally Enforceable Through Title V Permit

14. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. [District Rule 2520, 9.8.2] Federally Enforceable Through Title V Permit

15. The permit may be modified, revoked, reopened and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. [District Rule 2520, 9.8.3] Federally Enforceable Through Title V Permit

16. The permit does not convey any property rights of any sort, or any exclusive privilege. [District Rule 2520, 9.8.4] Federally Enforceable Through Title V Permit

17. The Permittee shall furnish to the District, within a reasonable time, any information that the District may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the District copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee may furnish such records directly to EPA along with a claim of confidentiality. [District Rule 2520, 9.8.5] Federally Enforceable Through Title V Permit

18. The permittee shall pay annual permit fees and other applicable fees as prescribed in Regulation III of the District Rules and Regulations. [District Rule 2520, 9.9] Federally Enforceable Through Title V Permit

19. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to enter the permittee's premises where a permitted source is located or emissions related activity is conducted, or where records must be kept under condition of the permit. [District Rule 2520, 9.13.2.1] Federally Enforceable Through Title V Permit

20. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit. [District Rule 2520, 9.13.2.2] Federally Enforceable Through Title V Permit

21. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to inspect at reasonable times any facilities, equipment, practices, or operations regulated or required under the permit. [District Rule 2520, 9.13.2.3] Federally Enforceable Through Title V Permit

22. Upon presentation of appropriate credentials, a permittee shall allow an authorized representative of the District to sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with the permit or applicable requirements. [District Rule 2520, 9.13.2.4] Federally Enforceable Through Title V Permit

23. No air contaminants shall be discharged into the atmosphere for a period or periods aggregating more than 3 minutes in any one hour which is as dark or darker than Ringelmann #1 or equivalent to 20% opacity and greater, unless specifically exempted by District Rule 4101 (02/17/05). If the equipment or operation is subject to a more stringent visible emission standard as prescribed in a permit condition, the more stringent visible emission limit shall supersede this condition. [District Rule 4101, and County Rules 401 (in all eight counties in the San Joaquin Valley)] Federally Enforceable Through Title V Permit

FACILITY-WIDE REQUIREMENTS CONTINUE ON NEXT PAGE

24. No person shall manufacture, blend, repackage, supply, sell, solicit or apply any architectural coating with a VOC content in excess of the corresponding limit specified in Table of Standards 1 effective until 12/30/10 or Table of Standards 2 effective on and after 1/1/11 of District Rule 4601 (12/17/09) for use or sale within the District. [District Rule 4601, 5.1] Federally Enforceable Through Title V Permit

25. All VOC-containing materials subject to Rule 4601 (12/17/09) shall be stored in closed containers when not in use. [District Rule 4601, 5.4] Federally Enforceable Through Title V Permit

26. The permittee shall comply with all the Labeling and Test Methods requirements outlined in Rule 4601 sections 6.1 and 6.3 (12/17/09). [District Rule 4601, 6.1 and 6.3] Federally Enforceable Through Title V Permit

27. With each report or document submitted under a permit requirement or a request for information by the District or EPA, the permittee shall include a certification of truth, accuracy, and completeness by a responsible official. [District Rule 2520, 9.13.1 and 10.0] Federally Enforceable Through Title V Permit

28. If the permittee performs maintenance on, or services, repairs, or disposes of appliances, the permittee shall comply with the standards for Recycling and Emissions Reduction pursuant to 40 CFR Part 82, Subpart F. [40 CFR 82 Subpart F] Federally Enforceable Through Title V Permit

29. If the permittee performs service on motor vehicles when this service involves the ozone-depleting refrigerant in the motor vehicle air conditioner (MVAC), the permittee shall comply with the standards for Servicing of Motor Vehicle Air Conditioners pursuant to all the applicable requirements as specified in 40 CFR Part 82, Subpart B. [40 CFR Part 82, Subpart B] Federally Enforceable Through Title V Permit

30. Disturbances of soil related to any construction, demolition, excavation, extraction, or other earthmoving activities shall comply with the requirements for fugitive dust control in District Rule 8021 unless specifically exempted under Section 4.0 of Rule 8021 (8/19/2004) or Rule 8011 (8/19/2004). [District Rule 8021 and 8011] Federally Enforceable Through Title V Permit

31. Outdoor handling, storage and transport of any bulk material which emits dust shall comply with the requirements of District Rule 8031, unless specifically exempted under Section 4.0 of Rule 8031 (8/19/2004) or Rule 8011 (8/19/2004). [District Rule 8031 and 8011] Federally Enforceable Through Title V Permit

32. An owner/operator shall prevent or cleanup any carryout or trackout in accordance with the requirements of District Rule 8041 Section 5.0, unless specifically exempted under Section 4.0 of Rule 8041 (8/19/2004) or Rule 8011 (8/19/2004). [District Rule 8041 and 8011] Federally Enforceable Through Title V Permit

33. Whenever open areas are disturbed, or vehicles are used in open areas, the facility shall comply with the requirements of Section 5.0 of District Rule 8051, unless specifically exempted under Section 4.0 of Rule 8051 (8/19/2004) or Rule 8011 (8/19/2004). [District Rule 8051 and 8011] Federally Enforceable Through Title V Permit

34. Any paved road or unpaved road shall comply with the requirements of District Rule 8061 unless specifically exempted under Section 4.0 of Rule 8061 (8/19/2004) or Rule 8011 (8/19/2004). [District Rule 8061 and Rule 8011] Federally Enforceable Through Title V Permit

35. Any unpaved vehicle/equipment area that anticipates more than 50 Average annual daily Trips (AADT) shall comply with the requirements of Section 5.1.1 of District Rule 8071. Any unpaved vehicle/equipment area that anticipates more than 150 vehicle trips per day (VDT) shall comply with the requirements of Section 5.1.2 of District Rule 8071. On each day that 25 or more VDT with 3 or more axles will occur on an unpaved vehicle/equipment traffic area, the owner/operator shall comply with the requirements of Section 5.1.3 of District Rule 8071. On each day when a special event will result in 1,000 or more vehicles that will travel/park on an unpaved area, the owner/operator shall comply with the requirements of Section 5.1.4 of District Rule 8071. All sources shall comply with the requirements of Section 5.0 of District Rule 8071 unless specifically exempted under Section 4.0 of Rule 8071 (9/16/2004) or Rule 8011 (8/19/2004). [District Rule 8071 and Rule 8011] Federally Enforceable Through Title V Permit

36. Any owner or operator of a demolition or renovation activity, as defined in 40 CFR 61.141, shall comply with the applicable inspection, notification, removal, and disposal procedures for asbestos containing materials as specified in 40 CFR 61.145 (Standard for Demolition and Renovation). [40 CFR 61 Subpart M] Federally Enforceable Through Title V Permit

FACILITY-WIDE REQUIREMENTS CONTINUE ON NEXT PAGE

37. The permittee shall submit certifications of compliance with the terms and standards contained in Title V permits, including emission limits, standards and work practices, to the District and the EPA annually (or more frequently as specified in an applicable requirement or as specified by the District). The certification shall include the identification of each permit term or condition, the compliance status, whether compliance was continuous or intermittent, the methods used for determining the compliance status, and any other facts required by the District to determine the compliance status of the source. [District Rule 2520, 9.16] Federally Enforceable Through Title V Permit

38. The permittee shall submit an application for Title V permit renewal to the District at least six months, but not greater than 18 months, prior to the permit expiration date. [District Rule 2520, 5.2] Federally Enforceable Through Title V Permit

39. When a term is not defined in a Title V permit condition, the definition in the rule cited as the origin and authority for the condition in a Title V permits shall apply. [District Rule 2520, 9.1.1] Federally Enforceable Through Title V Permit

40. Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following outdated SIP requirements: Rule 401 (Madera, Fresno, Kern, Kings, San Joaquin, Stanislaus, Tulare and Merced), Rule 110 (Fresno, Stanislaus, San Joaquin), Rule 109 (Merced), Rule 113 (Madera), Rule 111 (Kern, Tulare, Kings), and Rule 202 (Fresno, Kern, Tulare, Kings, Madera, Stanislaus, Merced, San Joaquin). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

41. Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following applicable requirements: SJVUAPCD Rules 1100, sections 6.1 and 7.0 (12/17/92); 2010, sections 3.0 and 4.0 (12/17/92); 2031 (12/17/92); 2040 (12/17/92); 2070, section 7.0 (12/17/92); 2080 (12/17/92); 4101 (2/17/05); 4601 (12/17/09); 8021 (8/19/2004); 8031 (8/19/2004); 8041 (8/19/2004); 8051 (8/19/2004); 8061 (8/19/2004); and 8071 (9/16/2004). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

42. The reporting periods for the Report of Required Monitoring and the Compliance Certification Report begin January 1 of every year, unless alternative dates are approved by the District Compliance Division. These reports are due within 30 days after the end of the reporting period. [District Rule 2520] Federally Enforceable Through Title V Permit

43. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-3929-1-4 **EXPIRATION DATE:** 06/30/2016

SECTION: NW 34 **TOWNSHIP:** 19 S **RANGE:** 19 E

EQUIPMENT DESCRIPTION:
46.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #1 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 PC SPRINT NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEM, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST

PERMIT UNIT REQUIREMENTS

1. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
2. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, and fuel consumption. [40 CFR 60.334(a) and District Rule 2201] Federally Enforceable Through Title V Permit
5. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201] Federally Enforceable Through Title V Permit
6. The CTG shall be equipped with a continuous emission monitor (CEM) for NOx (before and after SCR system), CO, and O2. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [40 CFR 60.334(b) District Rules 2201 and 4703, 6.2.1; and 40 CFR 64] Federally Enforceable Through Title V Permit
7. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NOx, CO, and O2 analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081] Federally Enforceable Through Title V Permit
8. The owner or operator shall install, operate and maintain in calibration a system which continuously measures and records: emissions control system operating parameters, elapsed time of operation of the turbine, the fuel consumption, and the exhaust gas NOx and O2 concentrations. [40 CFR 60.334(a), and 40 CFR 64] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

9. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4, and 40 CFR 64] Federally Enforceable Through Title V Permit

10. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2, and 40 CFR 64] Federally Enforceable Through Title V Permit

11. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit

12. Sulfur dioxide emissions shall not exceed 0.015% by volume at 15 percent oxygen, on a dry basis. [40 CFR 60.333(a); District Rule 4801 and Kings County Rule 407)] Federally Enforceable Through Title V Permit

13. The CTG shall be fired exclusively on PUC-regulated natural gas with a sulfur content no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201; 40 CFR 60.333(b) and Kings County Rule 407] Federally Enforceable Through Title V Permit

14. If this unit is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

15. Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations, and the unit meets the lb/hr and ppmvd emission limits specified within this permit. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. Startup and shutdown durations shall not exceed a time period of one hour each per occurrence. [District Rules 2201 and 4703, 3.26, 3.29 and 5.3] Federally Enforceable Through Title V Permit

16. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703, 5.3.2] Federally Enforceable Through Title V Permit

17. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed either of the following limits: NOx (as NO2) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb per event. [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit

18. Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following limits: NOx (as NO2) - 6.21 lb/hr and 3.6 ppmvd @ 15% O2; VOC (as methane) - 1.17 lb/hr and 2.0 ppmvd @ 15% O2; CO - 6.25 lb/hr and 6.0 ppmvd @ 15% O2; PM10 - 2.0 lb/hr; or SOx (as SO2) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201; 4001; and 4703, 5.1.2 and 5.2] Federally Enforceable Through Title V Permit

19. Maximum daily emissions from this unit shall not exceed any of the following limits: NOx (as NO2) - 150.5 lb/day; VOC - 28.1 lb/day; CO - 151.5 lb/day; PM10 - 48.0 lb/day; or SOx (as SO2) - 7.9 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Maximum annual emissions from this unit shall not exceed any of the following limits: NOx (as NO2) - 49,510 lb/year; VOC - 2,844 lb/year; CO - 21,830 lb/year; PM10 - 16,000 lb/year; or SOx (as SO2) - 2,640 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

21. The ammonia (NH3) emissions shall not exceed 10 ppmvd @ 15% O2 over a 24 hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit

22. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O2 = ((a - (b x c/1,000,000)) x (1,000,000 / b) x d, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NOx concentration ppmvd @ 15% O2 across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH3 CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

23. The owner or operator shall be required to conform to the compliance testing and sampling procedures described in District Rule 1081 (as amended 12/16/93). [District Rule 1081] Federally Enforceable Through Title V Permit

24. Source testing to measure the NOx, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O2) shall be conducted at least once every twelve months. [District Rule 1081] Federally Enforceable Through Title V Permit

25. Source testing to measure the PM10 emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted at least once every twelve months. [District Rule 1081] Federally Enforceable Through Title V Permit

26. Source testing of startup NOx, CO, VOC, and PM10 mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) at least once every seven years. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081] Federally Enforceable Through Title V Permit

27. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [40 CFR 60.8(d) and District Rule 1081] Federally Enforceable Through Title V Permit

28. The following test methods shall be used PM10: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [40 CFR 60.335(a) and (b)(10); and District Rules 1081 and 4703, 6.4] Federally Enforceable Through Title V Permit

29. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). EPA Methods 7E or 20 shall be used for NOx emissions. EPA Methods 10 or 10B shall be used for CO emissions. EPA Methods 3, 3A, or 20 shall be used for Oxygen content of the exhaust gas. [40 CFR 60.8(a) and District Rule 4703, 5.1, 6.3.1, 6.4.1, 6.4.2, and 6.4.3] Federally Enforceable Through Title V Permit

30. If this unit has a rating greater than or equal to 10.0 MW the owner or operator shall provide source test information annually regarding the demonstrated percent efficiency (EFF) as defined in District Rule 4703 (as amended 9/20/07), 5.1.1 and 6.4.6. [40 CFR 60.332(a) and (b) and District Rule 4703, 5.1.1 and 6.4.6] Federally Enforceable Through Title V Permit

31. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

32. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with either EPA Method 7E or EPA Method 20 for NOx, EPA Test Methods 10 or 10B for CO, or EPA Methods 3, 3A, or 20 for O2, or, if continuous emission monitors are used, all applicable requirements of CFR 60.13. [40 CFR 60.13, 40 CFR 64; and District Rule 4703, 5.1, 6.4] Federally Enforceable Through Title V Permit

33. The owner or operator shall not operate the gas turbine under load conditions, except as allowed by the transitional operation period, which results in the measured CO emissions concentration exceeding 200 ppmv @ 15% O2. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit

34. The HHV and LHV of the fuel combusted shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.332(a) and (b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit

35. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

36. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

37. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [40 CFR 60.334(j) and District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

38. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080; and 40 CFR 64] Federally Enforceable Through Title V Permit

39. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080] Federally Enforceable Through Title V Permit

40. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

41. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), and emission measurements. [40 CFR 60.7(b) and 60.8(d); and District Rule 1080, 7.0 and 4703, 6.2.8] Federally Enforceable Through Title V Permit

42. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201] Federally Enforceable Through Title V Permit

43. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, type and quantity of fuel used. [District Rule 4703, 6.2.6] Federally Enforceable Through Title V Permit

44. The operator of this unit shall keep records of the date, time and duration of each bypass transition period and each primary re-ignition period. [District Rule 4703, 6.2.11] Federally Enforceable Through Title V Permit

45. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit

46. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Kings County Rule 407 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

47. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332 (a) and (b); 60.333 (a) and (b); 60.334 (a), (b) and (j); and 60.335 (a) and (b)(10) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

48. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-3929-2-4 **EXPIRATION DATE:** 06/30/2016

SECTION: SW 34 **TOWNSHIP:** 19 S **RANGE:** 19 E

EQUIPMENT DESCRIPTION:
46.9 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #2 CONSISTING OF A GENERAL ELECTRIC MODEL LM6000 PC SPRINT NATURAL GAS-FIRED COMBUSTION TURBINE GENERATOR WITH WATER SPRAY PREMIXED COMBUSTION SYSTEM, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST

PERMIT UNIT REQUIREMENTS

1. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District NSR Rule] Federally Enforceable Through Title V Permit
2. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the gas turbine engine. Exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201] Federally Enforceable Through Title V Permit
3. Combustion turbine generator (CTG) and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater, except for up to three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The CTG shall be equipped with a continuous monitoring system to measure and record hours of operation, and fuel consumption. [40 CFR 60.334(a) and District Rule 2201] Federally Enforceable Through Title V Permit
5. Operation of the turbine shall not exceed 8,000 hours per calendar year. [District Rule 2201] Federally Enforceable Through Title V Permit
6. The CTG shall be equipped with a continuous emission monitor (CEM) for NOx (before and after SCR system), CO, and O2. Continuous emissions monitor(s) shall meet the requirements of 40 CFR part 60, Appendices B and F, and 40 CFR part 75, and District-approved protocol, and shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided the CEM(s) pass the relative accuracy requirement for startups and shutdowns specified herein. If relative accuracy of CEM(s) cannot be demonstrated during startup conditions, CEM results during startup and shutdown events shall be replaced with startup emission rates obtained from source testing to determine compliance with emission limits contained in this document. [40 CFR 60.334(b) District Rules 2201 and 4703, 6.2.1; and 40 CFR 64] Federally Enforceable Through Title V Permit
7. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NOx, CO, and O2 analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081] Federally Enforceable Through Title V Permit
8. The owner or operator shall install, operate and maintain in calibration a system which continuously measures and records: emissions control system operating parameters, elapsed time of operation of the turbine, the fuel consumption, and the exhaust gas NOx and O2 concentrations. [40 CFR 60.334(a), and 40 CFR 64] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

9. CEM cycling times shall be those specified in 40 CFR, Part 51, Appendix P, Sections 3.4, 3.4.1 and 3.4.2, or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080, 6.4, and 40 CFR 64] Federally Enforceable Through Title V Permit

10. The continuous NOx and O2 monitoring system shall meet the performance specification requirements in 40 CFR 60, Appendix F, 40 CFR 51, Appendix P, and Part 60, Appendix B, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080, 6.3, 6.5, 6.6 and 7.2, and 40 CFR 64] Federally Enforceable Through Title V Permit

11. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201, 3.1] Federally Enforceable Through Title V Permit

12. Sulfur dioxide emissions shall not exceed 0.015% by volume at 15 percent oxygen, on a dry basis. [40 CFR 60.333(a); District Rule 4801 and Kings County Rule 407)] Federally Enforceable Through Title V Permit

13. The CTG shall be fired exclusively on PUC-regulated natural gas with a sulfur content no greater than 0.25 grain of sulfur compounds (as S) per 100 dry scf of natural gas. [District Rule 2201; 40 CFR 60.333(b) and Kings County Rule 407] Federally Enforceable Through Title V Permit

14. If this unit is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

15. Startup shall be defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operations, and the unit meets the lb/hr and ppmvd emission limits specified within this permit. Shutdown shall be defined as the period of time during which a unit is taken from an operational to a non-operational status as the fuel supply to the unit is completely turned off. Startup and shutdown durations shall not exceed a time period of one hour each per occurrence. [District Rules 2201 and 4703, 3.26, 3.29 and 5.3] Federally Enforceable Through Title V Permit

16. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703, 5.3.2] Federally Enforceable Through Title V Permit

17. During startup or shutdown of any gas turbine engine, combined emissions from the two gas turbine engines (C-3929-1 and C-3929-2) shall not exceed either of the following limits: NOx (as NO2) - 15.4 lb, CO - 15.4 lb, or VOC - 1.4 lb per event. [District Rules 2201 and 4102] Federally Enforceable Through Title V Permit

18. Emission rates from this unit, except during startup and shutdown events, shall not exceed any of the following limits: NOx (as NO2) - 6.21 lb/hr and 3.6 ppmvd @ 15% O2; VOC (as methane) - 1.17 lb/hr and 2.0 ppmvd @ 15% O2; CO - 6.25 lb/hr and 6.0 ppmvd @ 15% O2; PM10 - 2.0 lb/hr; or SOx (as SO2) - 0.33 lb/hr. All emission concentration limits are three-hour rolling averages. [District Rules 2201; 4001; and 4703, 5.1.2 and 5.2] Federally Enforceable Through Title V Permit

19. Maximum daily emissions from this unit shall not exceed any of the following limits: NOx (as NO2) - 150.5 lb/day; VOC - 28.1 lb/day; CO - 151.5 lb/day; PM10 - 48.0 lb/day; or SOx (as SO2) - 7.9 lb/day. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Maximum annual emissions from this unit shall not exceed any of the following limits: NOx (as NO2) - 49,510 lb/year; VOC - 2,844 lb/year; CO - 21,830 lb/year; PM10 - 16,000 lb/year; or SOx (as SO2) - 2,640 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

21. The ammonia (NH3) emissions shall not exceed 10 ppmvd @ 15% O2 over a 24 hour rolling average. [District Rule 2201] Federally Enforceable Through Title V Permit

22. Compliance with ammonia slip limit shall be demonstrated utilizing the following calculation procedure: ammonia slip ppmvd @ 15% O2 = ((a - (b x c/1,000,000)) x (1,000,000 / b) x d, where a = ammonia injection rate (lb/hr) / (17 lb/lb mol), b = dry exhaust flow rate (lb/hr) / (29 lb/lb mol), c = change in measured NOx concentration ppmvd @ 15% O2 across the catalyst and d = correction factor. The correction factor shall be derived annually during compliance testing by comparing the measured and calculated ammonia slip. Alternatively, the permittee may utilize a continuous in-stack ammonia monitor, acceptable to the District to monitor compliance. At least 60 days prior to using a NH3 CEM, the permittee shall submit a monitoring plan for District review and approval. [District Rule 4102]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

23. The owner or operator shall be required to conform to the compliance testing and sampling procedures described in District Rule 1081 (as amended 12/16/93). [District Rule 1081] Federally Enforceable Through Title V Permit

24. Source testing to measure the NOx, CO, and VOC emission limits (lb/hr and ppmvd @ 15% O2) shall be conducted at least once every twelve months. [District Rule 1081] Federally Enforceable Through Title V Permit

25. Source testing to measure the PM10 emission limit (lb/hr), the natural gas sulfur content limit, and the ammonia emission limit shall be conducted at least once every twelve months. [District Rule 1081] Federally Enforceable Through Title V Permit

26. Source testing of startup NOx, CO, VOC, and PM10 mass emission rates shall be conducted for one of the gas turbine engines (C-3929-1 or C-3929-2) at least once every seven years. CEM relative accuracy shall be determined during startup source testing in accordance with 40 CFR 60, Appendix B. [District Rule 1081] Federally Enforceable Through Title V Permit

27. Compliance demonstration (source testing) shall be District witnessed or authorized, and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [40 CFR 60.8(d) and District Rule 1081] Federally Enforceable Through Title V Permit

28. The following test methods shall be used PM10: EPA Method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA Method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA Method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [40 CFR 60.335(a) and (b)(10); and District Rules 1081 and 4703, 6.4] Federally Enforceable Through Title V Permit

29. The owner or operator shall provide source test information annually regarding the exhaust gas NOx and CO concentration corrected to 15% O2 (dry). EPA Methods 7E or 20 shall be used for NOx emissions. EPA Methods 10 or 10B shall be used for CO emissions. EPA Methods 3, 3A, or 20 shall be used for Oxygen content of the exhaust gas. [40 CFR 60.8(a) and District Rule 4703, 5.1, 6.3.1, 6.4.1, 6.4.2, and 6.4.3] Federally Enforceable Through Title V Permit

30. If this unit has a rating greater than or equal to 10.0 MW the owner or operator shall provide source test information annually regarding the demonstrated percent efficiency (EFF) as defined in District Rule 4703 (as amended 9/20/07), 5.1.1 and 6.4.6. [40 CFR 60.332(a) and (b) and District Rule 4703, 5.1.1 and 6.4.6] Federally Enforceable Through Title V Permit

31. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b)] Federally Enforceable Through Title V Permit

32. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with either EPA Method 7E or EPA Method 20 for NOx, EPA Test Methods 10 or 10B for CO, or EPA Methods 3, 3A, or 20 for O2, or, if continuous emission monitors are used, all applicable requirements of CFR 60.13. [40 CFR 60.13, 40 CFR 64; and District Rule 4703, 5.1, 6.4] Federally Enforceable Through Title V Permit

33. The owner or operator shall not operate the gas turbine under load conditions, except as allowed by the transitional operation period, which results in the measured CO emissions concentration exceeding 200 ppmv @ 15% O2. [District Rule 4703, 5.2] Federally Enforceable Through Title V Permit

34. The HHV and LHV of the fuel combusted shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.332(a) and (b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit

35. The permittee shall comply with the applicable requirements for quality assurance testing and maintenance of the continuous emission monitor equipment in accordance with the procedures and guidance specified in 40 CFR Part 60, Appendix F. [District Rule 1080] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

36. The owner or operator shall, upon written notice from the APCO, provide a summary of the data obtained from the CEM systems. This summary of data shall be in the form and the manner prescribed by the APCO. [District Rule 1080, 7.1] Federally Enforceable Through Title V Permit

37. Operators of CEM systems installed at the direction of the APCO shall submit a written report for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [40 CFR 60.334(j) and District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

38. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080; and 40 CFR 64] Federally Enforceable Through Title V Permit

39. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080] Federally Enforceable Through Title V Permit

40. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

41. The owner or operator shall maintain records that contain the following: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments, any periods during which a continuous monitoring system or monitoring device is inoperative, maintenance of any CEM system that has been installed pursuant to District Rule 1080 (as amended 12/17/92), and emission measurements. [40 CFR 60.7(b) and 60.8(d); and District Rule 1080, 7.0 and 4703, 6.2.8] Federally Enforceable Through Title V Permit

42. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [District Rules 2201] Federally Enforceable Through Title V Permit

43. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, type and quantity of fuel used. [District Rule 4703, 6.2.6] Federally Enforceable Through Title V Permit

44. The operator of this unit shall keep records of the date, time and duration of each bypass transition period and each primary re-ignition period. [District Rule 4703, 6.2.11] Federally Enforceable Through Title V Permit

45. The owner or operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rules 2520, 9.4.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit

46. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Kings County Rule 407 as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

47. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.332 (a) and (b); 60.333 (a) and (b); 60.334 (a), (b) and (j); and 60.335 (a) and (b)(10) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

48. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: 40 CFR 60.7(b), 60.8, 60.8(d), 60.13, and 60.13(b); District Rules 1080 (as amended 12/17/92), Sections 6.3, 6.4, 6.5, 7.0, 7.1, 7.2, 7.3, 8.0, 9.0, 10.0, and 11.0; and 1081 (as amended 12/16/93) as of the date of permit issuance. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-3929-4-2 **EXPIRATION DATE:** 06/30/2016

EQUIPMENT DESCRIPTION:
471 HP CATERPILLAR MODEL #3456 DI TA AA DIESEL-FIRED EMERGENCY IC ENGINE POWERING AN ELECTRICAL GENERATOR

PERMIT UNIT REQUIREMENTS

1. This engine shall be operated and maintained in proper operating condition as recommended by the engine manufacturer or emissions control system supplier. [District Rule 4702, 5.7.2] Federally Enforceable Through Title V Permit
2. This engine shall be equipped with a positive crankcase ventilation (PCV) system that recirculates crankcase emissions into the air intake system for combustion. [District NSR Rule] Federally Enforceable Through Title V Permit
3. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap, roof overhang, or any other obstruction. [District Rule 4102]
4. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702, 5.7.4] Federally Enforceable Through Title V Permit
5. This engine shall be operated only for testing and maintenance of the engine, required regulatory purposes, and during emergency situations. Operation of the engine for maintenance, testing, and required regulatory purposes shall not exceed 50 hours per calendar year. [District Rules 2201 and 4702, 3.15] Federally Enforceable Through Title V Permit
6. Only CARB certified diesel fuel containing not more than 0.0015% sulfur by weight is to be used. [Kings County Rule 407; and District Rules 2201 and 4801] Federally Enforceable Through Title V Permit
7. Emissions from this engine shall not exceed any of the following limits: 4.69 g-NOx/hp-hr, 0.12 g-CO/hp-hr, 0.04 g-VOC/hp-hr, or 0.171 g-SOx/hp-hr. [District NSR Rule] Federally Enforceable Through Title V Permit
8. The PM10 emissions rate shall not exceed 0.029 g/hp-hr based on US EPA certification using ISO 8178 test procedure. [District NSR Rule] Federally Enforceable Through Title V Permit
9. Sulfur compound emissions shall not exceed 0.2% by volume, 2000 ppmv, on a dry basis averaged over 15 consecutive minutes. [Kings County Rule 407] Federally Enforceable Through Title V Permit
10. During periods of operation for maintenance, testing, and required regulatory purposes, the permittee shall monitor the operational characteristics of the engine as recommended by the manufacturer or emission control system supplier (for example: check engine fluid levels, battery, cables and connections; change engine oil and filters; replace engine coolant; and/or other operational characteristics as recommended by the manufacturer or supplier). [District Rule 4702, 5.7.3] Federally Enforceable Through Title V Permit
11. An emergency situation is an unscheduled electrical power outage caused by sudden and reasonably unforeseen natural disasters or sudden and reasonably unforeseen events beyond the control of the permittee. [District Rule 4702, 3.15] Federally Enforceable Through Title V Permit
12. This engine shall not be used to produce power for the electrical distribution system, as part of a voluntary utility demand reduction program, or for an interruptible power contract. [District Rule 4702, 3.15] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

13. The permittee shall maintain monthly records of emergency and non-emergency operation. Records shall include the number of hours of emergency operation, the date and number of hours of all testing and maintenance operations, the purpose of the operation (for example: load testing, weekly testing, rolling blackout, general area power outage, etc.) and records of operational characteristics monitoring. For units with automated testing systems, the operator may, as an alternative to keeping records of actual operation for testing purposes, maintain a readily accessible written record of the automated testing schedule. [District Rules 2520, 9.4.2 and 4702, 6.2.3] Federally Enforceable Through Title V Permit
14. The permittee shall maintain monthly records of the type of fuel purchased. [District Rule 4702, 6.2.3.2] Federally Enforceable Through Title V Permit
15. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rule 4702, 6.2.3] Federally Enforceable Through Title V Permit

Appendix C
Draft RWQCB Waste Discharge Requirements

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

TO: Joe Douglas
Compliance Project Manager
CALIFORNIA ENERGY COMMISSION

Casey W. Weaver
Engineering Geologist
Environmental Office
CALIFORNIA ENERGY COMMISSION

FROM: Clay L. Rodgers
Assistant Executive Officer
CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD

DATE: 27 December 2012

SUBJECT: DRAFT REQUIREMENTS FOR GWF ENERGY, LLC, HENRIETTA PEAKER PLANT (01-ACF-18), KINGS COUNTY

The following contains recommended information and requirements for the California Energy Commission (CEC) to include in its permit for the proposed Henrietta Peaker Plant discharge to an unlined storm water pond. They are arranged under the section headings of Findings, Prohibitions, Discharge Specifications, Effluent Limitations, Groundwater Limitations, Provisions, and Monitoring. These headings are arranged in an order similar to that contained in waste discharge requirements typically adopted by the Central Valley Water Board. We look forward to discussing any changes CEC staff deems appropriate and providing additional rationale for specific requirements, if necessary. To preserve its ability to pursue enforcement should the discharge cause nuisance or pollution problems, the Central Valley Water Board may adopt waste discharge requirements for the discharge following the CEC's permitting action. We understand that the waste discharge requirements will need to mirror the permit approved by the CEC. Please contact Lonnie M. Wass of our Fresno Office at (559) 445-6051 or Dale Harvey at (559) 445-6190 to discuss these requirements.

FINDINGS

1. On 1 March 2012, TRC Solutions, on behalf of GWF Energy, LLC (GWF) a Delaware limited liability company, submitted a Report of Waste Discharge (RWD) for the discharge of wastewater to an unlined storm water pond at the Henrietta Peaker Plant (Henrietta Plant).

2. The Henrietta Plant is in the southwest quarter of Section 27, Township 19 South, Range 19 East, Mount Diablo Base and Meridian in Kings County, approximately 2 miles south of the Lemoore Naval Air Station.

3. In August 2001, GWF filed an Application for Certification with the California Energy Commission (CEC) for the Henrietta Plant, a 95-megawatt, simple-cycle power plant that operates 8,000 hours per year on a 20-acre parcel. In March 2002, CEC approved the Henrietta Plant Application for Certification 01-AFC-18 for the simple-cycle power plant. GWF is required to amend its certification with CEC because it is proposing to modify the water treatment and wastewater handling systems by installing a filtration system and a reverse osmosis (RO) system. GWF is further proposing to discharge the RO reject and filter backwash wastewater to an existing unlined storm water pond instead of storing it onsite and then periodically disposing of it off-site at an approved Waste Disposal Site.

4. Source water is stored in a raw water storage tank and then treated using portable demineralizers and then stored in a demineralized water storage tank. The demineralized water is then used in the combustion gas turbines (CTG's) for inlet cooling and control of NOx emissions from the CTG's. Source water from the raw water storage tank is also used for plant wash down and landscape irrigation. Approximately 95% of the water used for plant wash down and treated in the oil-water separator, is recovered and recycled back to the raw water storage tank. Reject from the RO unit is proposed to be discharged to the unlined storm water pond.

5. Source water is surface water from the California Aqueduct and is treated for use in the Henrietta Plant using portable demineralization units and stored in a demineralized water storage tank. Based on data provided in the RWD, source water samples were taken in February, October, and November 2011, the average quality of source water is shown in Table 1:

Table 1. Source Water Quality

Constituent/Parameter	Unit	Source Water
Total Dissolved Solids (TDS)	mg/L	148
Electrical Conductivity (EC)	umhos/cm	258
Sodium (Na)	mg/L	23
Chloride (Cl)	mg/L	24
Boron (B)	mg/L	0.12
Nitrate as nitrogen (NO_3-N)	mg/L	0.54

6. Wastewater produced at the Henrietta Plant will include RO reject and filter backwash wastewater. The wastewater will be discharged to the unlined storm water pond. Filters will be backwashed with source water and the backwash wastewater will comprise only about 4 percent of the proposed total wastewater discharge at the Henrietta Plant. GWF estimates that a maximum of 28,000 gallons per day of RO reject and 2,400 gallons of backwash wastewater per backwash every other day will be produced at the Henrietta Plant. The estimated quality of the RO reject discharge is tabulated below.

Table 2. RO Reject

Constituent/Parameter	Unit	RO Reject
TDS	mg/L	577
EC	umhos/cm	1,007
Na	mg/L	89
Cl	mg/L	95
B	mg/L	0.48
NO_3-N	mg/L	2.1

7. Land uses in the vicinity of the Henrietta Plant are primarily agricultural and some residential. The primary crops grown in the area are cotton, sugar beets, alfalfa, and pistachios, according to the Kings County 2003 Land Use Map published by the Department of Water Resources (DWR).

8. The Henrietta Plant is in an area with semi-arid climate characterized by dry summers and mild winters. The rainy season generally extends from October to May. According to the National Weather Service, the average annual precipitation is about 9.0 inches, based on 30 years of data from the Hanford weather station. The annual average pan evaporation at the Fresno station is about 74 inches, according to the Western Regional Climate Center.

9. Soil in the vicinity of the Henrietta Plant is Lethent clay loam according to the Web Soil Survey published by the United States Department of Agriculture, Natural Resources Conservation Service (NRCS). Lethent clay loam has been assigned a land capability classification of 3s. This soil has severe limitations that restrict the choice of plants or requires special conservation practices. Additionally, this soil has limitations within the root zone, such as shallowness of the root zone, a high content of stones, a low available water capacity, low fertility, and excessive salinity or sodicity. Overcoming these limitations is difficult.

10. According to the Federal Emergency Management Agency maps (Map Number 06031C0300C), the Henrietta Plant is in Zone X, an area outside the one percent annual chance of flooding.

11. GWF is not required to obtain coverage under a National Pollutant Discharge Elimination System General Industrial Storm Water Permit for the discharge because all storm water runoff is retained onsite and does not discharge to a water of the United States.

12. First encountered groundwater in the area exists approximately 15 feet below ground surface (bgs) above the Corcoran Clay. The Corcoran Clay is found at a depth of about 600 to 650 feet.

13. According to the RWD, first encountered groundwater flows to the east towards the Kings River.

14. Based on studies from 1966, the area near the Henrietta Plant has been identified as having saline soils and shallow groundwater requiring drainage. Information from 1985 indicates that the quality of shallow groundwater discharging into local sumps has been of

poor quality based on data since 1985. Inadequate drainage and accumulating salts have produced problems in parts of the west side of the San Joaquin Valley for over a century according to *A Management Plan for Agricultural Subsurface Drainage and Related Problems on the Westside San Joaquin Valley*, published in September 1990 by the San Joaquin Valley Drainage Program. Electrical conductivity has ranged from 13,140 to 130,000 umhos/cm, total dissolved solids has ranged from 13,000 to 49,000 mg/L, sodium has ranged from 2,450 to 13,600 mg/L, and chloride has ranged from 1,790 to 11,000 mg/L.

15. USGS well 19S19E14SR1M sampled in 1989 shows groundwater as having an electrical conductivity of 6,620 umhos/cm, total dissolved solids of 5,080 mg/L, sodium of 1,400 mg/L, and chloride of 390 mg/L.

16. According to a shallow groundwater quality map published by Department of Water Resources in 2005, EC in the area below the discharge ranges from 2,000 to 10,000 umhos/cm.

17. Based on 2007-2011 groundwater monitoring data from an eleven well groundwater monitoring network on the former Land Application Area for Olam Tomato Processors, one mile south of the Henrietta Plant, first encountered groundwater is of poor quality. Average EC (in umhos/cm) is as follows 19,083 (MW-1), 5,426 (MW-2), 11,057 (MW-3), 43,625 (MW-4), 16,583 (MW-5), 9,565 (MW-6), 20,042 (MW-7), 10,255 (MW-8), 9,087 (MW-9), 17,115 (MW-10), and 10,163 (MW-11).

18. Average chloride and boron concentrations in groundwater are as follows, respectively: 133 mg/L and 6.84 mg/L (Henrietta Plant well), 657 mg/L and 35 mg/L (MW-1), 230 mg/L and 9 mg/L (MW-2), 456 mg/L and 13 mg/L (MW-3), 2,700 mg/L and 73 mg/L (MW-4), 959 mg/L and 19 mg/L (MW-5), 221 mg/L and 14 mg/L (MW-6), 767 mg/L and 27 mg/L (MW-7), 516 mg/L and 15 mg/L (MW-8), 740 mg/L and 6.5 mg/L (MW-9), 1,800 mg/L and 7.9 mg/L (MW-10), 813 mg/L and 6.9 mg/L (MW-11).

19. Nitrate as nitrogen in groundwater is above the Maximum Contaminant Level (MCL) of 10 mg/L. Average nitrate as nitrogen concentrations have been reported as 15 mg/L for Henrietta Plant well, 28 mg/L for MW-1, 25 mg/L for MW-3, 38 mg/L for MW-4, 25 mg/L for MW-6, 16 mg/L for MW-8, and 37 mg/L for MW-10.

20. Findings 12 through 19 indicate that first encountered groundwater in the vicinity of the Henrietta Plant is not and has not historically been of high quality with respect to salinity since the early 1970's or before.

21. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, revised January 2004* (Basin Plan) designates beneficial uses, establishes narrative and numerical water quality objectives, contains implementation plans and policies for protecting all waters of the Basin, and incorporates, by reference, plans and policies of the State Water Board. In accordance with Water Code section 13263(a), these requirements implement the Basin Plan.

22. The Henrietta Plant is in Detailed Analysis Unit (DAU) No. 244, within the Westside Basin hydrologic unit. The Basin Plan identifies the beneficial uses of groundwater in the DAU as municipal and domestic supply, agricultural supply, and industrial service supply.

23. The Henrietta Plant is in the Hanford-Lemoore Hydrologic Area No. 551.90 of the South Valley Floor Hydrologic Unit, as depicted on interagency hydrologic maps prepared by the DWR in August 1986.

24. The Basin Plan includes a water quality objective for chemical constituents that, at a minimum, require waters designated as domestic or municipal supply to meet the MCLs specified in Title 22 of California Code of Regulations (CCR). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

25. The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Taste and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.

26. The Basin Plan identifies the greatest long-term problem facing the entire Tulare Lake Basin as the increase in salinity in groundwater, which has accelerated due to the intensive use of soil and water resources by irrigated agriculture. The Basin Plan recognizes that degradation is unavoidable until there is a long-term solution to the salt imbalance. Until then, the Basin Plan establishes several salt management requirements, including the following limits:

    a. The incremental increase in salts from use and treatment must be controlled to the extent possible. The maximum EC of the effluent discharged to land shall not exceed the EC of the source water plus 500 µmhos/cm. When the source water is from more than one source, the EC shall be a weighted average of all sources.

    b. Discharges to areas that may recharge good quality groundwater shall not exceed an EC of 1,000 µmhos/cm, a chloride content of 175 mg/L, or boron content of 1.0 mg/L.

27. The Basin Plan's implementation provisions prohibit the Board from issuing WDRs that require an improvement over naturally-occurring background concentrations.

28. The Basin Plan authorizes an exception for industrial wastewater from the incremental increase of 500 µmhos/cm plus source water provided the Discharger can technically demonstrate that allowing a greater net incremental increase in EC will result in lower mass emissions of salts to water. The Discharger's net incremental increase in salinity concentrations is due in part to water conservation measures, and in part to treatment necessary to make the source water suitable for its use and domestic supply. The RWD indicates that evaporative cooler water is cycled two times, and approximately 95 percent of the water from the oil/water separator is recycled back to the source water storage tank.

While these conservation practices result in an increase in wastewater EC, the net result will be lower mass emissions of salts to first encountered groundwater that will not adversely affect the beneficial uses of that groundwater. Therefore, the discharge as proposed complies with the exception authorized by the Basin Plan.

29. As described in Findings 12 through 19 above, the discharge is not to an area that overlies good quality groundwater with respect to EC, chloride, and boron. Therefore, the Basin Plan limits in Finding 26.b above do not apply to the discharge.

30. State Water Board Resolution No. 68-16 ("Policy with Respect to Maintaining High Quality Water of the State") (hereafter Resolution No. 68-16) prohibits degradation of groundwater unless it has been shown that:

    a. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;

    b. The degradation will not unreasonably affect present and anticipated future beneficial uses;

    c. The Discharger employs Best Practicable Treatment or Control (BPTC) to minimize degradation; and

    d. The degradation is consistent with the maximum benefit to the people of the State.

31. The discharge will not degrade first encountered groundwater because the discharge is of better quality than that of underlying groundwater.

32. The requirements herein are consistent with the Antidegradation Policy, since they do not authorize degradation.

33. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and the issuance of discharge permit does not create a vested right to continue the discharge.

PROPOSED PROHIBITIONS

1. Discharge of waste to surface waters or surface water drainage courses is prohibited.

2. Discharge of waste classified as 'hazardous', as defined in section 2521(a) of Title 23, CCR, section 2510 et seq., is prohibited. Discharge of waste classified as 'designated', as defined in Water Code section 13173, is prohibited.

3. Discharge of wastewater in a manner or location other than that described herein is prohibited.

4. Discharge of industrial wastewater to septic systems is prohibited.

Discharge Specifications

1. No waste constituent shall be released, discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of Groundwater Limitations described below.

2. Wastewater treatment, storage, and disposal shall not cause pollution or a nuisance as defined by section 13050 of the Water Code.

Effluent Limitations

1. The effluent shall not have a pH less than 6.5 or greater than 9.0.

2. The rolling annual average effluent electrical conductivity shall not exceed 1,100 umhos/cm.

Groundwater Limitations

1. Release of waste constituents from any treatment, storage, or disposal component associated with the discharge shall not cause or contribute to groundwater exceeding background water quality.

Provisions

1. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.

2. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, or protect the Discharger from liabilities under federal, state, or local laws. These requirements do not convey any property rights or exclusive privileges.

3. Before making a material change in the character, location, or volume of discharge, the Discharger shall file a new Report of Waste Discharge with the California Energy Commission and Central Valley Water Board.

4. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of these requirements shall be available for public inspection at the offices of the California Energy Commission and Central Valley Water Board. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

5. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the state resulting from noncompliance with these requirements. Such steps shall include accelerated or additional monitoring as necessary to determine the nature and impact of the noncompliance.

6. The Discharger shall permit representatives of the Central Valley Water Board, the State Water Resources Control Board, and the California Energy Commission, upon presentations of credentials, to:

   a. Enter premises where wastes are treated, stored, or disposed of and facilities in which any records are kept,
   b. Copy any records required to be kept under terms and conditions of these requirements,
   c. Inspect at reasonable hours, monitoring equipment required by these requirements, and
   d. Sample, photograph and video tape any discharge, waste, waste management unit, or monitoring device.

7. For any electrically operated equipment at the site, the failure of which would cause loss of control or containment of waste materials, or violation of these requirements, the Discharger shall employ safeguards to prevent loss or control over wastes. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means.

8. The fact that it would have been necessary to halt or reduce the permitted activity in these requirements to maintain compliance with this these requirements shall not be a defense for the Discharger's violations of these requirements.

9. The disposal pond or structures shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements herein. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.

10. On or about **1 October** of each year, available capacity shall at least equal the volume necessary to comply with Provision 9.

11. The pond shall be managed to prevent breeding of mosquitoes. In particular:

    a. An erosion control plan should assure that coves and irregularities are not created around the perimeter of the water surface.
    b. Weeds shall be minimized through control of water depth, harvesting, and herbicides.
    c. Dead algae, vegetation, and other debris shall not accumulate on the water surface.
    d. Vegetation management operations in areas in which nesting birds have been observed shall be carried out either before or after, but not during, the 1 April to 30 June bird nesting season.

12. The Discharger shall maintain and operate the pond sufficiently to protect the integrity of containment levees and prevent overtopping or overflows. Unless a California registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard shall never be less than two feet (measured vertically). As a means of management and to discern compliance with this Provision, the Discharger shall install and maintain a permanent

marker with calibration that indicates the water level at the design capacity and enables determination of available operational freeboard.

13. The unlined storm water pond shall be maintained to prevent leakage caused by erosion, slope failure, or animal burrowing.

14. Objectionable odors shall not be perceivable beyond the limits of the Henrietta Plant property at an intensity that creates or threatens to create nuisance conditions.

15. As a means of discerning compliance with Provision 14, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond shall not be less than 1.0 mg/L for three consecutive weekly sampling events. If the DO in any single pond is below 1.0 mg/L for three consecutive sampling events, the Discharger shall report the findings to the California Energy Commission and the Central Valley Water Board in writing within 10 days and shall include a specific plan to resolve the low DO results within 30 days.

16. The Discharger must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of these requirements. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This Provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger only when the operation is necessary to achieve compliance with the conditions of these requirements.

17. By-pass (the intentional diversion of waste streams from any portion of a treatment facility, except diversions designed to meet variable effluent limits) is prohibited. The California Energy Commission may take enforcement action against the Discharger for by-pass unless:

    a. By-pass was unavoidable to prevent loss of life, personal injury, or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a by-pass. Severe property damage does not mean economic loss caused by delays in production); and

    b. There were no feasible alternatives to by-pass, such as the use of auxiliary treatment facilities or retention of untreated waste. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a by-pass that would otherwise occur during normal periods of equipment downtime or preventive maintenance; or (1) by-pass is required for essential maintenance to assure efficient operation; and (2) neither effluent nor receiving water limitations are exceeded; and (3) the Discharger notifies the Commission and Central Valley Water Board ten days in advance. The Discharger shall submit notice of an unanticipated by-pass in accordance with Provision 18 below.

18. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of these requirements for any reason, the Discharger shall notify

the Commission and Central Valley Water Board by telephone at (916)-653-4677 and (559) 445-5116, respectively, as soon as it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within **two weeks**. The written notification shall state the nature, time and cause of noncompliance, and shall include a timetable for corrective actions.

19. The Discharger shall have a plan for preventing and controlling accidental discharges, and for minimizing the effect of such events. This plan shall:

    a. Identify the possible sources of accidental loss or leakage of wastes from each waste management, treatment, or disposal facility.
    b. Evaluate the effectiveness of present waste management/treatment units and operational procedures, and identify needed changes of contingency plans.
    c. Predict the effectiveness of the proposed changes in waste management/treatment facilities and procedures and provide an implementation schedule containing interim and final dates when changes will be implemented.

20. All reports shall be signed by persons identified below:

    a. For a corporation: by a principal executive officer of at least the level of senior vice-president.
    b. For a partnership or sole proprietorship: by a general partner or the proprietor.
    c. A duly authorized representative of a person designated in 3a or 3b of this requirement if; (1) the authorization is made in writing by a person described in 3a or 3b of this provision; (2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a waste management unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and (3) the written authorization is submitted to the Commission and Central Valley Water Board

    Any person signing a document under this Section shall make the following certification:

    > "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of the those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

21. All technical reports and work plans required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports and work plans must bear the signature(s) and seal(s) of the registered professionals(s) in a manner such that all work can be clearly attributed to the professional responsible for the work. All reports required herein are required pursuant to Water Code section 13267.

22. The Department of Water Resources set standards for the construction and destruction of groundwater wells, as described in California Well Standard Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 94-81 (December 1981). These standards, and any more stringent standards adopted by the State or county pursuant to Water Code section 13801, apply to all monitoring wells.

23. **Within 120 days of the notification that the discharge will start**, the Discharger shall submit an operations and maintenance manual for the power plant wastewater treatment and disposal facilities.

MONITORING

The Discharger shall maintain a written sampling program sufficient to assure compliance with the terms of these requirements. Anyone performing sampling on behalf of the Discharger shall be familiar with the sampling plan.

Field test instruments (such as pH) may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer and in accordance with manufacturer instructions. At minimum, all monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring requirements shall be properly maintained and calibrated at least yearly to ensure their continued accuracy.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health's Environmental Laboratory Accreditation Program.

The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by these requirements, and records of all data used to complete the application for these requirements. Records shall be maintained for a minimum of three years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the California Energy Commission or Central Valley Water Board Executive Officer. Record of monitoring information shall include:

a. the date, exact place, and time of sampling or measurements,
b. the individual(s) who performed the sampling of the measurements,
c. the date(s) analyses were performed,
d. the individual(s) who performed the analyses,
e. the laboratory which performed the analysis,
f. the analytical techniques or methods used, and
g. the results of such analyses.

Effluent Monitoring

When there is no wastewater discharge to the unlined storm water pond, the monitoring report shall state that during the required monitoring period(s), there was not flow to record or no sample collected. When there is wastewater flow, the Discharger shall sample wastewater at the point of discharge into the unlined storm water pond or where a representative sample may be obtained prior to disposal. Time of collection of the sample shall be recorded.

Effluent monitoring shall include the following:

Frequency	Constituent/Parameter	Units	Sample Type
Continuous	Flow	mgd	Meter
Weekly	pH	pH units	Grab
Weekly	Electrical Conductivity (EC)	µmhos/cm	Grab
Monthly	Total Dissolved Solids (TDS)	mg/L	Grab
Monthly	TDS Load	lbs/month	Calculated
Monthly	Boron	mg/L	Grab
Monthly	Sodium	mg/L	Grab
Quarterly	General Minerals[1]	mg/L	Grab
Quarterly	Metals[1,2]	mg/L	Grab

[1] With the exception of wastewater samples, samples must be filtered. If field filtering is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24 hours with a request (on the chain-of-custody form) to immediately filter then preserve the sample.

[2] Metals reference hereafter in this program include: Aluminum, Antimony, Arsenic, Barium, Copper, Cadmium, Chromium, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, and Zinc.

Storm Water Basin Monitoring

Permanent markers (e.g., staff gauges) shall be placed in the evaporation/percolation pond. The markers shall have calibrations indicating water level at the design capacity and available operational freeboard. Evaporation/percolation pond monitoring shall include at least the following:

Frequency	Constituent/Parameter	Units	Sample Type
Weekly	Freeboard	Feet[1]	Observation
Weekly	Odors	---	Observation
Weekly	Berm Condition	---	Observation

[1] To nearest tenth of a foot

The Discharger shall inspect the condition of the evaporation/percolation pond weekly and record visual observations in a bound logbook or electronic data platform acceptable to the RWQCB and CEC. Notations shall include observations of whether weeds are developing in the water or along the bank, and their location; whether grease, dead algae, vegetation, scum, or debris are accumulating on the evaporation/percolation pond surface and their location; whether burrowing animals or insects are present; and the color of the reservoirs (e.g., dark

sparkling green, dull green, yellow, gray, tan, brown, etc.). A summary of the entries made in the log shall be included in the subsequent monitoring report.

Source Water Monitoring

For each source (either well or surface water supply), the Discharger shall calculate the flow-weighted average concentrations for the specified constituents utilizing monthly flow data and the most recent chemical analysis conducted in accordance with the following requirements. Alternatively, the Discharger may establish representative sampling stations within the facility's distribution system.

Frequency	Constituent/Parameter	Units	Sample Type
Quarterly	pH	pH units	Grab
Quarterly	EC	umhos/cm	Grab
Quarterly	TDS	mg/L	Grab
Quarterly	Boron	mg/L	Grab
Quarterly	Sodium	mg/L	Grab
Quarterly	General Minerals[1]	mg/L	Grab
Quarterly	Metals[1,2]	mg/L	Grab

1 With the exception of wastewater samples, samples must be filtered. If field filtering is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24 hours with a request (on the chain-of-custody form) to immediately filter then preserve the sample.

2 Metals reference hereafter in this program include: Aluminum, Antimony, Arsenic, Barium, Copper, Cadmium, Chromium, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, and Zinc.

Reporting

All monitoring results shall be reported in **Quarterly Monitoring Reports** which are due by the first day of the second month after the calendar quarter. Copies shall be mailed to:

California Energy Commission
1516 9th Street
Sacramento, CA 95814

and

Central Valley Regional Water Quality Control Board
1685 E Street
Fresno, CA 93726

A transmittal letter shall accompany each monitoring report. The transmittal letter shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory.
The following information is to be included on all monitoring and annual reports, as well as report transmittal letters:

Discharger Name
Facility Name
Contact Information (telephone number and email)

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements.

Monitoring information shall include the method detection limit (MDL) and the reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

Laboratory analysis reports do not need to be included in the monitoring reports; however, the laboratory reports must be retained for a minimum of three years.

All monitoring reports shall comply with the signatory requirements in Provision 20.

All monitoring reports that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

Fourth Quarter Monitoring Reports, in addition to the above, shall include the following:

Henrietta Plant Information

1. The names and general responsibilities of all persons in charge of wastewater treatment and disposal.

2. The names and telephone numbers of persons to contact regarding the Henrietta Plant for emergency and routine situations.

3. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations.

4. A statement whether the current operation and maintenance manual, sampling plan, and contingency plan, reflect the Henrietta Plant as currently constructed and operated, and the dates when these documents were last reviewed for adequacy.

5. A summary and discussion of the compliance record for the reporting period. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with these requirements.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of these requirements.

GLOSSARY

BOD_5	Five-day biochemical oxygen demand
CBOD	Carbonaceous BOD
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
NTU	Nephelometric turbidity unit
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
TSS	Total suspended solids
Continuous	The specified parameter shall be measured by a meter continuously.
24-Hour Composite	Samples shall be a flow-proportioned composite consisting of at least eight aliquots.
Daily	Samples shall be collected at least every day.
Twice Weekly	Samples shall be collected at least twice per week on non-consecutive days.
Weekly	Samples shall be collected at least once per week.
Twice Monthly	Samples shall be collected at least twice per month during non-consecutive weeks.
Monthly	Samples shall be collected at least once per month.
Bimonthly	Samples shall be collected at least once every two months (i.e., six times per year) during non-consecutive months.
Quarterly	Samples shall be collected at least once per calendar quarter. Unless otherwise specified or approved, samples shall be collected in January, April, July, and October.
Semiannually	Samples shall be collected at least once every six months (i.e., two times per year). Unless otherwise specified or approved, samples shall be collected in April and October.
Annually	Samples shall be collected at least once per year. Unless otherwise specified or approved, samples shall be collected in October.
mg/L	Milligrams per liter
mL/L	milliliters [of solids] per liter
µg/L	Micrograms per liter
µmhos/cm	Micromhos per centimeter
mgd	Million gallons per day
MPN/100 mL	Most probable number [of organisms] per 100 milliliters
General Minerals	Analysis for General Minerals shall include at least the following:

Alkalinity	Chloride	Sodium
Bicarbonate	Hardness	Sulfate
Calcium	Magnesium	TDS
Carbonate	Potassium	Nitrate

General Minerals analyses shall be accompanied by documentation of cation/anion balance.

Appendix D
Reverse Osmosis Discharge Impacts

Owner	**GWF**	Computed By	**Leroy Kashka**	Date	**05/16/08**
Plant	**Henrietta**	Checked By		Date	
Project #	**160129**			Page	**#REF!**

POST-CONSTRUCTION RETENTION POND DESIGN

The pond shall be designed to provide storage for a 100-year, 10 day storm. Calculate the volume of runoff for the 2 yr. -24 hr., 5 yr. - 24 hr., 25 yr. - 24 hr. and a 100 yr. - 24 hr. storms and compare to the volume of storage available.

Compute Runoff Coefficient:

	C	Area (ac)	Product A*C
paved	0.95	1.96	1.86
aggregate	0.75	4.36	3.27
pond	1.00	1.77	1.77
	Total Area	8.08	acres
	Wt C	0.85	

Volume Required :

Sources: Kings County, CA Department of Public Works Improvement Standards, and Technical Paper No. 40, Rainfall Frequency Atlas of the United States, US Department of Commerce Weather Bureau, 1961.

Volume of Runoff to be Contained: Vreq (ft3) = C A R (Based on Kings County Public Works)
Design for 10 yr - 10 day storm (4 in.), Check for 100 yr - 10 day storm (6 in.)

C = Runoff Coef.	0.85
A = Drainage Area (ft2)	352,152.00
R = Rainfall (ft) for 10 yr, 10 day	0.33
R = Rainfall (ft) for 100 yr, 10 day	0.50

Vrunoff (10 yr - 10 day)=	99,147	ft3
Vrunoff (100 yr - 10 day)=	150,223	ft3

Volume of Runoff for the 5, 10, 25, and 100 yr storms

Storm	Rainfall (in)	Volume (ft3)	x 2*
5 yr, 24 hr	1.3	32,548.24	65,096.47
10 yr, 24 hr	1.5	37,555.66	75,111.31
25 yr, 24 hr	1.9	47,570.50	95,141.00
100 yr, 24 hr	2.3	57,585.34	115,170.68

** indicates the volume of runoff in the event of 2 storms back to back*

Calculate Volume of Pond :

Contour Elevation	Area of Contour (ac)	Average Area Volume (ft^3)	Cumm. Avg Volume (ft^3)
222.5	1.83	39,340	187,428
222	1.78	38,404	148,088
221.5	1.74	37,477	109,685
221	1.70	36,559	72,208
220.5	1.66	35,650	35,650
220	1.62	0	0

Required top of basin elevation = Water surface elevation for 10 yr -10 day storm + 1 ft.
Water surface elevation for 10 yr - 10 day storm event = 221.4 ft.
Required top of basin elevation = 222.4 ft.
Actual top of basin is approximately 222.5 ft. due to natural topography

		Depth	Freeboard
Top of Basin Elevation	222.50		
Water Elevation for 10 yr. - 10 day storm	221.36	1.36	1.14
Water Elevation for 100 yr. - 10 day storm	222.03	2.03	0.47
Water Elevation for 25 Yr, 24 Hr. Storms	220.66	0.66	1.84
Water Elevation for 100 Yr, 24 Hr. Storms	220.80	0.80	1.70

Basin shall hold 100 yr. - 10 day event without overflowing
Water surface elevation for 100 yr. - 10 day event = 222.03 ft.

With RO reject to Pond:

Water reject stream		21.7	gpm
	=	*5,013*	*cubic inches per minute*
		300,762	*cubic inches per hour*
Basin bottom surface area		10,161,677	square inches
Increasing basin level		0.0296	inches per hour
Assumed infiltration rate		0.025	inches per hour
Basin fill rate		0.0046	inches per hour
Maximum RO run hours/year		8760	hours
Annual basin fill rate		40.3	inches

Annual evaporation 62.5 inches
(Kings County annual average per CIMIS, California Department of Water Resources 2010)

Note: The annual evaporation rate is greater than the estimated basin fill rate, therefore a standing water level is not expected given normal operating scenarios. The water treatment system design allows for operation while bypassing the RO by utilizing portable deionized treatment tanks for water treatment. Operation in bypass mode will be used to stop RO reject flow into the storm water retention pond during high rain scenarios when the entire pond volume is required.