



**Pacific Gas and
Electric Company®**

Mailing Address:
Pacific Gas & Electric Company
Gateway Generating Station
3225 Wilbur Ave.
Antioch, CA 94509
(925) 522-7801

September 16, 2010

Mr. Jack Caswell
Compliance Program Manager
California Energy Commission
1516 Ninth Street, MS-2000
Sacramento, CA 95814

DOCKET

00-AFC-1C

DATE SEP 16 2010

RECD. SEP 20 2010

Reference: PG&E Gateway Generating Station (00-AFC-01C)

Subject: PETITION FOR INSIGNIFICANT PROJECT CHANGE TO PLANT FACILITY

Dear Mr. Caswell,

After nearly two years of operation, we have discovered the need to perform several minor changes at our facility. In reviewing these changes, we find that they do not require any change to our Conditions of Certification; however, in an abundance of caution, I am submitting the enclosed petition for your approval.

Enclosed is PETITION FOR INSIGNIFICANT PROJECT CHANGE TO PLANT FACILITY to include the following modifications:

1. Replacement of trailer-mounted demineralized water treatment package with rack-mounted Reverse Osmosis (RO) system.
2. Installation of roof covers to protect the following equipment/devices:
 - a. Two (2) DCS Cabinets on HRSG A and HRSG B
 - b. Four (4) Boiler Feed-water Pump Motors on HRSG A and HRSG B.
 - c. Gas Chromatograph
 - d. Trash Bins
 - e. Reverse Osmosis (RO) System
3. Addition of pre-fabricated metal utility shed for storage of maintenance and mechanical equipment
4. Addition of two "TUFF" metal sheds for storage of electrical grounding equipment.
5. Addition of two hazardous material/waste storage metal sheds

We reviewed the Commission Decision (00-AFC-1); and we believe that the above requested insignificant modifications will not result in any new environmental impacts or require any modifications to the existing Conditions of Certification contained in the Final Decision. If you have any questions regarding this letter, please contact Angel Espiritu at (925) 522-7838.

Sincerely,

Ronald A. Gawer
Senior Plant Manager

Enclosure: a/s
Cc: File

**PETITION FOR INSIGNIFICANT PROJECT CHANGES
AT
GATEWAY GENERATING STATION**

1. Replacement of Trailer-mounted Demineralized Water Treatment Package with Rack-mounted Reverse Osmosis System
 - a. **Description of Modification:** This modification proposes to replace the existing trailer-mounted demineralized water treatment package with rack-mounted reverse osmosis (RO) system that includes a water polisher. The new installation with area dimension of 5' x 20' will be staged within the existing bermed area (28' x 50'). (See Attachment A: Marked-up Facility Layout for location of the proposed modification.) The RO system will utilize less than 50 gallons each at any given time of sodium hydroxide, sodium bi-sulfite, and Vitec 3000 (a proprietary product with mostly sodium hydroxide as a component). Both sodium hydroxide and sodium bi-sulfite are listed in HAZ-1 Appendix C Table 8.12-4 of the Commission Decision 900-AFC-1). (See Attachment B: RO System Process Description and Flow Diagram.)
 - b. **Necessity for the Modification:** The existing trailer-mounted demineralized water treatment package requires that the old 40-foot trailer be pulled out and replaced with new one once every two to three weeks. Movement of the trailer has potential safety concerns to property and employees with handling of heavy hoses and also increased potential for spillage of processed water. With the use a rack-mounted RO system, this safety issue will be eliminated as the rack-mounted RO system will not need to be pulled out for replacement, as it is a fixed structure. (The RO system, though, will need to replace filters occasionally.) Also, the RO system package has associated monetary cost saving.
 - c. **Modification was not known at the time of Certification:** The need for modification become apparent only after several months of normal operation.
 - d. **If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted:** The modification does not change or undermine in any way the assumptions, rationale, findings, or other basis of the CEC Final Decision (00-AFC-1).
 - e. **Analysis of the impacts the modification may have on the environment:** The replacement of the trailer-mounted water treatment package (demineralizer) with rack-mounted water treatment package (RO System) will have no significant adverse impacts on the environment. The RO reject water will be discharge through the Delta Diablo Sanitation

District (DDSD) treatment system. (See Attachment C: DDSD's Approval of RO Reject Water to their Treatment System.)

- f. **Analysis on the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards:**
The proposed modification does not impact the facility's ability to comply with all applicable laws, ordinances, regulations, and standards.
- g. **A discussion of how the proposed modification affects the public:**
This modification will have no adverse effect on the public. The visual impact of the modification will, in fact, be reduced from a 40-footer trailer water treatment package to a rack-mounted RO system occupying a surface area with approximate dimension of 5' x 20'. The change, however, will not likely be noticeable to the public as there are tanks and a building existing between the system and the property boundary.
- h. **Property owners potentially affected by the modification** It is anticipated that no property owners will be affected by the proposed modification.

2. Roof Covers

- a. **Description of Modification:** This modification proposes the installation of roof covers using steel structures (whenever applicable and available) to protect equipment/devices from rain and other outdoor elements. The roof covers will be installed on the following:
 - 1. Two (2) DCS Cabinets (20' x 30') one each at HRSG-A and HRSG-B at elevation 35 feet above grade level. The roof cover will be attached to existing structural frames. (See Attachment A: Marked-up Facility Layout, labeled 2.a.1, for site location.)
 - 2. Four (4) Boiler Feed-water Pumps (10' x 10') two each at HRSG-A and HRSG-B on grade level. The roof cover will be attached to existing structural frames. (See Attachment A: Marked-up Facility Layout, labeled 2.a.2, for site location.)
 - 3. Gas Chromatograph (3' x 4') in the gas yard on grade level. The cover will be attached to existing structural frames. (See Attachment A: Marked-up Facility Layout, labeled 2.a.3, for site location.)
 - 4. Trash Bins (10' x 16') on ground level. There will be additional six columns (10' H) to support this roof cover. (See Attachment A: Marked-up Facility Layout, labeled 2.a.4, for site location.)
 - 5. RO equipment (10' x 50') and (12' x 18') on grade level and on existing concrete floor. There will be additional columns (10' H) to

support the roof cover. (See Attachment A: Marked-up Facility Layout, labeled 2.a.5, for site location.)

- b. **Necessity for the Modification:** The installation of roof covers is needed to protect the equipment/devices from rain water and other out-door elements. The functionality of some equipment in the above list, e.g. DCS cabinets, gas chromatograph, motors, and water treatment package can be impacted, hence, may potentially trip the power generating units, when allowed to remain exposed to rain water and other elements. This issue was made obvious upon discovery of water damage to the internals of several pieces of equipment. Hence, to ensure continued operational availability of the facility, the roof covers are needed. Also, the cover on the trash bin can enhance the existing facility SWPPP best management practice (BMP) by preventing water intrusion into the bins, which can potentially be discharge on the ground and the storm water system of the site. On both cases, the installation of roof covers aims to mitigate the identified impacts.
- c. **Modification was not known at the time of Certification:** The need for modification become apparent only after several months of normal operation.
- d. **If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted:** The modification does not change or undermine in any way the assumptions, rationale, findings, or other basis of the CEC Final Decision (00-AFC-1).
- e. **Analysis of the impacts the modification may have on the environment:** The installation of roof covers on the indicated equipment/devices will have no significant adverse impacts on the environment. The visual impact of the proposed installation will be minimal and will not likely be noticeable to the public. The roof cover will be painted to match the existing CEC approved color for the facility and will blend in with existing structure.
- f. **Analysis on the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards:** The proposed modification does not impact the facility's ability to comply with all applicable laws, ordinances, regulations, and standards.
- g. **A discussion of how the proposed modification affects the public:** This modification will have no adverse effect on the public. The minimal visual impact will be mitigated by painting the structure with color that matches the existing CEC approved color for the facility.

- h. **Property owners potentially affected by the modification** It is anticipated that no property owners will be affected by the proposed modification

3. Pre-fabricated Utility Sheds

- a. **Description of Modification:** This modification proposes to install a pre-fabricated metal utility shed with dimension: 16' x 40' x 10' H, to store maintenance and mechanical equipment. Concrete flooring will be provided for this installation. (See Attachment A: Marked-up Facility Layout, labeled 3, for location of the proposed modification.) (See Attachment D: Photo of Typical Pre-fabricated Metal Shed.)
- b. **Necessity for the Modification:** The utility shed will protect maintenance and mechanical equipment from being exposed to rain and other out-door elements. This modification will protect property and ensure continued availability of critical tools for maintaining continued operation of the facility.
- c. **Modification was not known at the time of Certification:** The need for modification become apparent only after several months of normal operation.
- d. **If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted:** The modification does not change or undermine in any way the assumptions, rationale, findings, or other basis of the CEC Final Decision (00-AFC-1).
- e. **Analysis of the impacts the modification may have on the environment:** The installation of the utility shed will have no significant adverse impact on the environment. The visual impact of the proposed modification is negligible as the shed will not visible from any property line. The metal shed will be painted with color that matches the existing CEC approved color for the facility.
- f. **Analysis on the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards:** The proposed modification does not impact the facility's ability to comply with all applicable laws, ordinances, regulations, and standards.
- g. **A discussion of how the proposed modification affects the public:** This modification will have no adverse effect on the public.

- h. **Property owners potentially affected by the modification** It is anticipated that no property owners will be affected by the proposed modification

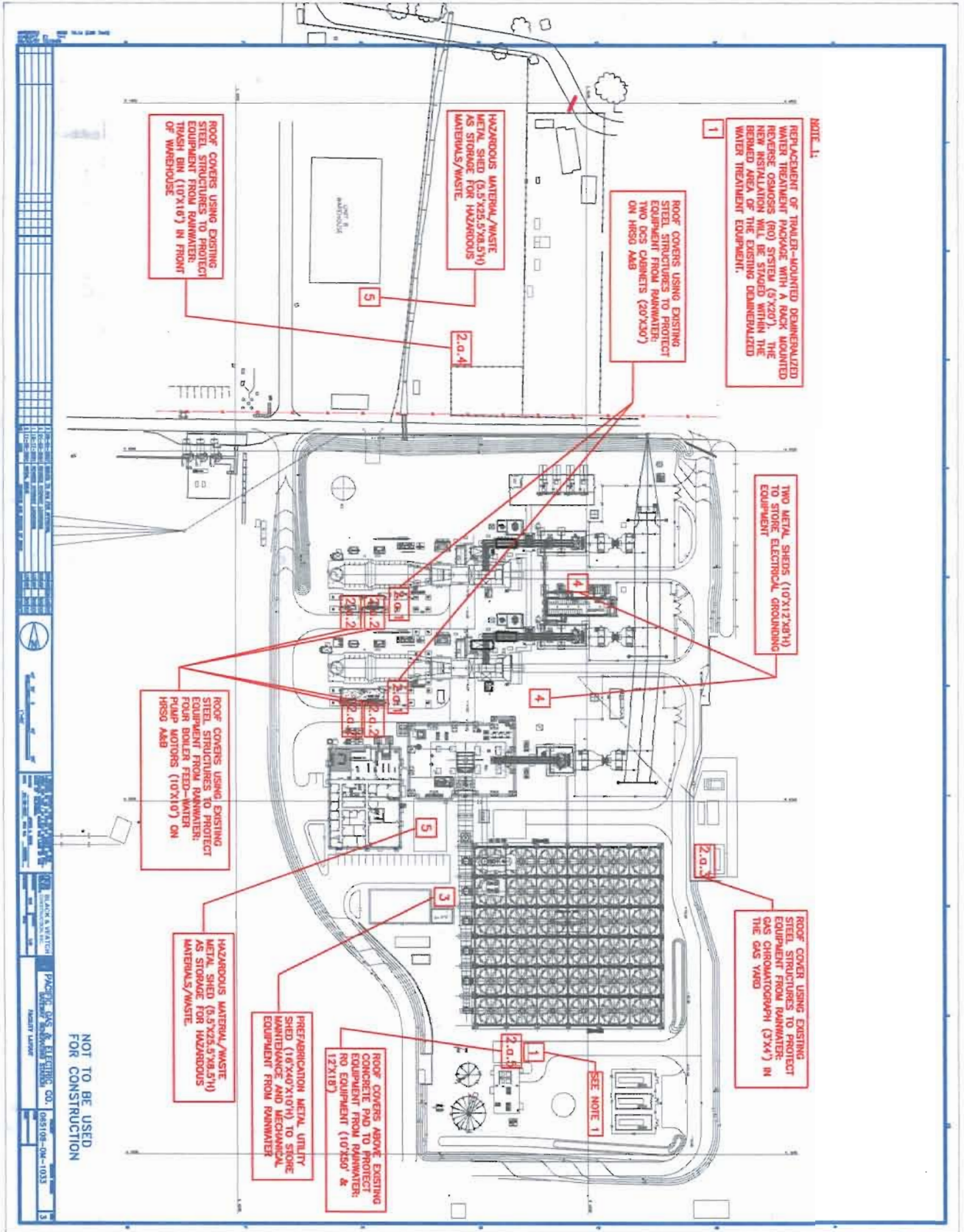
4. Metal "Tuff" Sheds

- a. **Description of Modification:** This modification proposes to install two (2) metal "Tuff" sheds with dimension: 10' x 12' x 8'H, on grade level to store electrical grounding equipment. (See Attachment A: Marked-up Facility Layout, labeled 4, for location of the proposed modification.)
- b. **Necessity for the Modification:** The metal "Tuff" sheds are needed to enhance safety and protection of personnel and property. The electrical grounding equipment, which will be stored in the sheds, is critical to safe operation and maintenance of the facility. The sheds will protect vital equipment from being exposed to rain and other out-door elements, hence ensuring continued availability of properly maintained equipment.
- c. **Modification was not known at the time of Certification:** The need for modification become apparent only after several months of normal operation.
- d. **If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted:** The modification does not change or undermine in any way the assumptions, rationale, findings, or other basis of the CEC Final Decision (00-AFC-1).
- e. **Analysis of the impacts the modification may have on the environment:** The installation of the utility shed will have no significant adverse impact on the environment. The visual impact of the proposed modification is minimal and will not likely be noticeable to the public. The minimal visual impact will be mitigated by painting the metal sheds with color that matches the existing CEC approved color for the facility.
- f. **Analysis on the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards:** The proposed modification does not impact the facility's ability to comply with all applicable laws, ordinances, regulations, and standards.
- g. **A discussion of how the proposed modification affects the public:** This modification will have no adverse effect on the public.
- h. **Property owners potentially affected by the modification** It is anticipated that no property owners will be affected by the proposed modification.

5. Portable Metal Sheds for Hazardous Materials/Waste Storage

- a. **Description of Modification:** This modification proposes to install two (2) portable metal sheds with dimension: 5.5' x 25.5' x 8.5'H, on grade level to store hazardous materials/waste. (See Attachment A: Marked-up Facility Layout, labeled 5, for location of the proposed modification.) The shed is equipped with secondary containment, fire suppression equipment, and eye-wash station. (See Attachment E: Hazardous Materials/ Waste Shed Specification). The hazardous material/waste storage is a component part of the Waste Management Plan for the facility. The plan was submitted to CEC to comply with Condition of Certification WASTE-2 on December 3, 2008.
- b. **Necessity for the Modification:** The installation of portable metal sheds for hazardous materials/waste storage is needed to comply with the facility's commitment with its Waste Management Plan
- c. **Modification was not known at the time of Certification:** The actual specification for the proposed sheds was not known at the time of certification, but the need for the hazardous materials/waste storage is required under the facility's Waste Management Plan.
- d. **If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted:** The modification does not change or undermine in any way the assumptions, rationale, findings, or other basis of the CEC Final Decision (00-AFC-1).
- e. **Analysis of the impacts the modification may have on the environment:** The installation of the metal sheds will have no significant adverse impact on the environment. In fact, the sheds are needed to more effectively manage hazardous materials/waste at the site, hence, protecting the environment.
- f. **Analysis on the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards:** The proposed modification does not impact the facility's ability to comply with all applicable laws, ordinances, regulations, and standards.
- g. **A discussion of how the proposed modification affects the public:** This modification will have no adverse effect on the public.
- h. **Property owners potentially affected by the modification** It is anticipated that no property owners will be affected by the proposed modification

ATTACHMENT A
MARKED-UP FACILITY LAYOUT



NOTE 1:
 REPLACEMENT OF TRAILER-MOUNTED DEMINERALIZED WATER TREATMENT PACKAGE WITH A RACK MOUNTED REVERSE OSMOSIS (RO) SYSTEM (9'X20'). THE NEW INSTALLATION WILL BE STAGED WITHIN THE REMOVED AREA OF THE EXISTING DEMINERALIZED WATER TREATMENT EQUIPMENT.

1
 ROOF COVERS USING EXISTING STEEL STRUCTURES TO PROTECT TWO OCS CABINETS (20'X30') ON HISS ASB

2
 HAZARDOUS MATERIAL/WASTE METAL SHED (0.5'X23.5'X8.5'H) AS STORAGE FOR HAZARDOUS MATERIALS/WASTE

4
 TWO METAL SHEETS (10'X12'X8'H) TO STORE ELECTRICAL GROUNDING EQUIPMENT

5
 ROOF COVERS USING EXISTING STEEL STRUCTURES TO PROTECT TRASH BIN (10'X16') IN FRONT OF WAREHOUSE

5
 ROOF COVERS USING EXISTING STEEL STRUCTURES TO PROTECT EQUIPMENT FROM RAINWATER: FOUR BOILER FEED-WATER PUMP MOTORS (10'X10') ON HISS ASB

2
 ROOF COVER USING EXISTING STEEL STRUCTURES TO PROTECT EQUIPMENT FROM RAINWATER: GAS CHROMATOGRAPH (3'X4') IN THE GAS YARD

5
 HAZARDOUS MATERIAL/WASTE METAL SHED (0.5'X23.5'X8.5'H) AS STORAGE FOR HAZARDOUS MATERIALS/WASTE

3
 PREFABRICATED METAL UTILITY SHED (16'X40'X10'H) TO STORE MAINTENANCE AND MECHANICAL EQUIPMENT FROM RAINWATER

1
 ROOF COVERS ABOVE EXISTING CONCRETE PAD TO PROTECT EQUIPMENT FROM RAINWATER: NO EQUIPMENT (10'X50' & 12'X18')

NOT TO BE USED FOR CONSTRUCTION

ATTACHMENT B
REVERSE OSMOSIS SYSTEM (RO): PROCESS DESCRIPTION
AND FLOW DIAGRAM

SIEMENS

Siemens Water Technologies Corp.
Integrated Solutions
2501 N. Barrington Road
Hoffman Estates, IL 60192
Phone - (847) 713-8460 Fax: (847) 713-8480

DATE June 21, 2010
TO: Vinh Nguyen
PREPARED BY: Paul Sandell, paul.sandell@siemens.com (530-672-6774)
SUBJECT: Scope Package – RO System
CUSTOMER NAME: **PG&E, Gateway Generating Station**
CUSTOMER LOCATION: Antioch, CA

SCOPE

PROCESS DESCRIPTION

PG and E Gateway Generating Power Plant will be providing City of Antioch, CA city water mixed with water from the plant Reclaim tank for processing by Siemens. Design includes specialized iron media filtration, 2 pass Reverse Osmosis to minimize the DI loading as much as possible (99.9% mineral removal), caustic interstage feed for complete CO₂ removal to protect the anion capacity, and two stage lead/lag Mixed Bed DI Polish. The feed water is detailed in the water analysis shown in Attachment A.

MEDIA FILTER

One (1) Preflex 54" specialized media filter is provided. Unit is 54" in diameter with a 72" side sheet which contains activated media to capture iron. Based on plant feedwater and reclaim testing, the iron levels were very high. Iron poses a high risk for membrane fouling if left untreated.

During maximum production periods (60 gpm demin water) the filter will deliver 95 gpm operating at 6.0 gpm/ft². The typical maximum level recommended is 5 gpm/ft², so under normal routine conditions, the system will be run at 50 gpm demin water. This reduction will lower the pretreatment flux to appropriate typical 5 gpm/ft², allowing us to only use 1 filter unit. The differential pressure across the filter will be continuously monitored and a backwashing sequence will be automatically initiated when an increase in pressure loss of 10 psi is noted across the beds. Backwash wastewater will be sent to the backwash holding tank prior to being regulated out to the city sewer along with the RO reject flow.

1ST PASS REVERSE OSMOSIS

Filtered water will be fed to the first pass reverse osmosis unit. The RO unit provided is arranged in a 2x2x1-4M array and containing (20) 365 ft² membrane modules. The RO unit will operate at a maximum 70% recovery with a conservative flux of 12.6 gfd. The RO train is capable of producing 70 gpm which will be fed to the downstream second pass RO unit. RO reject will be direct fed to PG and E for sewer disposal.

SODIUM HYDROXIDE FEED SYSTEM

Caustic will be added to the first pass RO product water. Carbon dioxide, which is not rejected by the RO membranes, will be converted to alkalinity, which is rejected by the RO membranes. This will significantly reduce the load on the mixed-bed units used to polish the RO product water. The sodium hydroxide feed system will be automatically controlled by an on-line pH monitor. At the maximum production rate (60 gpm demin water), it is expected that the daily usage of 15% sodium hydroxide will be <.25 gallons per day.

2ND PASS REVERSE OSMOSIS

One second-pass RO units is provided, arranged in a 1x1x1-4M array and containing (12) 350 ft² membrane modules. The RO units operate at 85-90% recovery with a conservative flux of 18.7 gfd. Reject from the second-pass RO units is recycled to the feed of the first-pass RO units. Note that the second pass RO unit is on the same skid as the first pass RO unit, along with a mixing chamber tube, specifically for caustic reaction time.

MIXED BED POLISHERS-OFF SITE REGENERABLE

Product water from the second-pass RO units is polished through off-site regenerable mixed-bed ion exchange resin vessels arranged in a lead-lag configuration. The polisher will provide the insurance that TDS and silica always meets the final specifications. Two (2) IX48 units will be installed with one in lead and one in lag, each being 48" in diameter and containing 60 ft³ of mixed-bed resin. Exchange frequency of DI polisher unit is predicted at one every 3 months per tank.

The DI water will be sent to PG and E's 100,000+ gallon DI storage tank. DI Storage tank level signals will be provided to Siemens for RO on/off operations.

EQUIPMENT AND CONTROLS SCOPE OF SUPPLY

The proposed system includes the following equipment and instrumentation.

1. MEDIA FILTRATION

- 1.1. **One (1) Siemens Water Technologies 54" Dia. Media Filter unit**, pre-skidded assembly complete with controls, PVC facepiping, valves, instrumentation.

2. ANTISCALANT CHEMICAL FEED

- 2.1. **One (1) duplex feed pump skid**, one (1) online / (1) installed spare
- 2.2. **One (1) Day Tank**
- 2.3. **One (1) Double Containment tank – 110% day tank capacity**

3. BISULFITE CHEMICAL FEED – Existing Equipment owned by PG and E

- 3.1. **One (1) duplex feed pump skid**, one (1) online / (1) installed spare
- 3.2. **One (1) Day Tank**
- 3.3. **One (1) Double Containment tank – 110% day tank capacity**

4. REVERSE OSMOSIS SYSTEM

- 4.1. **One (1) Siemens Water Technologies model M284**, Two Pass RO unit, pre-skidded complete with:
 - 4.1.1. **High Pressure Pump**
 - 4.1.2. **480V Power Panel with step-down transformer**
 - 4.1.3. **PLC controls –**
 - 4.1.4. **Caustic Feed injection point on-skid**

5. INTERSTAGE CAUSTIC CHEMICAL FEED

- 5.1. **One (1) feed pump skid**
- 5.2. **One (1) Day Tank**
- 5.3. **One (1) Double Containment tank – 110% day tank capacity**

6. ION EXCHANGE

- 6.1. **One (1)IX-48 exchange LEAD DI vessel, 60 cf of mixed bed DI resin**

6.2. **One (1) IX-48 exchange LAG DI vessel, 60 cf of mixed bed DI resin**

7. **INSTRUMENTATION AND CONTROLS**

7.1. The following are in addition to the instruments that are part of each unit operation or listed above.

INSTRUMENT	FEED	DI POLISH
Flow Meter	Y	Y
Conductivity	Y	Y
Chlorine	Y	
Silica – New Instrument Hach5000		Y
Terminal strips, enclosure, and miscellaneous devices.		Y
Remote monitoring.		N
Power distribution		N
Motor Control Center (dual feed)		N
PC, PC accessories, software included where applicable.		N
Class-I, Div. II requirements		N

FEED WATER ANALYSIS: City of Antioch, CA Feed Water analysis mixed with Reclaim

Gateway Generating Station analysis dated 12/2/2009

Constituent	Units	City Water	Reclaim Water
Calcium (Ca)	ppm	14	12
Magnesium (Mg)	ppm	11	9.1
Sodium (Na)	ppm	59	47
Potassium (K)	ppm	3	2.3
Bicarbonate (HCO ₃) Alkalinity	ppm as CaCO ₃	63.6	53.5
Carbonate (CO ₃) Alkalinity	ppm as CaCO ₃	0	0
Sulfate (SO ₄)	ppm	34	27
Chloride (Cl)	ppm	85	69
Phosphate (PO ₄)	ppm as CaCO ₃	Missing (<1.0)	Missing (<1.0)
Nitrate (NO ₃)	ppm as CaCO ₃	ND	ND
Silica (SiO ₂)	ppm	Missing (<30)	Missing (<30)
Conductivity	μ.S/cm	474	397
pH	Standard Unit	8.27	8.02
Carbon Dioxide (CO ₂)	ppm	< 2.0	< 2.0
Turbidity	NTU	Missing (< 5.0)	Missing (<5.0)
Free Chlorine (Chloramines)	ppm	3.0 max	0
TOC	ppm	2.3	2.1
O&G	ppm	0.0	0.0
Iron, total (Fe)	ppm	1.0	0.42
Manganese (Mn)	ppm	.083	ND
Temperature	°F	55 - 70	110 MAX

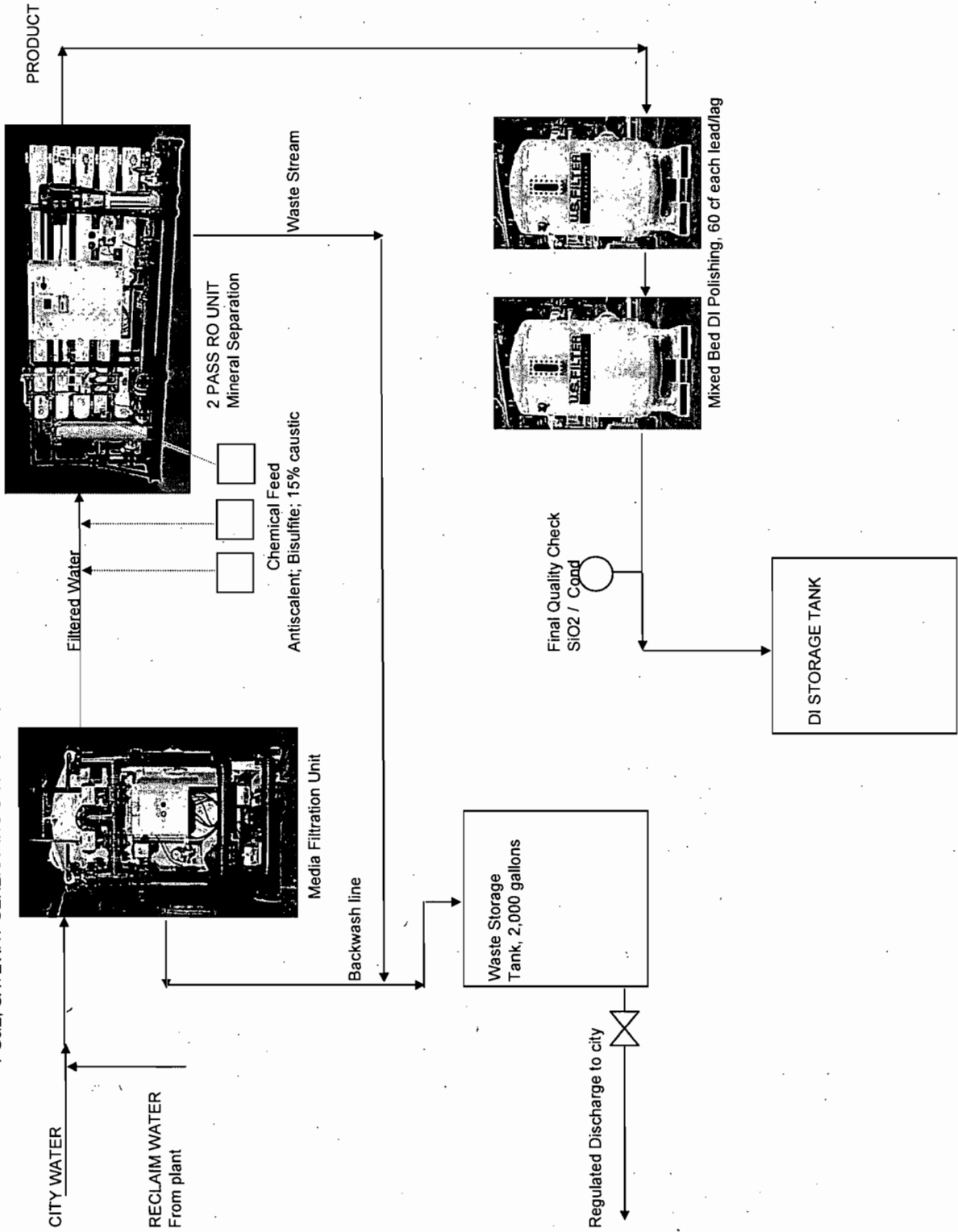
PRODUCT WATER - QUANTITY

Description	Design
Flowrate - GPM	60 gpm, max
Pressure - psig	40
Availability - %	99%

PRODUCT WATER - QUALITY

Quality Parameter	Maximum	Expected
Silica – ppb as ion	< 10 ppb	< 10 ppb
Conductivity – uS/cm	< 1	< 0.1

PG&E, GATEWAY GENERATING STATION FLOW DIAGRAM





Delta Diablo Sanitation District

OFFICE AND TREATMENT PLANT: 2500 PITTSBURG-ANTIOCH HIGHWAY, ANTIOCH, CA 94509-1373

TEL: (925) 756-1900 ADMIN. FAX: (925) 756-1961 MAINT. FAX: (925) 756-1963 OPER. FAX: (925) 756-1962 TECH. SVCS. FAX: (925) 756-1960
www.ddsd.org

May 27, 2010

Mr. Angel Espiritu
PG & E Gateway Generating Station
3225 Wilbur Avenue
Antioch, CA 94509

**SUBJECT: REVERSE OSMOSIS TREATMENT PROCESS APPROVAL AND DISTRICT
TOTAL DISSOLVED SOLIDS TECHNICAL REVIEW**

Dear Mr. Espiritu:

Delta Diablo Sanitation District (the District) has reviewed your request to switch over from the current demineralization water treatment process to the new Reverse Osmosis (RO) water treatment system. The District shall grant approval for the use of the RO system.

Please be advised that the District has contractual Total Dissolved Solids (TDS) water quality standard requirement obligations for providing and maintaining recycled water from the District's Recycled Water Facility (RWF) to its customers.

The District is in the process of a technical review regarding TDS contributions to the District's wastewater treatment plant. Pending the outcome of this study, the District may implement future TDS regulations and/or policies to manage this constituent within the District's service area.

If you have any questions, please contact Andrew Kobayashi, District Inspector, at (925) 756-1929. Thank you.

Sincerely,

Darrell Cain
Laboratory Manager

DC:zr

cc: Andrew Kobayashi, Industrial Monitoring Inspector, DDSD\
Chron File
NPDES.07.02-PREDOC-1958

ATTACHMENT D
PHOTO OF TYPICAL PRE-FABRICATED METAL SHED

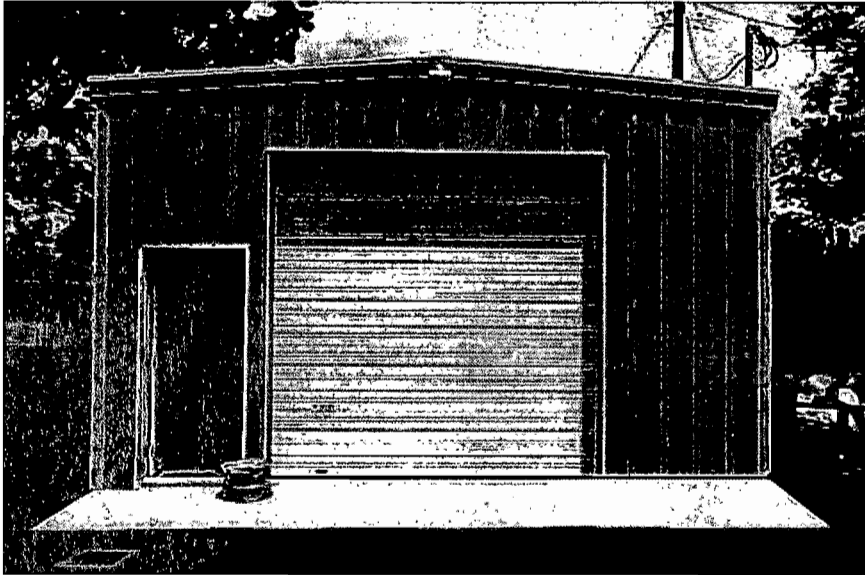


Photo of Typical Pre-fabricated Metal Shed

ATTACHMENT E
HAZARDOUS MATERIALS/WASTE SHED: SPECIFICATION

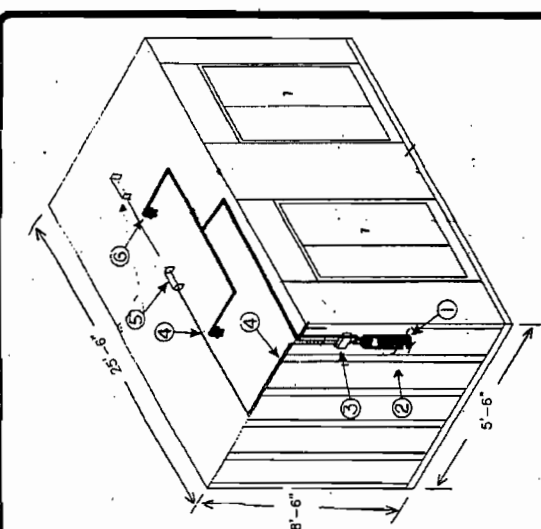
NOTICE: THIS PROJECT IS A CONTRACT PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY HAVING JURISDICTION.

**INSTALLATION OF A NEW
TOTAL FLOOD
FIRE SUPPRESSION SYSTEM**

PROJECT ADDRESS
P&E GATEWAY GENERATING STATION
3225 WILBUR AVE
ANTIOCH, CA 94509

DATE:	08-30-20
REVISION:	
REVISION-1:	

FS-01
FIRE SUPPRESSION
CADD FILE: 2550-01.DWG



FLOOR PLAN
Scale as noted

SCOPE OF WORK:
Install new automatic total flood fire suppression system for storage building

GENERAL NOTES:
1. All HVAC equipment and smoke / fire dampers to shut upon discharge
2. System shall be connected to the building fire alarm panel, if provided (by others)
3. System shall be installed in accordance with NFPA 17 and local authority having jurisdiction

ITEM	PART NUMBER	DESCRIPTION
1	PCI 35ABC	35# ABC DRY CHEM TANK
2	MCHB	MECHANICAL CONTROL HEAD
3	TFNFB	TOTAL FLOOD NOZZLE
4	FLK1	FUSIBLE LINK DETECTOR, 168 DEG.
5	EMT	1/2" EMT CONDUIT
6	SCH40	SCHEDULE 40 PIPE

NOTE:
The listed ABC Dry Chemical Tank shall be installed in accordance with the manufacturer's instructions. The tank shall be installed in a well-ventilated area and shall be protected from physical damage. The tank shall be installed in a well-ventilated area and shall be protected from physical damage.

CAUTION:
Do not spray chemical into face or eyes. Avoid breathing vapors. Do not spray chemical into face or eyes. Avoid breathing vapors.

The system shall be installed in accordance with the manufacturer's instructions. The system shall be installed in accordance with the manufacturer's instructions.



PIPE AND NOZZLE INSTALLATION

1. Use Schedule 40 pipe, 1/2" or 3/4" diameter, as specified in the manufacturer's instructions. The pipe shall be installed in accordance with the manufacturer's instructions.

2. Use reducing tees for 1/2" pipe sizes.

3. Use elbows for 1/2" pipe sizes.

4. Use 90-degree elbows for 1/2" pipe sizes.

5. Use 45-degree elbows for 1/2" pipe sizes.

6. Use 1/2" pipe and fittings per manufacturer's instructions.

7. Make connections to other pipe sizes, using reducer tees.

8. Make connections to other pipe sizes, using reducer tees.

9. Make connections to other pipe sizes, using reducer tees.

TABLE 4-4
Total Flooding Nozzle Production Chart

Nozzle Size	1/2" Pipe		3/4" Pipe		1" Pipe		1 1/2" Pipe		2" Pipe	
	Flow (GPM)	Reach (ft)	Flow (GPM)	Reach (ft)	Flow (GPM)	Reach (ft)	Flow (GPM)	Reach (ft)	Flow (GPM)	Reach (ft)
1/2"	10	15	15	20	20	25	30	35	40	45
3/4"	15	20	20	25	25	30	35	40	45	50
1"	20	25	25	30	30	35	40	45	50	55
1 1/2"	25	30	30	35	35	40	45	50	55	60
2"	30	35	35	40	40	45	50	55	60	65

**INDUSTRIAL DRY/CHEMICAL
TOTAL FLOOD FIRE SUPPRESSION**



Figure 4-23: Typical Diagram for Flooded Discharge

Component	Quantity	Part Number	Manufacturer	Notes
ABC Dry Chemical Tank	1	PCI 35ABC	PCI	
Mechanical Control Head	1	MCHB	MCHB	
Total Flood Nozzle	1	TFNFB	TFNFB	
Fusible Link Detector	1	FLK1	FLK1	
EMT Conduit	1	EMT	EMT	
Schedule 40 Pipe	1	SCH40	SCH40	

1. The listed ABC Dry Chemical Tank shall be installed in accordance with the manufacturer's instructions. The tank shall be installed in a well-ventilated area and shall be protected from physical damage.

2. The listed Mechanical Control Head shall be installed in accordance with the manufacturer's instructions. The control head shall be installed in a well-ventilated area and shall be protected from physical damage.

3. The listed Total Flood Nozzle shall be installed in accordance with the manufacturer's instructions. The nozzle shall be installed in a well-ventilated area and shall be protected from physical damage.

4. The listed Fusible Link Detector shall be installed in accordance with the manufacturer's instructions. The detector shall be installed in a well-ventilated area and shall be protected from physical damage.

5. The listed EMT Conduit shall be installed in accordance with the manufacturer's instructions. The conduit shall be installed in a well-ventilated area and shall be protected from physical damage.

6. The listed Schedule 40 Pipe shall be installed in accordance with the manufacturer's instructions. The pipe shall be installed in a well-ventilated area and shall be protected from physical damage.

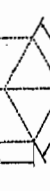


Figure 4-24: Typical Diagram for Flooded Discharge

1. Nozzle Coverage:
The nozzle shall be installed in accordance with the manufacturer's instructions. The nozzle shall be installed in a well-ventilated area and shall be protected from physical damage.

2. Total Flooding with ABC:
The system shall be installed in accordance with the manufacturer's instructions. The system shall be installed in accordance with the manufacturer's instructions.

3. Nozzles:
The nozzles shall be installed in accordance with the manufacturer's instructions. The nozzles shall be installed in accordance with the manufacturer's instructions.

4. Temperature Ratings:
The system shall be installed in accordance with the manufacturer's instructions. The system shall be installed in accordance with the manufacturer's instructions.

5. Weight Requirements:
The system shall be installed in accordance with the manufacturer's instructions. The system shall be installed in accordance with the manufacturer's instructions.

6. Height Requirements:
The system shall be installed in accordance with the manufacturer's instructions. The system shall be installed in accordance with the manufacturer's instructions.

7. Clearance Requirements:
The system shall be installed in accordance with the manufacturer's instructions. The system shall be installed in accordance with the manufacturer's instructions.

8. Installation Notes:
The system shall be installed in accordance with the manufacturer's instructions. The system shall be installed in accordance with the manufacturer's instructions.

9. Additional Notes:
The system shall be installed in accordance with the manufacturer's instructions. The system shall be installed in accordance with the manufacturer's instructions.