Sacramento Cogeneration Authority
P.O.Box 15830, Sacramento, CA 95852-1830
SCA Cogeneration Project

STATE OF CALIFORNIA

STATE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

In the matter of:	)	**Docket No. 93-AFC-2C**
	)	
Procter and Gamble Cogeneration Project	)	**SCA'S PETITION FOR POST-CERTIFICATION LICENSE AMENDMENT**
	)	
	)	

The Sacramento Cogeneration Authority ("SCA") hereby submits this Petition for Post-certification License Amendment ("Petition") for the SCA's Procter and Gamble Cogeneration Project ("PGCP" or "Project") pursuant to Section 1769(a), Title 20, California Code of Regulations, to the California Energy Commission ("CEC"). By this Petition, SCA proposes to install an additional auxiliary boiler and requests approval to modify the CEC's Air Quality Conditions of Certification to incorporate any new permit conditions imposed by the Sacramento Metropolitan Air Quality Management District.

As an officer of SCA, I hereby attest, under penalty of perjury, under the laws of the State of California, that the contents of this Petition are truthful and accurate to the best of my knowledge and belief.

SACRAMENTO COGENERATION AUTHORITY

Respectfully submitted,

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Dated: October 30, 2014

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Petition for Post-certification License Amendment

Addition of an Auxiliary Boiler and Associated Facilities

for the

Sacramento Cogeneration Authority's Procter and Gamble Cogeneration Project

Sacramento, California

(93-AFC-2C)

Submitted to

California Energy Commission

Submitted by

Sacramento Cogeneration Authority

October 2014

With Technical Assistance by

CH2MHILL

and

Sierra Research

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Acronyms and Abbreviations

AFC	Application for Certification
BACT	Best Available Control Technology
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act (
CHRIS	California Historical Resources Information System
CO	carbon monoxide
CO_{2e}	carbon dioxide equivalent
COC	Condition of Certification
CRHR	California Register of Historical Resources
CSSC	Campbell Soup Supply Company LLC
EPA	United States Environmental Protection Agency
GE	General Electric
HARP	Hotspots Analysis and Reporting Program
HRA	health risk assessment
HRIER	Historic Resources Inventory and Evaluation Report
JRP	JRP Historical Consulting, LLC
lb	pound
LORS	laws, ordinances, regulations, and standards
$\mu g/m^3$	microgram per cubic meter
MMBtu/hr	million Btus per hour
MW	megawatt
NOx	oxides of nitrogen
P&G	Procter and Gamble Company
PGCP	Procter and Gamble Cogeneration Project
PM_{10}	particulate matter less than 10 micrometers in aerodynamic diameter
$PM_{2.5}$	particulate matter less than 2.5 micrometers in aerodynamic diameter
ppm	parts per million
ppmvd	parts per million, volumetric dry
PRC	Public Resources Code
PTA	Petition to Amend
ROC	reactive organic compound
SCA	Sacramento Cogeneration Authority

SCR	selective catalytic reduction
SIL	significant impact level
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SOx	oxides of sulfur, or sulfur oxides
SO_2	sulfur dioxide
TAC	toxic air contaminant
VOC	volatile organic compound

Executive Summary

The Sacramento Cogeneration Authority (SCA) respectfully submits this petition to the California Energy Commission (CEC) for post-certification license modification for the Sacramento Cogeneration Authority's Procter and Gamble Cogeneration Project (PGCP) (93-AFC-2C) located at 5000 83rd Street, Sacramento, California. This petition for post-certification license amendment (Petition to Amend, or PTA) proposes the following action:

- Install an additional auxiliary boiler (Boiler 1B) and associated facilities at the PGCP site

No additional construction activities at PGCP site beyond what is described herein would be required as part of this PTA.

The environmental impacts assessment presented in Section 3.0 concludes that there will be no significant adverse environmental impacts associated with the implementation of the actions specified in this PTA. The associated impacts to the environment would be less than significant and in some cases, such as air quality, noise, water use, and public health, less than the levels currently being experienced at the PGCP facility. Therefore, not only will no adverse effects on the environment occur because of the changes to the project as proposed in this PTA, but some minor environmental benefits will occur.

The project, as modified, will comply with all applicable laws, ordinances, regulations, and standards (LORS). However, SCA requests that the Air Quality Conditions of Certification (COC) be revised to incorporate any new permit conditions imposed by the Sacramento Metropolitan Air Quality Management District as part of its review proposed project modifications. It is not anticipated that any other existing COCs will need to be revised.

SECTION 1.0

Introduction

The Sacramento Cogeneration Authority (SCA) operates two General Electric (GE) LM6000 SPRINT combined-cycle gas turbines, Units #1 and #2, which produce electricity and steam at its Procter & Gamble Cogeneration Project (PGCP) facility located at 5000 83rd Street, Sacramento, California (Figure 1). This steam is used to power a steam turbine for additional electricity production, as well as to supply the adjacent Procter & Gamble (P&G) facility with steam for its production needs. To support its steam production requirements, PGCP also has an existing Auxiliary Boiler 1A. In addition to the two combined-cycle units, the facility also includes a simple-cycle gas turbine for peak power production.

SCA's existing steam supply contract with P&G requires it to maintain two separate steam generation sources in service at all times. The purpose of the new auxiliary boiler (designated as Boiler 1B) is to provide sufficient steam and steam backup capacity for the P&G facility processes such that SCA would not have to run at least one of its combined-cycle turbines at all times. This would allow PGCP to reduce facility-wide emissions because it would be replacing the operation of a 500 million Btu per hour (MMBtu/hr) gas turbine with a 108.7 MMBtu/hr boiler. The net result is that the new auxiliary boiler and associated facilities will not increase the maximum facility-wide emissions on an hourly, daily, quarterly, or annual basis.

1.1 License History

The California Energy Commission (CEC or Commission) approved the SCA PGCP in November 1994. The PGCP site, located at 5000 83rd Street (APN 061-0010-030), is situated adjacent to the P&G manufacturing facility, located at 8201 Fruitridge Road, Sacramento, California.

Submitted in October 1993, the Application for Certification (AFC) for the PGCP analyzed the impacts associated with the 171-megawatt (MW) natural-gas-fired, combined-cycle power plant (93-AFC-2C). The AFC was determined data adequate by the CEC in November 1993, project construction began in June 1995, and the project declared commercial operation on March 1, 1997. The project's simple-cycle peaking gas turbine was later added and declared commercial operation on May 1, 2001.

In February 2006, SCA received an order approving amendment of Air Quality Conditions of Certification (COC) 10, 11, 19, 25, 33, 38 and 39. These amendments allowed SCA to substitute equipment and process for continuous emission monitoring of ammonia emissions from the project's two combined-cycle units, simple-cycle unit, and auxiliary boiler with surrogate ammonia flow-based monitoring. It also added language that allows SCA the option: a) to use either an ammonia-based selective catalytic reduction (SCR) system or ultra-low nitrogen oxides (NOx) burners in the auxiliary boiler for NOx control; and b) of not testing for ammonia emissions from the auxiliary boiler if the non-SCR NOx control technology is used. In addition, it also recognized an increase in the size of the auxiliary boiler steam generating capacity from 80,000 pounds per hour to 90,000 pounds per hour (CEC, 1996).

In December 2007, SCA submitted another PTA to the CEC for the purpose of replacing the PGCP's two GE LM6000PA turbines with GE LM6000PC SPRINT/EFS turbines, and upgrading the existing GE LM6000PC turbine to a SPRINT/EFS model turbine. In addition, the PTA indicated SCA's proposal to change several COCs, add several new conditions, and delete one condition (URS, 2007).

CEC staff reviewed the PTA and on February 29, 2008, determined that: (1) it complied with the requirements of Title 20, Section 1769(a) of the California Code of Regulations (CCR) regarding post-certification project modifications; and (2) the project would remain in compliance with all applicable laws, ordinances, regulations, and standards, subject to the provisions of Public Resources Code Section 25525 (CEC, 2008a).

In its review of the PTA, CEC staff assessed the impacts of that proposal on environmental quality, public health and safety, and proposed revisions to seven COCs: AQ-10 through AQ-14, AQ-16, and AQ-39. In addition, AQ-15 was deleted, and AQ-50 and AQ-51 were added to the current COCs. The CEC approved the PTA on March 2008 (CEC, 2008b).

1.2 Overview of Proposed Amendment

On September 27, 2012, Campbell Soup Supply Company LLC (CSSC) made a public announcement that it would close its South Sacramento facility in 2013. On October 30, 2012, the CSSC provided official written notice to the Sacramento Municipal Utility District (SMUD) of its intent to close the CSSC's Sacramento facility and terminate the Steam Sales Agreement between SMUD and CSSC effective October 30, 2013. On May 9, 2013, CSSC shut down all steam systems and ceased receipt of steam from its steam supplier, the Sacramento Power Authority. Upon closure of the facility, SMUD purchased three of CSSC's auxiliary boilers, subsequently assigning ownership of one boiler to SCA for use at the PGCP.

This PTA addresses the construction and operation impacts associated with the installation and operation of another auxiliary boiler and associated facilities at PGCP. Detailed descriptions of the proposed modifications are included in Section 2.0. The location of Boiler 1B and construction laydown area are shown in Figure 2.

This PTA contains all of the information that is required pursuant to the CEC's Siting Regulations (Title 20, CCR, Section 1769, Post Certification Amendments and Changes). The information necessary to fulfill the requirements of Section 1769 is contained in Sections 1.0 through 6.0 as summarized in Table 1.2-1.

TABLE 1.2-1
Informational Requirements for Post-certification Modifications

Section 1769 Requirement	Section of Petition Fulfilling Requirement
(A) A complete description of the proposed modifications, including new language for any conditions that will be affected	Section 2.0— Description of Proposed Amendment Sections 3.1 to 3.16—Proposed changes to COCs, if necessary, are located at the end of each technical section
(B) A discussion of the necessity for the proposed modifications	Section 1.4
(C) If the modification is based on information that was known by the petitioner during the certification proceeding, an explanation why the issue was not raised at that time	Section 1.5
(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	Sections 1.6, to 1.7; 3.1 to 3.16
(E) An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts	Section 3.1 to 3.16
(F) A discussion of the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards;	Sections 1.7; 3.1 to 3.16
(G) A discussion of how the modification affects the public	Section 4.0
(H) A list of property owners potentially affected by the modification	Section 5.0
(I) A discussion of the potential effect on nearby property owners, the public and the parties in the application proceedings.	Section 6.0

1.3 Ownership of the Facility Property

PGCP is owned and operated by the SCA, which is a joint powers agency. It is governed by a commission composed of the seven members of the SMUD Board of Directors.

1.4 Necessity of Proposed Changes

The CEC Siting Regulations require a discussion of the necessity for the proposed revisions to certification and whether the amendment is based on information known by the petitioner during the certification proceeding (Title 20, CCR, Sections 1769 (a)(1)(B), and (C)).

SCA's contract with P&G requires operation of two sources of steam from SCA during the P&G plant's operation in order to furnish the maximum flow rate of 120,000 pounds per hour; or, in the event that an unscheduled maintenance activity leaves SCA with only one steam source available, a reduction in the steam supply obligation to 80,000 pounds per hour for the duration of the event. This PTA proposes to install a second auxiliary boiler (Boiler 1B) and associated facilities at the PGCP site, for a total of two boilers at the site. This action would provide more flexibility during low electrical demand periods; it would allow SCA to shut down both combined-cycle gas turbines and rely solely on the two auxiliary boilers to meet its contractual steam supply requirements to the adjacent P&G manufacturing facility. During periods of low electrical demand, it is not economically beneficial to operate the combined-cycle combustion turbines for the production of electricity and ultimately results in the unnecessary release of greenhouse gasses and criteria pollutants.

1.5 Need for Modification was Not Known at the Time of Certification

In the early 1990s, the PGCP was one of several projects proposed by SMUD to replace a portion of the 913 MW lost when the Rancho Seco Nuclear Power Plant was closed by the ratepayers/voters. At that time, a period of low electricity demand was not contemplated. The proposed changes are required for efficiency and operational flexibility purposes, and were not determined to be necessary until after PGCP had been in operation for several years.

1.6 Why the Change Should be Permitted

The proposed project would allow SCA to operate PGCP more efficiently and enable greater flexibility of operation by permitting both combustion turbines to be shut down concurrently. This would provide greater operational flexibility for both planned and unplanned outages, allow more efficient use of resources during periods of low electrical demand, and result in reduced air emissions. This change would be consistent with SMUD's policies of improving energy efficiency, reducing water use, and reducing greenhouse gas emissions.

1.7 Consistency of Proposed Changes with Applicable Laws, Ordinances, Regulations, and Standards

The CEC Siting Regulations also require a discussion of the consistency of the proposed project revision with the applicable laws, ordinances, regulations, and standards (LORS) and whether the modifications are based on new information that changes or undermines the assumptions, rationale, findings, or other basis of the final decision (Title 20, CCR, Section 1769 (a)(1)(D)). If the project would no longer be consistent with the certification, the PTA must provide an explanation as to why the modification should be permitted.

The proposed project modifications are consistent with all applicable LORS, as discussed in Section 3.0, and this PTA is not based on new information that changes or undermines any basis for the final decision. The proposed project modifications would allow PGCP to be operated more efficiently than it currently is, and to

meet environmental goals and the current demand for electricity. PGCP would continue to operate in compliance with all applicable LORS. Therefore, the findings and conclusions contained in the November 16, 1994 Commission Decision (CEC, 1994) for PGCP would remain applicable to the project, as modified.

1.8 Summary of Environmental Impacts

The CEC Siting Regulations require that an analysis be conducted to address the potential impacts the proposed modifications may have on the environment and to propose measures to mitigate any potentially significant adverse impacts (Title 20, CCR, Section 1769 (a)(1)(E)). The regulations also require a discussion of the modification's impact on the facility's ability to comply with applicable LORS (Section 1769 (1)(a)(F)). Section 3.0 of this PTA includes a discussion of the potential environmental impacts associated with the modification as well as a discussion of the consistency of the modification with LORS. Section 3.0 also includes updated environmental baseline information (if changes have occurred since the AFC was prepared) that would have a bearing on the environmental analysis of this PTA. Section 3.0 concludes that there would be no significant environmental impacts associated with implementing the actions specified in this PTA and that the project, as modified, will comply with all applicable LORS.

1.9 Conditions of Certification

This PTA proposes to add an auxiliary boiler (Boiler 1B) and associated facilities to the PGCP site. SCA requests that the Air Quality COCs be revised to incorporate any new permit conditions imposed by the Sacramento Metropolitan Air Quality Management District (SMAQMD) as part of its review of proposed project modifications. It is not anticipated that any other existing COCs will need to be revised.

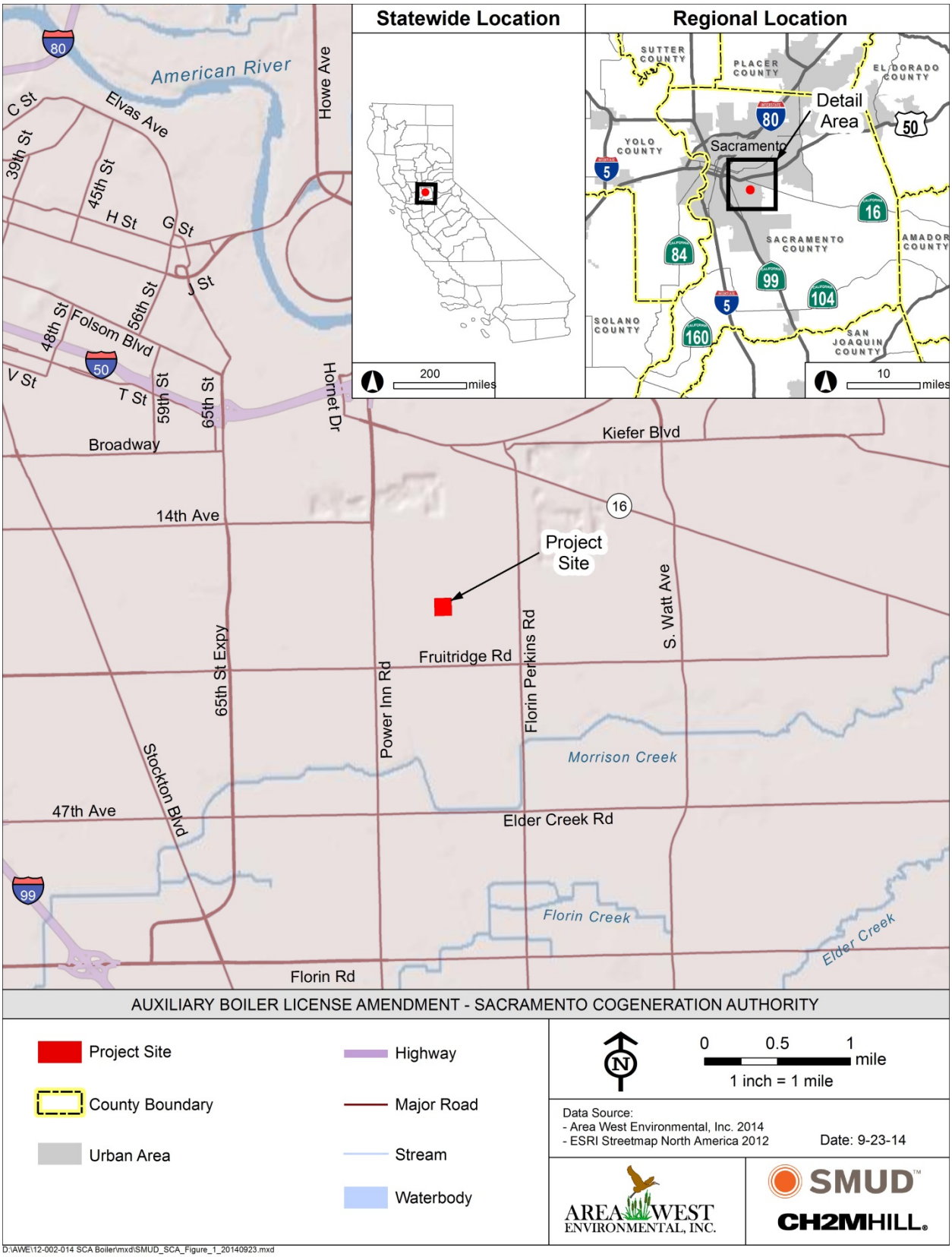

Figure 1: Project Vicinity

AUXILIARY BOILER LICENSE AMENDMENT - SACRAMENTO COGENERATION AUTHORITY

Project Site (9.564 acres)

Construction Laydown Area

Proposed Boiler 1B Location

N

0 100 200 feet

1 inch = 200 feet

Data Source:
- Area West Environmental, Inc. 2014
- ESRI ArcGIS Online; Aerial Background, Accessed September, 2014

Date: 9-29-14

AREA WEST ENVIRONMENTAL, INC.

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Figure 2 – Project Site

SECTION 2.0

Description of Proposed Amendment

SCA is required to submit a PTA to the CEC to modify its license for PGCP and assure that construction and operation of the proposed auxiliary boiler and associated facilities would comply with applicable LORS. This section includes a description of the proposed modifications, consistent with CEC Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(A)).

SCA proposes to install a second auxiliary boiler (Boiler 1B) and associated facilities at the PGCP facility to provide more operational flexibility during low electrical demand periods. During such periods, this change would allow SCA to shut down both combined-cycle gas turbines and rely solely on its two auxiliary boilers to generate and supply steam to the adjacent P&G manufacturing facility for its production needs, when it is not economically beneficial to operate the combustion turbines.

The proposed auxiliary boiler would be natural-gas-fired with a maximum rated heat input of approximately 108.7 MMBtu/hr. The installation of the auxiliary boiler would include the following tasks:

- Utility tie-in
- Site preparation (civil work)
- Boiler foundation construction
- Disassembly and transport of the boiler
- Boiler installation and mechanical/electrical tie-in to existing system
- Construction and installation of associated facilities
- Tie-in to substation

It is anticipated that installation of Boiler 1B would require one trip via a lowboy semi-trailer from the CSSC's plant to the PGCP site (a distance of approximately 4.8 to 5.4 miles, depending on the route used). The boiler delivery trip would occur during off-hours (between 10:00 p.m. and 4:00 a.m.). The preferred transportation route is to travel from the CSSC plant heading north on Franklin Boulevard for a distance of approximately 350 feet, then turning right onto 41st Avenue / Lemmon Hill Avenue and travel a distance of approximately 3.2 miles, then turn left onto Power Inn Road for 0.6 mile, then turn right onto Fruitridge Road for 0.5 mile, and finally turn left onto 83rd Street to the PGCP site.

It is expected that site preparation, foundation construction, boiler installation, and associated connection activities would take up to 5 months of non-continuous construction. Other than the transportation of the auxiliary boiler to the project site, construction activities would generally occur between 7:00 a.m. and 7:00 p.m. on weekdays, with noisy construction limited to occur between the hours of 7:00 a.m. and 6:00 p.m. It is expected, at peak, that 20 construction workers would commute to the PGCP site on a daily basis during that 2-month period (October and November), and that three to five materials deliveries would occur daily during the peak construction months.

Operation of the auxiliary boiler would be performed as part of existing operations by the operations and maintenance personnel that currently operate PGCP. Therefore, no additional operations personnel are anticipated. In addition, operation of the boiler would not result in a material or substantial alteration of the wastewater discharge volume or characteristics. No increase in the wastewater discharge volume is anticipated because the boiler operation would actually use less water than the displaced operation of the combustion turbine.

The proposed project modifications will be displacing the operation of a 500 MMBtu/hr gas turbine with operation of a 108.7 MMBtu/hr boiler. The net result is that the project will not increase the maximum facility-wide emissions on an hourly, daily, quarterly, or annual basis; and, in fact, may result in a net decrease in aggregate PGCP facility emissions. The new Boiler 1B will also meet best available control

technology (BACT) emission requirements by using an ultra-low NOx burner and SCR to reduce NOx emissions to 5 parts per million (ppm) corrected to 3 percent oxygen.

The potential environmental impacts associated with the addition of the auxiliary boiler and associated facilities to the PGCP facility are evaluated in Section 3.0.

SECTION 3.0

Environmental Analysis of Proposed Project Amendment

The proposed modifications to the PGCP license would be limited to the addition of the new Boiler 1B and associated facilities (its construction and operation). As a result, the environmental analysis for most of the environmental disciplines would not differ significantly from that described in the AFC and the impacts associated with this PTA would be less than significant.

The following subsections present a discussion of the potential impacts that the proposed project modification may have on the environmental analysis as presented in the AFC. More detail is provided for those areas where the potential for a significant impact exists.

3.1 Air Quality

In the 1994 Commission Decision, and the 2008 Amendment, it was determined that PGCP was in compliance with all applicable LORS. As described in this PTA, the proposed modifications for PGCP are also consistent with all applicable LORS, and this PTA will not alter the assumptions or conclusions made in the Commission Decision. However, as discussed below, the proposed modification to PGCP may result in changes to the ambient air quality impacts due to the operation of the new Boiler 1B. Therefore, this section evaluates the potential air quality impacts associated with the proposed modifications.

3.1.1 Environmental Baseline Information

The project will be located in Sacramento County. Sacramento County is currently classified as "attainment" for the state and federal ambient air quality standards for all pollutants except the federal 8-hour ozone and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) standards, and the state ozone and particulate matter less than 10 microns in diameter (PM_{10}) standards. Table 3.1-1 presents the background ambient air quality data in the project area.

TABLE 3.1-1
Maximum Background Concentrations,[a] Project Area, 2011–2013 (µg/m³)

Pollutant	Averaging Time	2011	2012	2013
NO_2 (Sacramento T Street)	1-hour	107.2	**116.6**	111.5
	Fed. 1-hour[b]	94.0	95.9	**98.1**
	Annual	**24.4**	22.6	22.6
SO_2 (Sacramento Del Paso Manor)	1-hour	**13.1**	10.5	**13.1**
	Fed. 1-hour[c]	5.2	5.2	**7.8**
	24-hour	2.6	**5.3**	**5.3**
CO (Sacramento El Camino and Watt)	1-hour	**2.6**	2.4	**2.6**
	8-hour	**3.1**	2.7	2.7
PM_{10} (Sacramento T Street)	24-hour (Fed)	38.8	36.2	**53.1**
	24-hour (CA)	42.2	36.7	**92.3**
	Annual (CA)	**19.2**	17.8	*

TABLE 3.1-1
Maximum Background Concentrations,[a] Project Area, 2011–2013 (µg/m³)

Pollutant	Averaging Time	2011	2012	2013
$PM_{2.5}$ (Sacramento T Street)	24-hour[d] (Fed)	**45.1**	20.5	33.4
	Annual (Fed)	**10.1**	8.3	10.0
	Annual (CA)	**10.1**	*	**10.1**

[a]With the exception of federal 1-hr NO_2, federal 1-hr SO_2, and 24-hr $PM_{2.5}$, **bolded** values are the highest during the 3 years and are used to represent background concentrations.

[b]Federal 1-hour NO_2 is shown as the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations.

[c]Federal 1-hour SO_2 is shown as the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations.

[d]24-hour average $PM_{2.5}$ concentrations shown are 3-year average 98th percentile values.

Notes:

Reported values have been rounded to the nearest tenth of a µg/m³.

*Insufficient data were available to determine the values.

3.1.2 Environmental Consequences

Boiler 1B will emit criteria pollutants including carbon monoxide (CO), nitrogen oxides (NOx), PM_{10}, $PM_{2.5}$, volatile organic compounds (VOC), and sulfur oxides (SOx). Boiler 1B will have elevated emissions during startup as the SCR control device heats to operating temperature and during commissioning activities. Boiler 1B will also have a pilot burner to keep the unit warm when it is not dispatched. This section presents future potential emissions from Boiler 1B and future potential emissions from the modified facility.

Table 3.1-2 presents the maximum hourly, daily, quarterly, and annual emissions from Boiler 1B during normal operating modes.

TABLE 3.1-2
Future Potential Emissions from Boiler 1B

		Maximum Emissions						
Pollutant	**Emission Factors**	**Hourly (lb)**	**Daily (lb)**	**1Q (lb)**	**2Q (lb)**	**3Q (lb)**	**4Q (lb)**	**Annual (tons)**
NOx	5 ppmvd @ 3% O_2[a]	0.66	15.8	1,425	1,441	1,457	1,457	2.9
CO	7.12 lb/hr[b]	7.12	170.9	15,379	15,550	15,721	15,721	31.2
$PM_{10}/PM_{2.5}$	0.00497 lb/MMBtu[c]	0.54	13.0	1,167	1,180	1,193	1,193	2.4
VOC/ROC	0.00377 lb/MMBtu[c]	0.41	9.8	885	895	905	905	1.8
SOx	0.0006 lb/MMBtu[c]	0.07	1.6	141	142	144	144	0.3
NH_3	20 ppmvd@3% O_2[d]	0.98	23.4	2,107	2,130	2,154	2,154	4.3
CO_{2e}	117.10 lb/MMBtu[e]	6.36	152.7	13,747	13,900	14,052	14,052	55,751

[a]NOx based on proposed BACT emission rate of 5 ppmvd at 3% oxygen.

[b]CO emissions estimated based on current Unit 1A emission limit (equivalent to 88.6 ppm at 3% O_2)

[c]From SMAQMD Permit to Operate 12318 (rev4) for SCA Auxiliary Boiler 1A

[d]Project proposed ammonia slip level.

[e]CO_{2e} factor from 40 CFR Part 98, Table C-1; equal to 53.1148 kg/MMBtu weighted U.S. average natural gas value. CO_{2e} emission rates reported in short tons.

Pilot Flame Burner Emissions – Boiler 1B includes a 4.9 MMBtu/hr pilot flame burner that will operate at all times. Pilot burner emissions are included in the stack emissions in Table 3.1-2; however, when the main burner is not operating, the pilot flame burner will operate alone and will have emissions as listed in Table 3.1-3. Note that the SCR unit will not operate when only the pilot burner is on because the catalyst will be below its minimum operating temperature.

TABLE 3.1-3
Boiler 1B Pilot Flame Burner Emission Rates

Pollutant	PPM @3% O_2	lb/MMBtu[a]	MMBtu/hr	lb/hr	lb/day[b]
NOx	30	0.0364	4.9	0.18	4.3
CO	400	0.2956	4.9	1.45	34.8
$PM_{10}/PM_{2.5}$		0.0076	4.9	0.04	0.9
VOC/ROC		0.0055	4.9	0.03	0.6
SOx		0.0006	4.9	0.00	0.1

[a]All emission factors from CSSC SMAQMD POs 20160 and 20161.

[b]Assumes 24 hours/day pilot flame burner operation.

Startup Emissions – Boiler 1B will require a 4-hour startup period to warm the SCR catalyst to temperature and to adjust the low NOx burner. SMAQMD Rule 411 requires that Boiler 1B reach 9 ppm at 3 percent oxygen (based on a 3-hour average) within 2 hours. Therefore, startup is assumed to be 2 hours at 30 ppm and 2 hours at 9 ppm NOx, and the 9 ppm limit is based on a 3-hour average. Estimated emissions during boiler startup are summarized in Table 3.1-4. Shutdown emissions will be less than or equal to startup emissions.

TABLE 3.1-4
Boiler 1B Startup Emission Rates

Pollutant	ppm@3% O_2	lb/MMBtu	MMBtu/hr	lb/hr	SU lb/day*
NOx	30	0.0364	108.7	3.96	23.5
CO	400	0.2956	108.7	32.13	270.9

*NOx daily emissions based on 2 hours at 30 ppm and 2 hours at 9 ppm for startup and then 20 hours normal operation. CO daily emissions based on 4 hours at 400 ppm and 20 hours normal operation.

Commissioning Emissions – It is estimated that the Boiler 1B will require up to 7 days of commissioning activities over a maximum 30 calendar-day period. Boiler operation is not expected to exceed 12 hours per day at the higher commissioning emission rates. Commissioning operation will include low-NOx burner tuning and may include periods when the SCR catalyst is not installed or inoperative. Estimated emissions during commissioning are summarized in Table 3.1-5.

TABLE 3.1-5
Boiler 1B Commissioning Emission Rates

Pollutant	ppm@3% O_2	lb/MMBtu	MMBtu/hr	lb/hr	lb/day*
NOx	30	0.0364	108.7	3.96	55.4
CO	400	0.2956	108.7	32.13	471.0

*Assumes 12 hours/day commissioning and 12 hours normal operation.

Future Potential Emissions from the Modified Facility – The maximum quarterly and annual emissions for the modified PGCP facility, as summarized in Table 3.1-6, were calculated to determine the applicability of emission offsets and the corresponding emission increase for Boiler 1B. Total facility emissions will not increase as a result of the Boiler 1B project because Boiler 1B will displace operation of either a combined-cycle gas turbine unit or the existing Boiler 1A. Therefore, the emission rates in Table 3.1-6 are equivalent to the total facility emission limits in the current PGCP Permits to Operate.

TABLE 3.1-6
Maximum Emissions from the Modified PGCP Facility

	Maximum Emissions				
Pollutant	**1st Quarter (lb)**	**2nd Quarter (lb)**	**3rd Quarter (lb)**	**4th Quarter (lb)**	**Annual (tons)**
NOx	28,993	29,305	29,618	29,618	117,534
CO	48,994	49,535	50,075	50,075	198,679
PM_{10}/ $PM_{2.5}$	17,220	17,411	17,603	17,603	69,837
VOC/ROC	8,287	8,380	8,472	8,472	33,611
SOx	1,901	1,923	1,944	1,944	7,712

Ambient Air Quality Impact Analysis – SMAQMD Rule 202, Section 305 prohibits a new or modified stationary source from interfering with the attainment or maintenance of an applicable ambient air quality standard. Normally this type of ambient air quality impact analysis is required only for a new major source or major modification, and the proposed Boiler 1B project is neither a new major source nor a major modification. However, since emissions modeling was performed for the original PGCP permit, SCA modeled the ambient impacts of the new boiler operating in conjunction with the rest of the PGCP facility. Table 3.1-7 shows the maximum ambient impacts for the Boiler 1B project.

TABLE 3.1-7
Modeled Maximum Boiler 1B and PGCP Facility Impacts

Pollutant	**Averaging Period**	**Maximum Facility Impact (µg/m³)**	**Background (µg/m³)**	**Total Impact (µg/m³)**	**State (CA) Standard (µg/m³)**	**Federal (Fed) Standard (µg/m³)**	**SIL (µg/m³)**
NO_2	1-hour	11.9	116.6	128.4	339	–	
	Fed. 1-hour	11.9	98.1	110.0	–	188	
	Annual	0.2	24.4	24.7	57	100	
SO_2	1-hour	0.3	13.1	13.4	655	–	
	Fed. 1-hour	0.3	7.8	8.1	–	196	
	24-hour	0.1	5.3	5.4	105	–	
CO	1-hour	30.9	2.6	33.6	23,000	40,000	
	8-hour	19.6	3.1	22.7	10,000	10,000	
PM_{10}	24-hour (Fed)	1.1	53.1	54.2	–	150	5
	24-hour (CA)	1.1	92.3	93.4	50	–	5
	Annual (CA)	0.1	19.2	19.3	20	–	1
$PM_{2.5}$	24-hour	1.1	45.1	46.2	–	35	1.2
	Annual (Fed)	0.1	10.1	10.2	–	12.0	0.3
	Annual (CA)	0.1	10.1	10.2	12	–	0.3

Detailed modeling outputs, operating scenarios, and background air quality data used to assemble Table 3.1-7 are included in the SMAQMD permit application document in Appendix A. As shown in Table 3.1-7, the maximum ambient impacts remain either below ambient air quality standards or below the significant impact levels for the particular pollutant. Only the 24-hour California PM_{10} and the federal 24-hour $PM_{2.5}$ impacts exceed the respective standards due to high background concentrations, but in these cases the project impacts are less than the U.S. Environmental Protection Agency's (EPA) significant impact levels (SILs) for these pollutants. Consequently, there are no new significant ambient air quality impacts associated with the proposed project modifications.

3.1.3 Mitigation Measures

SCA's existing steam supply contract with P&G requires it to maintain two separate steam generation sources in service at all times. The purpose of the new auxiliary boiler and associated facilities is to provide sufficient steam and steam backup capacity for the P&G facility processes such that SCA would not have to run at least one of its combined-cycle turbines at all times. This would allow PGCP to reduce facility-wide emissions because it would be replacing the operation of a 500 million Btu per hour (MMBtu/hr) gas turbine with a 108.7 MMBtu/hr boiler. The net result is that the proposed modifications will not increase the maximum facility-wide emissions on an hourly, daily, quarterly, or annual basis, and, in fact, may result in a net decrease in aggregate facility emissions. Thus, SCA will install the new Boiler 1B without increasing its currently permitted facility-wide emission limits.

The new Boiler 1B will meet BACT requirements by using an ultra-low NOx burner and SCR to reduce NOx emissions to 5 ppm corrected to 3 percent oxygen. Emission offsets will not be triggered because the proposed project modification qualifies as "replacement equipment" under SMAQMD regulations, and thus is exempt from offsets because it is not a major modification, it serves the identical function as the unit it replaces, and its maximum rating and potential emissions are no greater than the unit it replaces.

3.1.4 Consistency with LORS

The 1994 Commission Decision approving PGCP found the project to be in compliance with all applicable LORS. As described in this PTA, the modifications proposed for PGCP are consistent with all applicable LORS, and the PTA will not alter the assumptions or conclusions made in the Commission Decision for the PGCP. A complete air quality regulatory analysis of the proposed PGCP modifications is included in the application to modify the SMAQMD permit for the PGCP facility. That application was submitted to the SMAQMD on September 30, 2014. A copy of the SMAQMD application is included as Appendix A. This regulatory analysis concluded that the project would be in compliance with the following applicable regulatory requirements:

- SMAQMD Rule 201: General Permit Requirements
- SMAQMD Rule 202: New Source Review
- SMAQMD Rule 203: Prevention of Significant Deterioration
- SMAQMD Rule 207: Title V Federal Operating Permit Program
- SMAQMD Rule 217: Public Notice Requirements for Permits
- SMAQMD Rule 301: Stationary Source Permit Fees
- SMAQMD Rule 401: Ringelmann Chart/Opacity
- SMAQMD Rule 402: Nuisance
- SMAQMD Rule 404: Particulate Matter
- SMAQMD Rule 406: Specific Contaminants
- SMAQMD Rule 411: NOx from Boilers, Process Heaters and Steam Generators
- SMAQMD Rule 801: New Source Performance Standards

3.1.4 Conditions of Certification

SCA requests that the Air Quality COCs be revised to incorporate any new permit conditions imposed by the SMAQMD as part of its review of the proposed project modifications. It is not anticipated that any existing COCs will have to be revised.

3.2 Biological Resources

The installation and operation of the new Boiler 1B and associated facilities will not affect biological resources in the project vicinity because the facilities will be installed on a portion of the project site that has already been developed and is covered in asphalt or crushed aggregate. Locating the boiler in an area that has already been developed will reduce the potential for biological impacts to flora and fauna on the project site. To further reduce the potential to affect nesting birds, for work activities occurring between February 1 and August 31, preconstruction nesting bird surveys will be conducted by a qualified biologist within 14 days of construction, covering a radius of 250 feet for non-listed raptors and 100 feet for non-listed passerines at PGCP work locations. If nesting birds are found, the biologist will evaluate whether existing screening buffers (such as buildings, trees, intervening topography) are sufficient to allow work to proceed, and determine what level of work exclusion buffers or nest monitoring is needed. This could result in work areas being reduced in size. If work cannot proceed without disturbing nesting birds, or if signs of disturbance are observed by the monitor, work may be halted or redirected to other areas until the nesting and fledging is complete or until the nest has otherwise failed due to causes other than the project's construction.

Therefore, with preconstruction surveys for nesting birds, the construction and operational impacts of the proposed project modifications will not significantly change the biological resources impact analysis conclusions as presented in the 1994 Commission Decision for the project. The project will comply with applicable LORS and would not require any changes to the COCs.

3.3 Cultural Resources

3.3.1 Environmental Baseline Information

The PGCP is located at the existing P&G facility site at 5000 83rd Street in the middle of an industrial park in Sacramento, California. The project site is located within the geologic deposits known as the Victor Formation, comprising both the Riverbank and Modesto formations and dating to the Middle to Late Pleistocene. The site is relatively flat and is not near major or permanent water sources. A considerable amount of disturbance has occurred over the entire existing PGCP facility site. Extensive excavation, grading, and deposition of fill occurred during the initial construction in the mid-1990s and proceeded during various stages of upgrades and expansions up to the present.

Given the extensive disturbance to the study area from this commercial development, combined with the negative results of both surface pedestrian survey and subsurface testing across the site for the original license, it is anticipated that the project has very low potential to impact intact buried cultural resources. The architectural project area of analysis encompasses 12 parcels that contain built environment resources (i.e., buildings, structures, or objects) not previously evaluated. Only 5 of the 12 parcels include historic-era resources or "survey population" resources (i.e., those constructed in or before 1969 that required formal evaluation using National Register of Historic Places (NRHP) or California Register of Historical Resources [CRHR] criteria).

3.3.2 Environmental Consequences

Studies were conducted in compliance with Section 5024.1 of the California Public Resources Code (PRC) to identify archaeological resources in the study area. "Historical Resource" is a California Environmental Quality Act (CEQA) term referring to a resource eligible for or listed on the CRHR and generally older than

50 years of age by definition. Cultural resources include prehistoric and historic archaeological sites; standing historic structures, buildings, districts and objects; and locations of important historic events, or sites of traditional/cultural importance to various groups. This assessment includes a review of previous studies, and preliminary site evaluations of recorded resources.

3.3.2.1 Archaeological Resources

The PGCP site is completely developed and in use. No visible native soils are present. The site was previously subject to intensive pedestrian survey as well as subsurface testing, which yielded negative results. Significant disturbance has occurred within the property for decades. Therefore, a field survey for archaeological resources was not possible, and none was conducted.

A search of the California Historical Resources Information System (CHRIS) was commissioned by CH2M HILL on October 14, 2014. No previously recorded archaeological resources were identified within the project area or within the 1-mile search radius (see Appendix B).

Native American consultation and consultation with local historical societies and agencies was completed during the original AFC process (93-AFC-2C). No additional consultation was conducted for this PTA.

3.3.2.2 Built Environment Resources

JRP Historical Consulting, LLC (JRP) prepared a Historic Resources Inventory and Evaluation Report (HRIER) for this project based on research and fieldwork conducted in October 2014. The purpose of the HRIER is to provide full documentation for the identification and evaluation of historic-era resources within the architectural project area of analysis, in conformance with the CEC's Rules of Practice and Procedure dated April 2007, which provide specific guidance for cultural resources studies pertaining to the built environment in urban and suburban areas. This report (included as Appendix C) addresses only those resources built on or before 1969.

The HRIER is in compliance with the requirements of CEQA for this project as it pertains to historical resources. The historic-era resources studied have been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA guidelines using the CRHR criteria outlined in Section 5024.1 of the California PRC. Additionally, the historic-era resources were evaluated using NRHP criteria.

None of the five survey population resources appear to meet the criteria for listing in either the NRHP or CRHR, nor are the parcels considered historical resources under CEQA.

3.3.3 Mitigation Measures

The proposed modifications will not create a significant cultural resources impact and will not require additional mitigation measures. While highly unlikely, the existing COCs CUL-1 through CUL-3 would apply and would mitigate any potentially adverse impacts, including the unanticipated discovery of buried resources during construction. Furthermore, no significant impacts to cultural or historical resources will occur during operation of the boiler. The project will comply with applicable LORS and would not require any changes to the COCs.

3.3.4 Consistency with LORS

The 1994 Commission Decision approving PGCP found the project to be in compliance with all applicable LORS (CEC, 1994). The modifications proposed for PGCP are consistent with all applicable LORS.

3.3.5 Conditions of Certification

Installation of the proposed auxiliary boiler and associated facilities modifications do not require changes to the COCs or additional COCs for cultural resources.

3.4 Geologic Hazards and Resources

Installation of Boiler 1B and associated facilities will require minimal ground disturbance for construction of new foundations, which will be designed in accordance with current building code and seismic requirements. Therefore, project implementation will not be susceptible to any geologic hazards greater than those previously analyzed by the CEC during licensing of the project, because the facilities will be installed on a site that was already assessed for geologic hazards. Therefore, the conditions imposed in the 1994 Commission Decision are adequate to protect the environment with respect to geological resources. Hence, the project will comply with applicable LORS and would not require a change to any of the COCs.

3.5 Hazardous Materials Management

Construction and operation of the new auxiliary boiler and associated facilities will not result in any hazardous material impacts different in kind, or greater in magnitude, from those impacts analyzed during the licensing process. Because the project already uses an auxiliary boiler (Boiler 1A), the addition of a second boiler (Boiler 1B) will not require the use of any new chemicals during operations nor an increase in volume of chemicals beyond those already licensed and listed in Table 3.11-1 of HAZ-1 (CEC, 1994). Hence, the project will comply with applicable LORS and would not require a change to any of the COCs.

3.6 Land Use

The proposed changes will not result in any land use impacts for construction and operation of the project beyond those analyzed in the 1994 Commission Decision. As a result of the licensing process, the project received a height variance from the City of Sacramento. The exhaust stack for Boiler 1B will be the same height (80 feet) as the exhaust stack from the current boiler (Boiler 1A), and shorter than the 105-foot stacks of the combustion turbines, so an additional height variance will not be required. Consequently, the project will not cause any land use impacts greater than those previously analyzed by the CEC during licensing of the project. In addition, the project will comply with applicable LORS and would not require a change to any of the COCs.

3.7 Noise

3.7.1 Construction Noise

Compared to construction of an entire gas-fired power plant, construction activity for installation of the auxiliary boiler will be substantially less in terms of the number, type, and duration of construction activities. The noise levels will vary depending on the number and type of concurrent construction activities. The noisiest construction phase would likely be equipment erection. In preparing the AFC, a computer model was used to determine the offsite facility construction noise impacts. In performing the computer modeling, no acoustical blockage was assumed due to the presence of existing buildings. The worst-case average daytime noise level was estimated to be approximately 55 dBA at the nearest residences (SCA, 1993). No new sensitive receptors are located closer to the plant than were previously evaluated. The variable nature of construction noise will result in noise emissions being louder during some periods and less during others. The fact that this construction effort will be only a small part of what is experienced during the construction of a power plant, it will have fewer pieces of noisy equipment being operated at the same time, and will have a substantially shorter duration, would result in lower sound levels than those address by the CEC when initially licensing the PGCP.

Therefore, the conditions imposed in the 1994 Commission Decision on construction noise are adequate to protect the environment. The project will also comply with applicable LORS during construction and will not require any changes to the COCs.

3.7.2 Operations Noise

Auxiliary boilers do not generate as much noise as combustion (gas) turbines. Combustion turbines are complex machines that include/involve the following three main sections or processes:

- **The compressor,** which draws air into the engine, pressurizes it, and feeds it to the combustion chamber at speeds of hundreds of miles per hour.
- **The combustion system**, typically made up of a ring of fuel injectors that inject a steady stream of fuel into combustion chambers where it mixes with the air. The mixture is burned at temperatures of more than 2,000 degrees Fahrenheit. The combustion produces a high temperature, high pressure gas stream that enters into and expands through the turbine section.
- **The turbine** is an intricate array of alternate stationary and rotating aerofoil-section blades. As hot combustion gas expands through the turbine, it spins the rotating blades. The rotating blades perform a dual function: they drive the compressor to draw more pressurized air into the combustion section, and they spin a generator to produce electricity.

By comparison, the auxiliary boilers only have a combustion system and forced air fan. Thus, the high pressure and high flow processes in the combustion turbines result in more energy transfer and higher sound emissions than boilers. Consequently, replacing the gas turbine operations with Boiler 1B would not increase the facility's sound level at the closest noise sensitive areas, but may actually result in lower sound levels at the plant site. Therefore, the project will comply with applicable LORS and would not require any changes to the COCs. Also, the project will not cause any noise impacts greater than those previously analyzed by the CEC during licensing of the PGCP.

3.8 Paleontological Resources

The installation of the new auxiliary Boiler 1B and associated facilities will not significantly affect paleontological resources because the facilities will be installed on a portion of the project site that has already been developed. During the licensing process, the CEC found that there was no evidence of significant paleontological resources in the vicinity of the project site (CEC, 1994). However, buried paleontological resources may be discovered during excavation of the boiler foundations. Should this occur, the COCs PAL-1 through PAL-3 would apply and would mitigate any potentially adverse impacts. No impacts to paleontological resources will occur during operation of the boiler. Therefore, the conditions imposed in the 1994 Commission Decision are adequate to protect the environment with respect to paleontological resources. The project will also comply with applicable LORS and would not require any changes to the COCs.

3.9 Public Health

3.9.1 Environmental Baseline Information

The PGCP facility was evaluated for health risks when it was originally permitted by the SMAQMD in 1994 (see SMAQMD Final Determination of Compliance, August 19, 1994) and was determined not to result in significant adverse health impacts on the surrounding vicinity. Table 3.9-1 includes the results of this 1994 health risk assessment.

3.9.2 Environmental Consequences

Boiler 1B will emit trace levels of toxic air contaminants (TAC) associated with the combustion of natural gas. The Ventura County Air Pollution Control District TAC emission factors for the combustion of natural gas by boilers larger than 100 MMBtu/hr were used to calculate the TAC emission increase associated with the for the proposed project modifications. Detailed TAC emission calculations are included in the SMAQMD permit

application document provided in Appendix A. Some of these compounds have both carcinogenic and non-cancer health effects.

To determine whether the proposed Boiler 1B project will result in a significant increase in either the carcinogenic or non-cancer health impacts for the PGCP facility, a health risk assessment (HRA) was performed for both the increase in TAC emissions associated with Boiler 1B as well as the total cumulative PGCP facility risk. This analysis was prepared using EPA's AERMOD dispersion modeling software together with California Air Resources Board's Hotspots Analysis and Reporting Program (HARP) computer model (Version 1.4f, Build 23.11.01). The HARP model was used to assess cancer risk as well as chronic and acute risk impacts. Based on SMAQMD guidance, a risk of less than 1×10^{-6} for cancer and a Health Hazard Index of less than 1 for chronic or acute exposures are considered to be insignificant. The results of the HRA are summarized in Table 3.9-1, and the detailed HARP modeling results are included in the SMAQMD permit application package in Appendix A.

TABLE 3.9-1
Health Risk Screening Results, PGCP Facility

Risk Component	1994 Project HRA	New Boiler 1B	Total
Cancer Risk – Residential	2.45×10^{-7}	3.61×10^{-7}	6.06×10^{-7}
Cancer Risk – Workplace	9.21×10^{-7}	0.33×10^{-7}	9.54×10^{-7}
Acute Health Hazard Index	0.0690	0.00007	0.06907
Chronic Health Hazard Index	0.0093	0.00004	0.00934

Table 3.9-1 shows that the HRA results for Boiler 1B are below the significance thresholds for cancer risk, acute health, and chronic health impacts. Additionally, the increased risks associated with Boiler 1B, when added to the reported health risks for the PGCP facility (per the August 19, 1994 Final Determination of Compliance), do not result in a total cumulative health risk exceeding the respective significance thresholds. Therefore, the TAC emission impacts for the new auxiliary boiler and associated facilities will not be significant, and the project is not expected to create a nuisance due to health risk.

3.9.3 Mitigation Measures

Table 3.9-1 presents the health risk from Boiler 1B as additive to the existing facility health risk even though increased TAC emissions (and the associated health risks) from Boiler 1B will generally displace TAC emissions from the existing turbine units or Boiler 1A. Additionally, Table 3.9-1 conservatively assumes that the maximum health impacts from the Boiler 1B and the existing facility occur at the same location. Additionally, TAC emissions from Boiler 1B are minimized through the use of natural gas fuel and good combustion practices. Consequently, TAC emission impacts for the proposed project modifications will not be significant, and the project is not expected to create a nuisance due to health risk. Therefore, no mitigation measures are required.

3.9.4 Consistency with LORS

The 1994 Commission Decision approving PGCP found the project to be in compliance with all applicable LORS. As described in this PTA, the modifications proposed for PGCP are consistent with all applicable LORS, and the PTA will not alter the assumptions or conclusions made in the Commission Decision for the PGCP.

The SMAQMD regulates new and modified sources of TACs under Rule 402, "Nuisance," by implementing its "Risk Assessment Guidelines for New and Modified Stationary Sources," dated December 2000. These guidelines implement what is commonly known as "Toxics New Source Review." Under these guidelines, a risk of less than 1×10^{-6} for cancer and a Health Hazard Index of less than 1 for chronic or acute exposures

are considered to be insignificant. As indicated in Table 3.9-1, the health risk impacts from Boiler 1B individually as well as the cumulative impacts from the entire plant are less than these significance levels. It should also be noted that a complete public health regulatory analysis of the proposed PGCP modifications is included in the application to modify the SMAQMD permit requirement. That application was submitted to the SMAQMD on September 30, 2014. A copy of the SMAQMD permit application is included in Appendix A.

3.9.5 Conditions of Certification

There are no COCs for the Public Health section of the 1994 Commission Decision, and it is not anticipated that any additional COCs will be required as a result of the proposed modifications. The COCs for the Air Quality section provide assurance that the project will be operated consistent with the assumptions used in the HRA.

3.10 Socioeconomics

3.10.1 Environmental Baseline Information

As shown in Table 3.10-1, installation of the new auxiliary boiler and associated facilities is anticipated to occur over a 5-month non-continuous period: 1 month to disassemble the auxiliary boiler at the former CSSC plant, followed by 4 months to prepare, construct, and install the boiler at the PGCP site. The expected peak workforce of 20 workers would occur during the months of October and November.

TABLE 3.10-1
Anticipated Construction Workforce and Period

Estimated No. of Workers/Month	Approx. Month	Activity
10	May	Utility tie-in at SCA (duration is one week)
15	August	Civil work and foundation
10	September	Disassemble boiler at former CSSC plant and transport to the PGCP site. Initial construction at PGCP.
20	October and November	Construction and installation of boiler

Most construction would occur between 7:00 a.m. and 7:00 p.m. Monday through Friday, with noisy construction limited to occur between the hours of 7:00 a.m. and 6:00 p.m., per COC NOISE-6. However, longer hours (including weekends and nighttime) could occur.

The total project cost is anticipated to be about $3 million. Of that, about $1.7 million is for the purchase of materials and equipment, while the remaining $1.3 million would be allocated for labor costs.

The presence of the second auxiliary boiler will not require any additional operations staff.

3.10.2 Environmental Consequences

In 2013, the annual average construction workforce estimates for Sacramento County and the Sacramento Arden Arcade Roseville Metropolitan Statistical Area was 27,000 and 42,900, respectively (CEDD, 2014). The peak workforce of 20 construction workers is small in comparison to the size of the construction workforce in the area. Therefore, sufficient skilled labor is available in the area to handle the project demands. In addition, due to the project's short duration and small workforce, local workforce will be used. Thus, the project would not have an adverse impact on the local population, housing demand, or school population. Also, due to the small size of the project, and the fact that it is just a modification to an existing facility,

impacts to public services and utilities would be less than significant, requiring no upgrade to these services or utilities to meet a permanent increase in demand.

The capital cost of the project is estimated to be $3 million, of which about $1.7 million will be for the purchase of materials and equipment. SCA was created under a joint powers agreement with SMUD and as a result is exempt from property taxes. However, it is subject to the payment of sales taxes. The purchase of Boiler 1B has already resulted in the payment of more than $18,000 in local sales tax. Therefore, its installation will result in a positive, but not significant, impact to the local government from sales tax receipts.

Local construction salaries of approximately $1.3 million will result in secondary economic impacts within Sacramento County. Secondary employment effects would include indirect employment due to the purchase of goods and services by firms involved with construction (e.g., concrete suppliers), and induced employment due to the construction workers spending their income within Sacramento County. In addition to these secondary employment impacts, there would be indirect and induced income effects arising from construction. Although these impacts would be beneficial, they would be too small to be significant.

Because there would be no change to the operational workforce, there would be no adverse impacts from operation of Boiler 1B.

3.10.3 Mitigation Measures

The proposed modifications will not create a significant socioeconomic impact and will not require additional mitigation measures.

3.10.4 Consistency with LORS

The 1994 Commission Decision approving PGCP found the project to be in compliance with all applicable LORS (CEC, 1994). The modifications proposed for PGCP are consistent with all applicable LORS.

3.10.5 Conditions of Certification

Installation of the proposed auxiliary boiler and associated facilities modifications do not require changes to the COCs or additional COCs for socioeconomics.

3.11 Soils

Soils of the Sacramento area have developed within a fluvial environment within a broad valley. The soils series for the site is classified as San Joaquin silt loam, with 0 to 3 percent slopes. The soil is formed in alluvium from dominantly granitic rock underlain by indurated hardpan. Permeability is slow with water perching on the claypan. The hazard of water erosion is slight (SCA, 1993).

The proposed changes from installation of Boiler 1B and associated facilities will not result in soils impacts for both the construction and operations of the project beyond those analyzed in the 1994 Commission Decision. Within the 10-acre site, the boiler foundation area will be the only area where soils will be exposed and compressed. Surrounding areas are already graveled and implementation of best management practices will be used to prevent soil erosion into nearby drainages. Construction will comply with all applicable LORS. There will be no impacts to soils from the operation of the new boiler. No changes to the COCs are required.

3.12 Traffic and Transportation

3.12.1 Environmental Baseline Information

The AFC prepared for the licensing of the PGCP used traffic data collected in 1992 and 1993. Major events affecting traffic levels have occurred in the intervening two decades. In 1998, the Sacramento Army Depot, located on Fruitridge Road immediately south of the Procter and Gamble manufacturing facility, was put on

the Base Realignment and Closure list. It was officially closed in March 1995. The number of workers at the facility in 1993 is not readily available. But following its closure the facility was leased to Packard Bell for its world headquarters. In April 1995, Packard Bell had 5,000 employees working at the facility. The workforce was reduced to 3,500 in April 1996. As demand for Packard Bell personal computers dropped the workforce was reduced. In 2000, when the plant closed, 1,400 out of 1,550 workers were laid off (GlobalSecurity.org, 2014).

Consequently, in the intervening two decades, the level of traffic along Fruitridge Road has dwindled significantly below the levels analyzed in the AFC.

3.12.2 Environmental Consequences

Installation of Boiler 1B is anticipated to take 5 non-continuous months, and have a peak workforce of 20 workers. In addition, it is estimated that truck deliveries of materials and supplies during the peak months will average between three to five per day.

In comparison with the initial construction of the power plant—which projected a peak workforce of 181 workers—significantly fewer construction vehicles, equipment, and workers would be needed for the construction of the proposed modification. Similarly, the initial construction was planned to take 2 years; whereas, the installation of Boiler 1B would only require 5 non-continuous months (with peak workforce expected in October and November) at the PGCP site.

Construction of the proposed auxiliary boiler and associated facilities is expected to occur primarily Monday through Friday between 7:00 a.m. and 7:00 p.m. Transport of the boiler from the former CSSC site (located at 6200 Franklin Boulevard, Sacramento) to the project site would occur using a lowboy trailer between the hours of 10:00 p.m. and 4:00 a.m. to minimize traffic on the roads. Three possible travel routes were considered.

- **Northern Route:** From the former CSSC plant, one would head north on Franklin Boulevard about 0.7 mile, turn right onto Fruitridge Road for about 3.9 miles, then turn left on to 83rd Street, traveling about 0.4 miles to the PGCP site. The total distance is about 5.0 miles.
- **Central Route:** From the CSSC plant one would head north on Franklin Boulevard for a distance of approximately 350 feet, then turn right onto 41st Avenue/ Lemmon Hill Avenue and travel a distance of approximately 3.2 miles, then turn left onto Power Inn Road for 0.6 mile, then turn right onto Fruitridge Road for 0.5 mile, then turn left onto 83rd Street to PGCP site. The total distance is 4.8 miles.
- **Southern Route:** From the former CSSC plant, one would head south on Franklin Boulevard about 0.3 mile, turn left onto 47th Avenue/Elder Creek Road for about 3.1 miles, turn left onto Power Inn Road for 1.0 mile, then turn right onto Fruitridge Road for 0.5 mile, then turn left onto 83rd Street for 0.4 mile to the PGCP site. Total distance is about 5.4 miles.

The Central Route is the preferred route. It was selected based on fewer overhead obstructions and the ability to cross over to the opposite side of the street to go around traffic lights in the major intersections. As stated in the AFC, on city streets the load limit for tractor trailers is 20,000 pounds per two axles. With permits, the legal load can be increased to 60,000 pounds per two axles. Permits are also required for loads in excess of 8.5 feet wide. Therefore, prior to moving the boiler, appropriate permits will be obtained from the City of Sacramento. Hence, this PTA will not result in traffic and transportation impacts greater than those previously analyzed by the CEC.

The Boiler 1B and associated facilities modifications proposed as part of the PTA would not change the existing traffic levels during project operation from existing conditions because it is expected that operation of this second auxiliary boiler would occur by the same personnel that currently operate the existing facilities (including the existing auxiliary boiler).

3.12.3 Mitigation Measures

The proposed Boiler 1B and associated facilities modifications will not create a significant traffic and transportation impact. COC TRANS-1 requires the applicant to comply with City requirements for transportation of oversized or overweight vehicles. Compliance with that condition will address the heavy transport of the auxiliary boiler from the former CSSC plant to the project site.

3.12.4 Consistency with LORS

SCA will continue to operate the PGCP so that it will conform to the applicable LORS related to traffic and transportation.

3.12.5 Conditions of Certification

The 1994 Commission Decision imposed the following seven conditions to mitigate the construction traffic impacts.

TRANS-1: Requires the project owner to comply with City, County and Caltrans restrictions on oversize and overweight limit vehicles

TRANS-2: Requires the project owner to comply with City, County and Caltrans requirements for encroachment on a public right-of-way.

TRANS-3: Required monthly vehicle occupancy surveys from the 2 months prior to peak construction to the 2 months following peak. Vehicle occupancy was required to meet or exceed a ratio of 2:1 (two workers/vehicle)

TRANS-4: Requires the project owner to ensure that all federal and state regulations for the transport of hazardous materials are observed.

TRANS-5: Requires the project owner to limit construction deliveries, when possible, to the period between 8:00 a.m. and 4:30 p.m.

TRANS-6: Requires the project owner to schedule construction work to avoid the morning and evening peak traffic periods.

TRANS-7: Requires the project owner to coordinate construction schedules of the SMUDGAS pipeline with the plant's construction and to avoid cumulative traffic impacts from this plant and the other three SMUD-related cogeneration projects.

Of these conditions, only COCs TRANS-1, 2, and 4 would apply to new auxiliary boiler and associated facilities and are necessary to mitigate any potential traffic impacts. COCs TRANS-3, 5, and 6 are not necessary because at peak there would likely be fewer than 20 construction vehicles (which are likely fewer than would be onsite during a routine maintenance outage), and traffic on the adjacent roadways is less—with the closure of the Sacramento Army Depot and Packard Bell—than when PGCP was constructed. COC TRANS-7 no longer applies because the other SMUD-related projects have been constructed and cumulative impacts would not occur. Therefore, implementation of COCs TRANS-1, 2, and 4 would adequately mitigate any traffic impacts and no additional COCs would be required.

3.13 Visual Resources

3.13.1 Environmental Baseline Information

This PTA does not require significant changes to the visual resources environmental baseline information as described in the AFC. The only text change of note is that it appears that the view of the project site from the Toronto Way residences, located to the west of Power Inn Road and the project site, is currently more obstructed than what was characterized in the AFC and 1994 Commission Decision. This is primarily due to the development of two industrial buildings (developed by others) located between the Toronto Way

residences and the project site. Although redwood trees were planted along the project site's western boundary, as required by COC VIS-3, they are no longer needed to create screening.

3.13.2 Environmental Consequences

Installation of Boiler 1B and associated facilities modifications proposed as part of the PTA would not significantly change views toward the project site, as seen from the nearby commercial and industrial land uses and roadways, as well as the residences to the west of Power Inn Road (on Toronto Way). As indicated above, views of the project site from the residences are currently obstructed due to the two industrial buildings located between the Toronto Way residences and the project site.

The exhaust stack from the new auxiliary boiler will be the same height and diameter, and a similar color (as required by COC VIS-1) as the existing stack. Due to these design similarities, installation of the new boiler would not produce a substantial change to the visual character of the project site nor its vicinity, resulting in a minimal aesthetic impact. Modifications to the existing exterior lighting system at the facility would not change significantly from existing conditions. New lighting installed with the proposed Boiler 1B would be in compliance with the requirements of COC VIS-4.

In addition, in terms of temporary construction period visual impacts, fewer construction vehicles, equipment, and workers would be needed for the construction of the proposed modifications, and the construction period would be substantially shorter than what was needed for initial development of the plant. Therefore, this PTA will not result in visual resources impacts greater than those previously analyzed by the CEC.

3.13.3 Mitigation Measures

Boiler 1B and associated facilities will not create a significant visual resources impact from either its construction or operation and will not require additional mitigation measures.

3.13.4 Consistency with LORS

SCA will continue to operate the project so that it will conform to the applicable LORS related to visual resources.

3.13.5 Conditions of Certification

The proposed auxiliary boiler and associated facilities do not require changes to the COCs or additional COCs for visual resources. The conditions imposed in the 1994 Commission Decision are adequate to protect the environment with respect to visual resources.

3.14 Waste Management

The installation of the new auxiliary boiler and associated facilities will not significantly affect waste management because the construction work will be minor and construction waste materials would be disposed of as required by current laws and regulations as well as the COCs. Any waste products resulting from construction and operations will be handled as required by current LORS and impacts for both the construction and operations of the project would not exceed those analyzed in the 1994 Commission Decision. Therefore, the project will comply with applicable LORS and would not require any changes to the COCs.

3.15 Water Resources

The installation of the new auxiliary boiler and associated facilities will not significantly affect water resources. The facilities will be installed on a portion of the project site that has already been developed, requiring exposure of soils only in the area where the boiler foundation would be located. Because this area is small, only minimal water would be needed for dust abatement. No other major water uses would be

needed for construction. During operations, the plant's overall water consumption would likely decrease because: 1) the water required to operate the Boiler 1B would be less than what is required for water injection of the combustion turbine that would no longer need to be operated, and 2) the cooling tower drift associated with rejected heat from auxiliary boiler operation would be significantly lower than during combustion turbine operation. Hence, the proposed changes will not create water resource impacts for either the construction or operation of the project beyond those analyzed in the 1994 Commission Decision. Also, the project will comply with applicable LORS and would not require any changes to the COCs.

3.16 Worker Safety and Health

As during the construction of PGCP, safe work practices will be followed to reduce the potential of recordable work incidents. The proposed modifications will not create any worker safety and health impacts for either the construction or operation of the project beyond those analyzed in the 1994 Commission Decision. Therefore, the project will comply with applicable LORS and would not require any changes to the COCs.

SECTION 4.0

Potential Effects on the Public

In accordance with CEC Siting Regulations (Title 20, CCR, Section 1769(a)(1)(G)), this section discusses the potential effects on the public that may result from the modifications proposed in this PTA.

With the implementation of the modifications proposed, the installation and operation of Boiler 1B would have no adverse effect on the public. As previously mentioned, the construction activity associated with the proposed modification would be of short duration and minor in scope, and transport of the boiler to the project site would occur at night, resulting in minimal disturbance to traffic flow along the transport route. The associated impacts to the environment would be less than significant and in some cases, such as air quality, noise, water use, and public health, less than the levels currently being experienced at the facility. Therefore, not only will no adverse effects on the public occur because of the changes to the project as proposed in this PTA, but some minor environmental benefits will occur.

SECTION 5.0

List of Property Owners

In accordance with the CEC Siting Regulations (Title 20, CCR, Section 1769(a)(1)(H)), this section lists the property owners whose property is located within 1,000 feet of the SCA PGCP site. A table is provided in Appendix D.

SECTION 6.0

Potential Effects on Property Owners, the Public, and Parties in the Proceeding

This section addresses potential effects of the project modifications proposed in this PTA on nearby property owners, the public, and parties in the application proceeding, in accordance with CEC Siting Regulations (Title 20, CCR, Section 1769 (a)(1)(I)).

The proposed modifications would not differ significantly in potential effects on adjacent land owners compared with the project as previously certified and amended. As previously mentioned, the construction activity associated with the proposed modification would be short-term (only 5 non-continuous months of labor) and transport of the boiler to the project site would occur at night, minimizing disturbance of normal traffic flow along the transport route. The associated impacts to the environment would be less than significant. In some cases such as air quality, noise, water use, and public health, the project will result in a slight environmental benefit. Overall, the project would have no adverse effects on nearby property owners, the public, or other parties in the application proceeding.

SECTION 7.0

References

California Energy Commission (CEC). 1994. Commission Decision, Application for Certification of the Sacramento Cogeneration Authority's Procter & Gamble Cogeneration Project (93-AFC-2). November.

CEC. 1996. Procter & Gamble Cogeneration Project, 93-AFC-2C, Commission Order 96-0117-01(b). February 6.

CEC. 2008a. Procter and Gamble Cogeneration Project (93-AFC-2C) Staff Analysis of Proposed Modifications to Upgrade Three Combustion Turbines. February 29.

CEC. 2008b. Order No. 08-0312-3, Order Approving a Petition to Upgrade Three Combustion Turbines. March 12.

California Employment Development Department (CEDD). 2014. Employment by Industry Data. Available online at: http://www.labormarketinfo.edd.ca.gov/LMID/Employment_by_Industry_Data.html. Accessed on September 26, 2014.

GlobalSecurity.org. 2014. Sacramento Army Depot (SAAD). Available online at: http://www.globalsecurity.org/military/facility/sacramento.htm. Accessed on September 26, 2014.

Sacramento Cogeneration Authority (SCA). 1993. Procter & Gamble Cogeneration Project, Application for Certification, Volume 2. September.

URS. 2007. Petition for Post Certification Project Modification, LM6000 Fleet Upgrade. December.

Appendix A
SMAQMD Application

Sacramento
Cogeneration
Authority

P.O.Box 15830, Sacramento, CA 95852-1830

SCA Cogeneration Project

September 29, 2014
SCA 14-008

Larry Greene
Air Pollution Control Officer
Sacramento Metropolitan Air Quality Management District (SMAQMD)
777 12th Street, 3rd Floor
Sacramento, CA 95814-1908

SACRAMENTO COGENERATION AUTHORITY (SCA) APPLICATION TO INSTALL A 108.7 MMBTU/HR NATURAL GAS FIRED AUXILIARY BOILER

Dear Mr. Green:

Please find enclosed the Authority to Construct (ATC) and Title V Permit modification applications and application filing fees associated with the installation of a proposed auxiliary boiler at the SCA facility (5000 83rd Street in Sacramento, California).

The ATC application proposes the installation of new auxiliary boiler at the facility under the Replacement Unit provisions of Section 113 of SMAQMD Rule 202 (New Source Review). SCA requests that this ATC application be processed under the Enhanced New Source Review (Enhanced NSR) provisions and has included a complete application for a significant Title V permit modification that is signed by the facilities responsible official.

SMUD Check #00000780876 in the amount of $5,094.00 represents 50% of the initial ATC application filing fee for a boiler with a maximum rating at or above 100 MMBTU/hr and the Title V Operating Permit fee for one new permit unit being processed under Enhanced New Source Review.

Please feel free to contact René Toledo at (916) 732-7452 with any questions you may have on this matter.

Sincerely,

Ross Gould
Superintendent, Thermal Generation & Gas Pipeline Assets

Encl.: SMAQMD ATC Application, SMAQMD Title V Permit Modification Application, SMUD Check #00000780876

cc: Christine Stora, California Energy Commission
Jeff White, Carson Energy Group

sierra research

Application to the Sacramento Metropolitan Air Quality Management District to Install a New Auxiliary Boiler at the Sacramento Cogeneration Authority Cogeneration Facility

prepared for:

The Sacramento Cogeneration Authority

September 2014

prepared by:

Sierra Research, Inc.
1801 J Street
Sacramento, California 95811
(916) 444-6666

APPLICATION TO THE
SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

for an

AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE

for a

NEW AUXILIARY BOILER AT THE
SCA COGENERATION FACILITY

Submitted by:

Sacramento Cogeneration Authority
P.O. Box 15830, Mail Stop 355
Sacramento, California 95852

September 2014

Prepared by:

Sierra Research, Inc.
1801 J Street
Sacramento, California 95811
(916) 444-6666

SUMMARY

The Sacramento Cogeneration Authority (SCA) operates two GE LM6000 SPRINT/EFS combined-cycle gas turbines, Units #1A and #1B, which produce electricity and steam at its facility on 83rd Street in Sacramento. This steam is used to power a steam turbine for additional electricity production, as well as to supply the adjacent Procter & Gamble (P&G) facility with steam for its production needs. SCA also has an existing Auxiliary Boiler (designated Boiler 1A) to produce steam for P&G.

SCA's existing steam supply contract with P&G requires that the SCA facility provide two 100% redundant sources of steam. The purpose of the new auxiliary boiler project (designated Boiler 1B) is to provide sufficient steam and steam backup capacity for the P&G facility processes such that SCA would not have to run at least one of its combined cycle turbines at all times. This would allow SCA to reduce facility-wide emissions since it would be trading the operation of a 500 MMBtu/hr gas turbine with a 108.7 MMBtu/hr boiler. The net result is that the Boiler 1B project will not increase the maximum facility-wide emissions on an hourly, daily, quarterly, and annual basis, and, in fact will result in a net decrease in aggregate facility emissions. Thus, SCA will install the new Boiler 1B without increasing its currently permitted facility-wide emission limits.

The new Boiler 1B will meet Best Available Control Technology (BACT) requirements by utilizing an ultra-low NOx burner and selective catalytic reduction (SCR) to reduce NOx emissions to 5 ppm corrected to 3% oxygen. Emission offsets will not be triggered because the Boiler 1B project qualifies as "replacement equipment" under Sacramento Metropolitan Air Quality Management District (SMAQMD) regulations, and thus is exempt from offsets because it is not a major modification, it serves the identical function as the units it replaces, and its maximum rating and potential emissions are no greater than the units it replaces.

APPLICATION TO THE
SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT
for an
AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE
for the
NEW AUXILIARY BOILER AT THE
SCA COGENERATION FACILITY

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APPLICATION TO THE
SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT
for an
AUTHORITY TO CONSTRUCT AND PERMIT TO OPERATE
for the
NEW AUXILIARY BOILER AT THE
SCA COGENERATION FACILITY

I. PROJECT DESCRIPTION

A. Applicant's Name and Business Description

Name of Applicant:	Sacramento Cogeneration Authority (SCA)
Mailing Address:	P.O. Box 15830; Mail Stop B355 Sacramento, CA 95852
Facility Address:	5000 83rd Street Sacramento, CA 95826
SIC Code:	4911
General Business:	Operation of combined cycle cogeneration power plant supplying electricity to the Sacramento Municipal Utility District and steam for use at the Procter & Gamble facility.
Submitting Officer:	Paul Lau, Assistant General Manager Power Supply and Grid Operations Sacramento Cogeneration Authority (916) 732-6890
Project Contact:	René Toledo Environmental Specialist III (916) 732-7452
Consultant:	Sierra Research, Inc. 1801 J Street Sacramento, California 95811 Contact: Jeff Adkins (916) 444-6666
Type of Use Entitlement:	SCA owns the equipment described in this application.
Estimated Construction Date:	2nd Quarter 2015

B. Type of Application

SCA is applying for an Authority to Construct and Permit to Operate for a new auxiliary Boiler 1B to be located at its facility on 83rd Street in Sacramento. SCA has purchased one of the Cleaver Brooks watertube boilers at the shutdown Campbell Soup facility and will relocate this boiler to the SCA site to serve as the new Boiler 1B. Figure 1 shows the proposed location of Boiler 1B at the existing SCA Cogen site.

The appropriate Sacramento Metropolitan Air Quality Management District (SMAQMD) application forms are included in Attachment 1.

C. Facility Description

The SCA facility is comprised of two GE LM6000 SPRINT/EFS combined-cycle gas turbines, Units #1A and #1B, which produce electricity and steam. The facility also includes a simple cycle gas turbine for peak power production (Unit #1C). The steam produced by the combined cycle turbines is used to power a steam turbine for additional electricity production, as well as to supply the adjacent Procter & Gamble (P&G) facility with steam for its production needs. SCA also has an existing 108.7 MMBtu/hr Babcock and Wilcox Auxiliary Boiler 1A to produce steam for P&G.

D. Equipment and Process Description

The current Steam Sales Agreement between SCA and the P&G facility (steam host) contractually obligates SCA to have at least two sources of steam available to the manufacturing facility. Currently when only one combined cycle turbine is operating, Auxiliary Boiler 1A is the second steam source. Accordingly, the proposed new Boiler 1B will allow the turbines to shut down when it is not environmentally beneficial (i.e., implications of California's "Cap and Trade" program) and/or economically advantageous to operate the larger combined cycle turbines for the sole purpose of complying with the Steam Sales Agreement. During this type of operating scenario, steam will be provided to the P&G manufacturing facility by only the two auxiliary boilers (the proposed new Cleaver Brooks Boiler 1B and the existing Babcock and Wilcox Boiler 1A) operating in parallel in a lead-lag configuration. Thus, the new Boiler 1B will be an integral part of the operation of the existing plant and will affect the operation of the existing turbines and auxiliary Boiler 1A.

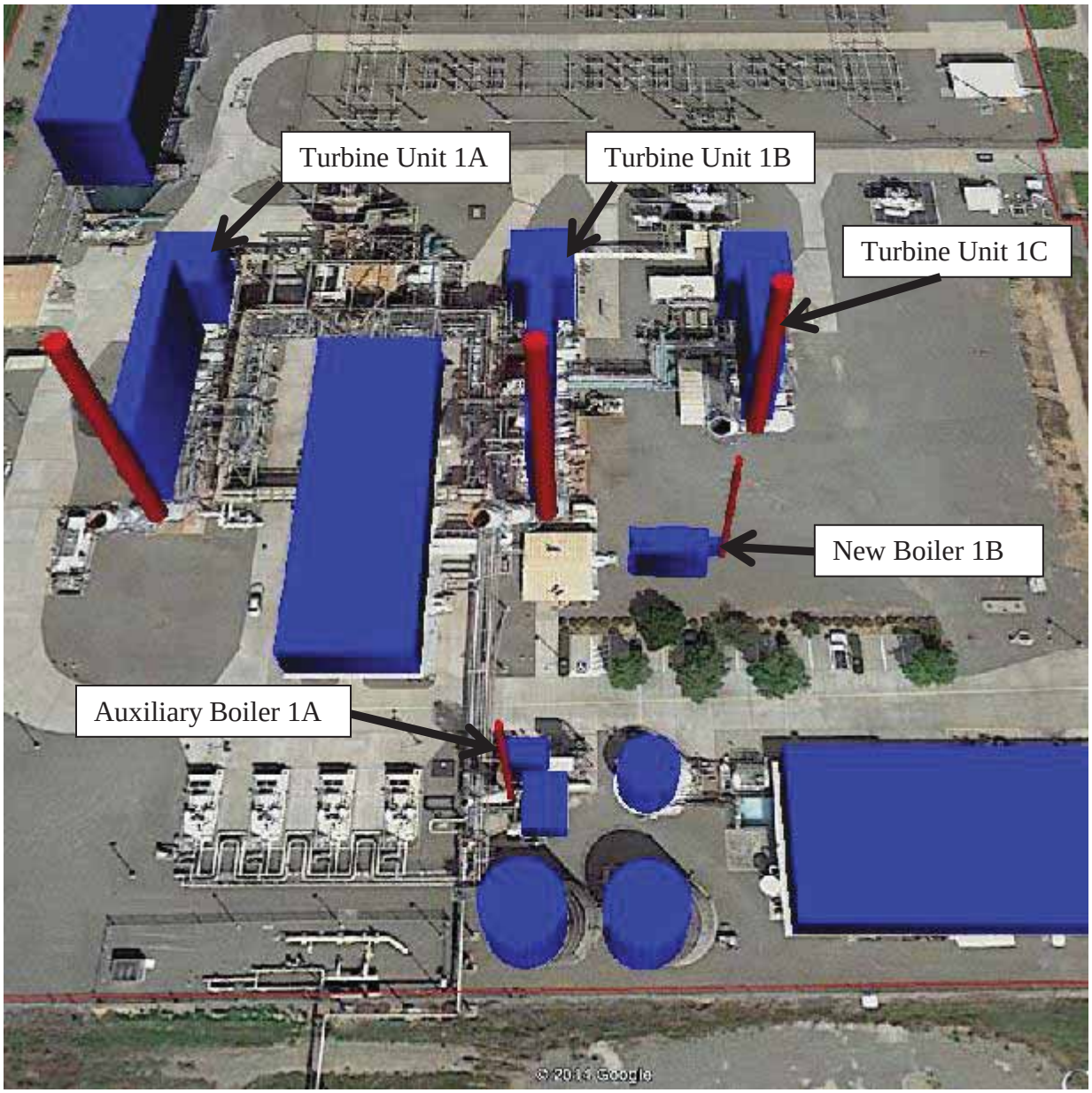
Table 1 includes the design specifications for Boiler 1B.

Table 1
SCA New Boiler 1B Design Specifications

Manufacturer	Cleaver Brooks
Model	LD-94-R, H
Rated Capacity	90,000 lb/hr steam
Fuel	Pipeline Quality Natural Gas

Table 1 SCA New Boiler 1B Design Specifications	
Manufacturer	Cleaver Brooks
Maximum Heat Input Rate	108.7 MMBtu/hr @ HHV
Emission Controls	Ultra Low-NOx Burner, Selective Catalytic Reduction

Figure 1.
New Boiler 1B Location Diagram



E. Facility Operations

While actual operation will vary, the SCA Cogen facility has the potential to operate on a full time basis (24-hours/day, 365 days/year), and the new Boiler 1B will similarly have the potential to operate on a full time basis. Consequently, in the following sections regarding emissions and regulatory applicability, full time boiler operation is assumed.

Various short and long term facility-wide operating scenarios were evaluated for emissions modeling purposes in order to consider all possible operating scenarios. The operating scenarios evaluated include the following:

- Boilers 1A and 1B at full load for the entire year with no turbine operation;
- Boilers 1A and 1B at 50% load for the entire year with no turbine operation;
- Boiler 1B at 100% load and one combined cycle turbine at full load for the entire year;
- Boiler 1B at 100% load and one combined turbine at full load for the entire year;
- Two combined cycle turbines at full load, Boiler 1B in startup for 4 hours then 12 hours at full load for emissions testing;
- Boiler 1B in startup for 4 hours then 50% load, Boiler 1A at 50% load for 2 hours, and one combined cycle turbine at full load (boiler startup transition); and
- Boiler 1A and Boiler 1B at 100% load, 1 turbine in startup for 1 hour (turbine startup transition)

II. EMISSION ASSESSMENT

Boiler 1B will emit criteria pollutants including carbon monoxide (CO), nitrogen oxides (NOx), particulate matter less than 10 microns and less than 2.5 microns in diameter (PM_{10} and $PM_{2.5}$), volatile organic compounds (VOC; also called reactive organic compounds or ROC by the SMAQMD), and sulfur oxides (SOx). This section presents future potential emissions from Boiler 1B and future potential emissions from the modified facility.

Boiler 1B will also emit trace levels of toxic air contaminants (TACs). This application presents TAC emissions from Boiler 1B even though TAC emissions (and the associated health risks) from this new natural gas-fired boiler are insignificant since Boiler 1B will generally displace the operation of turbine Units #1A and #1B. Spreadsheets containing detailed emission calculations are presented in Attachment 2.

Future Potential Emissions from Boiler 1B – The following emissions for Boiler 1B are summarized in Table 2:

- Maximum hourly emissions (not including startup);
- Maximum daily emissions (not including startup);
- Maximum quarterly emissions to determine the maximum emissions for the modified facility and the emission increase for new boiler (including startup); and

- Maximum annual emissions to determine the maximum emissions for the modified facility (including startup).

Maximum hourly emissions of CO, NOx, and ROC from Boiler 1B were calculated from exhaust concentrations (in ppmv @ 3% O_2), the maximum heat input rate of 108.7 MMBtu/hr, the USEPA Method 19 F-factor of 8,710 dscf/MMBtu @ 0% O_2, and the reference O_2 concentration of 3%. CO and NOx exhaust concentrations are based BACT limits and the current SCA boiler permit. Maximum hourly emissions of ROC, PM_{10} and SOx were calculated using the same emission factors as the existing Boiler 1A (it was determined that the Campbell Soup factors for this unit that were derived from Table 1.4-2 (July 1998) of AP-42 were too conservative). Maximum daily emissions reflect full load operation for 24 hours per day and do not include startup or shutdown emissions. Maximum quarterly emissions reflect full load operation for 90/91/92/92 days in each calendar quarter. Maximum annual emissions reflect the sum of the quarterly emissions.

Table 2
Future Potential Emissions from Boiler 1B

Pollutant	Emission Factors	Maximum Emissions						
		Hourly (lb)	Daily (lb)	1Q (lb)	2Q (lb)	3Q (lb)	4Q (lb)	Annual (tons)
NOx	5 ppmvd @3% O_2[1]	0.66	15.8	1,425	1,441	1,457	1,457	2.9
CO	7.12 lb/hr[2]	7.12	170.9	15,379	15,550	15,721	15,721	31.2
$PM_{10}/PM_{2.5}$	0.00497 lb/MMBtu[3]	0.54	13.0	1,167	1,180	1,193	1,193	2.4
VOC/ROC	0.00377 lb/MMBtu[3]	0.41	9.8	885	895	905	905	1.8
SOx	0.0006 lb/MMBtu[3]	0.07	1.6	141	142	144	144	0.3
NH_3	20 ppmvd@3% O_2[4]	0.98	23.4	2,107	2,130	2,154	2,154	4.3
CO_{2e}	117.10 lb/MMBtu[5]	6.36	152.7	13,747	13,900	14,052	14,052	55,751

Notes:
[1] NOx based on proposed BACT emission rate.
[2] CO emissions estimated based on current Unit 1A emission limit (equivalent to 88.6 ppm at 3% O_2)
[3] From Permit to Operate 12318(rev4) for SCA Auxiliary Boiler 1A
[4] Project proposed ammonia slip level.
[5] CO_{2e} factor from 40 CFR Part 98, Table C-1; equal to 53.1148 kg/MMBtu weighted U.S. average natural gas value. CO_{2e} emission rates reported in short tons.

Pilot Flame Burner Emissions – Boiler 1B includes a 4.9 MMBtu/hr Pilot Flame Burner that will operate at all times. Pilot burner emissions are included in the stack emissions in Table 2. However, when the main burner is not operating, the pilot flame burner will operate alone and will have emissions as listed in Table 3. Note that the SCR unit will not operate when the pilot burner is on because it will be below its minimum operating temperature.

Table 3 Boiler 1B Pilot Flame Burner Emission Rates					
Pollutant	ppm@3% O2	lb/MMBtu[1]	MMBtu/hr	lb/hr	lb/day[2]
NOx	30	0.0364	4.9	0.18	4.3
CO	400	0.2956	4.9	1.45	34.8
$PM_{10}/PM_{2.5}$		0.0076	4.9	0.04	0.9
VOC/ROC		0.0055	4.9	0.03	0.6
SOx		0.0006	4.9	0.00	0.1

Notes:
1) All emission factors from Campbell Soup POs 20160 and 20161.
2) Assumes 24 hours/day pilot flame burner operation.

Startup Emissions – Boiler 1B will require a 4-hour startup period to warm the SCR catalyst to temperature and to adjust the low NOx burner. Rule 411 requires that Boiler 1B reach 9 ppm at 3% oxygen within 2 hours. Therefore, startup is assumed to be 2 hours at 30 ppm and 2 hours at 9 ppm NOx. Estimated emissions during boiler startup are summarized in Table 4. Shutdown emissions will be less than or equal to startup emissions.

Table 4 Boiler 1B Startup Emission Rates					
Pollutant	ppm@3% O2	lb/MMBtu	MMBtu/hr	lb/hr	SU lb/day[1]
NOx	30	0.0364	108.7	3.96	23.5
CO	400	0.2956	108.7	32.13	270.9

Note: 1) NOx daily emissions based on 2 hours at 30 ppm and 2 hours at 9 ppm for startup and then 20 hours normal operation. CO daily emissions based on 4 hours at 400 ppm and 20 hours normal operation.

Commissioning Emissions – It is also estimated that the Boiler 1B will require up to seven (7) days of commissioning activities over a maximum 30-day period. Boiler operation is not expected to exceed twelve (12) hours per day at the higher commissioning emission rates. Commissioning operation will include low-NOx burner tuning and may include periods when the SCR catalyst is uninstalled or inoperative. Estimated emissions during commissioning are summarized in Table 5.

Table 5 Boiler 1B Commissioning Emission Rates					
Pollutant	ppm@3% O2	lb/MMBtu	MMBtu/hr	lb/hr	lb/day[1]
NOx	30	0.0364	108.7	3.96	55.4
CO	400	0.2956	108.7	32.13	471.0

Note: 1) Assumes 12 hours/day commissioning and 12 hours normal operation.

Future Potential Emissions from the Modified Facility – The maximum quarterly and annual emissions for the modified SCA Cogen facility, as summarized in Table 6, were calculated to determine the applicability of emission offsets and the corresponding emission increase for Boiler 1B. Total facility emissions will not increase as a result of the Boiler 1B project because Boiler 1B will generally displace operation of either a combined cycle gas turbine unit or the existing Boiler 1A. Therefore, the emission rates in Table 6 are equivalent to the total facility emission limits in the current SCA Cogen Permits to Operate.

Table 6
Maximum Emissions from the Modified SCA Cogen Facility

Pollutant	Maximum Emissions				
	1st Quarter (lb)	2nd Quarter (lb)	3rd Quarter (lb)	4th Quarter (lb)	Annual (tons)
NOx	28,993	29,305	29,618	29,618	117,534
CO	48,994	49,535	50,075	50,075	198,679
PM_{10}/ $PM_{2.5}$	17,220	17,411	17,603	17,603	69,837
VOC/ROC	8,287	8,380	8,472	8,472	33,611
SOx	1,901	1,923	1,944	1,944	7,712

III. COMPLIANCE WITH APPLICABLE RULES AND REGULATIONS

Rule 201, Section 303 requires that an applicant demonstrate compliance with applicable SMAQMD, state, and federal requirements before an Authority to Construct or Permit to Operate can be granted. The rules and regulations applicable to the affected equipment are listed below and discussed thereafter.

- Rule 201: General Permit Requirements
- Rule 202: New Source Review
- Rule 203: Prevention of Significant Deterioration
- Rule 207: Title V Federal Operating Permit Program
- Rule 217: Public Notice Requirements for Permits
- Rule 301: Stationary Source Permit Fees
- Rule 401: Ringelmann Chart/Opacity
- Rule 402: Nuisance
- Rule 404: Particulate Matter
- Rule 406: Specific Contaminants
- Rule 411: NOx from Boilers, Process Heaters and Steam Generators.
- Rule 801: New Source Performance Standards
- CEQA

A. Rule 201: General Permit Requirements

Section 300 of Rule 201 specifies that any facility installing non-exempt equipment that causes or controls the emission of air pollutants must first obtain an Authority to Construct (ATC) from the District. This ATC application satisfies this requirement for Boiler 1B.

B. Rule 202: New Source Review

The SMAQMD adopted Rule 202 to provide for preconstruction review of new or modified facilities, to ensure that affected sources do not interfere with the attainment of ambient air quality standards. In general, Rule 202 contains three separate elements, as listed and discussed below.

- Best Available Control Technology (BACT)
- Emission Offsets
- Air Quality Impact Analysis

1. Best Available Control Technology

Rule 202, Section 301 requires that an applicant apply BACT on a pollutant-by-pollutant basis to new or modified emissions units resulting in a quarterly emissions increase provided that the daily potential to emit for the unit is equal to or greater than 10 lb/day (550 lb/day for CO). Since Boiler 1B will be a new source at the SCA site, the maximum daily emissions from Boiler 1B, presented previously in Tables 2 and 4, are compared with the District's BACT thresholds in Table 7. The maximum daily emissions from Boiler 1B will not exceed the District's BACT thresholds for CO and SOx. However, BACT will be required for NOx, $PM_{10}/PM_{2.5}$, and ROC.

Table 7
BACT Applicability

Pollutant	Maximum Emissions (lb/day) [1]	BACT Threshold (lb/day)	BACT Required?
NOx	29.0	10	Yes
CO	270.9	550	No
$PM_{10}/PM_{2.5}$	19.8	10	Yes
ROC	14.3	10	Yes
SOx	1.6	10	No

Note: [1] Presented previously in Tables 2 and 4; includes startup emissions.

BACT for ROC and $PM_{10}/PM_{2.5}$ for boilers in this size range includes good combustion practices and natural gas fuel. BACT for NOx is proposed at 5 ppm corrected to 3% oxygen. This is lowest BACT level found after reviewing the South Coast AQMD, San Joaquin Valley APCD, Bay Area AQMD, CAPCOA, and EPA BACT guidance documents. SCA proposes to use the existing Boiler 1B low-NOx burner together with a new selective catalytic reduction system with aqueous ammonia injection to achieve this 5 ppm NOx emission rate. SCA will utilize the existing aqueous ammonia storage and supply system at the site to operate this boiler. Since there is no lower achieved-in-practice NOx level, and no technologically feasible alternative to achieve a lower NOx emission rate, this 5 ppm NOx level is BACT for Boiler 1B.

We further note that SCA is proposing a 4-hour startup period based on discussions with operators of a similar sized boiler/SCR system at University of California Davis. SCA has also determined that it could take several hours to bring the retrofit SCR system up to operating temperature and commence ammonia injection due to system design limitations. SCA is aware that Rule 411 allows only 2 hours for startup to reach 9 ppm NOx at 3% oxygen. Therefore, the worst case startup sequence for Boiler 1B will include 2 hours at 30 ppm NOx, then 2 hours at 9 ppm NOx.

2. Emission Offsets

Rule 201, Section 302 requires that emission offsets be provided on a per-pollutant basis for increases in quarterly emissions from a new or modified emissions unit if the stationary source's post-project potential to emit exceeds the levels specified in Rule 202, Section 302.1. The SCA facility exceeds the offset trigger levels in Section 302.1 for all pollutants except SOx. However, Rule 202, Section 113 provides an exemption from offsets for "replacement equipment" where the replacement unit:

- Is not a major source or major modification and serves the identical function as the unit(s) being replaced;
- Has a maximum rating and potential to emit for any pollutant that is not greater than the replaced units; and
- Results in an emission increase that does not exceed the following levels:

Pollutant	lb/day
VOCs	136
Nitrogen oxides	136
Sulfur oxides	150
PM_{10}	80
CO	550

"Major modification" is defined in Section 227 to include projects with emission increases exceeding 25 tons per year of NOx or VOC, 15 tons per year of PM_{10}, or 10 tons per year of $PM_{2.5}$. The SCA Boiler 1B Project is not a major modification under Rule 202 per Table 2 above. Maximum NOx, ROC, and $PM_{10}/PM_{2.5}$ emissions from the boiler emission unit alone are each less than 4 tons per year.

The maximum rating and potential to emit for all pollutants from Boiler 1B are less than each of the existing turbines at the SCA facility whose operation will be replaced by Boiler 1B. Finally, maximum daily emissions from Boiler 1B in all operating cases are less than the values listed above as shown in Tables 2, 3, 4, and 5. Accordingly, the new Boiler 1B is exempted from offsets requirements pursuant to Rule 202, Section 113 as "replacement equipment".

3. Ambient Air Quality Impact Analysis

Rule 202, Section 305 prohibits a new or modified stationary source from interfering with the attainment or maintenance of an applicable ambient air quality standard. Normally this type of ambient air quality impact analysis is required only for a new major source or major modification, and the proposed Boiler 1B project neither a new major source nor a major modification. However, since emissions modeling was performed for the original SCA permit, SCA modeled the ambient impacts of the new boiler operating in conjunction with the rest of the SCA plant. Table 8 shows the maximum ambient impacts for the Boiler 1B project.

Table 8
Modeled Maximum Project Impacts

Pollutant	Averaging Period	Maximum Project Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	State Standard ($\mu g/m^3$)	Federal Standard ($\mu g/m^3$)	SIL (µg/m3)
NO_2	1-hour	11.9	116.6	128.4	339	---	
	Fed. 1-hour	11.9	98.1	110.0		188	
	Annual	0.2	24.4	24.7	57	100	
SO_2	1-hour	0.3	13.1	13.4	655		
	Fed. 1-hour	0.3	7.8	8.1		196	
	24-hour	0.1	5.3	5.4	105		
CO	1-hour	30.9	2.6	33.6	23,000	40,000	
	8-hour	19.6	3.1	22.7	10,000	10,000	
PM_{10}	24-hour (Fed)	1.1	53.1	54.2	---	150	5
	24-hour (CA)	1.1	92.3	93.4	50	---	5
	Annual (CA)	0.1	19.2	19.3	20	---	1
$PM_{2.5}$	24-hour	1.1	45.1	46.2	---	35	1.2
	Annual (Fed)	0.1	10.1	10.2	---	12.0	0.3
	Annual (CA)	0.1	10.1	10.2	12	---	0.3

Detailed modeling outputs, operating scenarios, and background air quality data used to assemble Table 8 are included in Attachment 3. As shown in Table 8, the maximum ambient impacts remain either below ambient air quality standards or below the significant impact levels for the particular pollutant. Only the 24-hour California PM_{10} and the federal 24-hour $PM_{2.5}$ impacts exceed the respective standards due to high background concentrations, but in these cases the project impacts are less than EPA's significant impact levels (SILs) for these pollutants. Consequently, there are no new significant ambient air quality impacts associated with the proposed Boiler 1B project.

C. Rule 203: Prevention of Significant Deterioration

Rule 203 incorporates the Federal Prevention of Significant Deterioration (PSD) Program by reference (40 CFR 52.21). The PSD program requires pre-construction review and permitting of new or modified major stationary sources of air pollution to prevent significant deterioration of ambient air quality. PSD applies to pollutants for which ambient concentrations do not exceed the corresponding National Ambient Air Quality Standards (i.e., attainment pollutants). For the proposed Boiler 1B project, the emitted pollutants are NOx, SOx, CO, VOC and $PM_{10}/PM_{2.5}$ (greenhouse gas emissions have also been added to PSD per the tailoring Rule discussed below). While the SMAQMD is classified as an attainment area for NOx, SOx, CO, and PM_{10}, the SMAQMD is a nonattainment area with respect to the $PM_{2.5}$ and ozone (VOC) National Ambient Air Quality Standards. Consequently, the PSD regulations do not apply to VOC and $PM_{2.5}$ emissions from the project.

The federal PSD requirements apply on a pollutant-specific basis to any project that is a new major stationary source or a major modification to an existing major stationary source (these terms are defined in the PSD regulations at 40 CFR 52.21). SCA is not an existing major source because its emissions are limited to less than 100 tons per year for all pollutants (see Table 6), and the new Boiler 1B will not cause the SCA facility to become a new major stationary source. Therefore, PSD does not apply to the project.

On June 3, 2010 EPA finalized the PSD greenhouse gas (GHG) "tailoring" regulation. The purpose of this regulation is to establish criteria to determine which new stationary sources and/or project modifications trigger PSD and Title V review due to increases in GHG emissions. Under the GHG tailoring regulation and subsequent EPA guidance documents, beginning on July 1, 2011, existing major sources of GHG emissions such as the SCA Cogen facility that undergo a modification that increases GHG emissions by 75,000 tons/year CO_{2e} or more are subject to PSD review. However, the portion of the Tailoring Rule that would trigger PSD solely based on GHG emissions was overturned by the U.S. Supreme Court in June 2014. Thus, since PSD is not triggered by non-GHG pollutants, PSD does not apply to the project solely due to any GHG emissions increases. Nonetheless, the combustion of natural gas will increase CO_2 emissions from Boiler 1B by less than 75,000 tons/year (see Table 2). Therefore, with respect to GHG emissions under the overturned Tailoring Rule requirements, the proposed Boiler 1B project would not be subject to PSD review.

D. Rule 207: Title V Federal Operating Permit Program

SCA Cogen is an existing Title V facility with Permit No. TV2007-12-01A. The requested addition of Boiler 1B will require a significant modification to SCA's Title V permit. In order to expedite the Title V permit modification process, SCA requests that the SMAQMD process this application and Title V permit modification under the Enhanced New Source Review process allowed under Rule 202 (Sections 101 and 404). This permit application package includes the SMAQMD application forms necessary for this modification to the SCA Cogen Title V permit (see Attachment 1).

E. Rule 217: Public Notice Requirements for Permits

Rule 217, Section 102 notes that notification requirements shall not apply if the application is for any new or modified emissions unit where the combined potential to emit from the project would have an increase in potential to emit less than the amounts listed below (and provided that offsets are not triggered):

Pollutant	
Volatile organic compounds	*5,000 pounds per quarter*
Nitrogen oxides	*5,000 pounds per quarter*
Sulfur oxides	*9,200 pounds per quarter*
PM_{10}	*7,300 pounds per quarter*
$PM_{2.5}$	*10 tons per year*
Carbon monoxide	*49,500 pounds per quarter*

Per Table 2 above, the increases in potential to emit from the Boiler 1B project are significantly less than the listed exemption levels. Therefore, the Boiler 1B project does not trigger public notice requirements.

In addition to the notification requirements of Rule 217, California Health and Safety Code Section 42301.6 requires that an additional public notice be distributed whenever an Authority to Construct is issued that would allow increased toxic air contaminant emissions within 1,000 feet of the outer boundary of a school site. However, the project is not within 1,000 feet of the outer boundary of a school site and, therefore, notification is not required under Section 42301.6.

F. Rule 301: Stationary Source Permit Fees

This permit application is subject to the permit fees established by this Rule 301. For the proposed Boiler 1B, the initial filing fee was determined in accordance with SMAQMD Rule 301 based on one half of the estimated initial permit fee for the boiler ($6,034 per Section 308.3). Therefore, a check in the amount of $3,017 payable to the SMAQMD is included as part of this permit application package. The applicant understands that the SMAQMD may charge additional fees based on actual review hours spent by District staff and for modification of the Title V Permit to Operate.

G. Rule 401: Ringelmann Chart/Opacity

Rule 401 prohibits the emission of air contaminants that are darker than Ringelmann No. 1 or 20% opacity for more than three minutes in a one-hour period. Water vapor is not included in an opacity determination. The natural gas-fired boiler will not create visible emissions in excess of the limits of this rule.

H. Rule 402: Nuisance

This rule prohibits the discharge of air contaminants in quantities that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. The SMAQMD regulates new and modified sources of toxic air contaminants (TACs) under this rule by implementing its "Risk Assessment Guidelines for New and Modified Stationary Sources," dated December 2000. These guidelines implement what is commonly known as "Toxics New Source Review."

For the SCA Boiler 1B, there are TAC emissions associated with the combustion of natural gas. Ventura County APCD TAC emission factors for the combustion of natural gas by boilers larger than 100 MMBtu/hr were used to calculate the TAC emission increase associated with the Boiler 1B project. Detailed TAC emission calculations for the Boiler 1B project are included in Attachment 2. Some of these compounds have both carcinogenic and non-cancer health effects.

Under the SMAQMD's toxics policy, modified projects with TAC emission increases are required to perform a screening level health risk assessment. The SCA Cogen facility was evaluated for health risk when it was originally permitted by the SMAQMD in 1994 (see SMAQMD Final Determination of Compliance, August 19, 1994). To determine whether the proposed boiler 1B will result in a significant increase in the either the carcinogenic or non-cancer health impacts for the SCA facility, a screening level health risk assessment was performed for the both the increase in TAC emissions associated with Boiler 1B as well as the total SCA facility risk. This analysis was prepared using EPA's AERMOD dispersion modeling software together with CARB's Hotspots Analysis and Reporting Program (HARP) computer model (Version 1.4f, Build 23.11.01). The HARP model was used to assess cancer risk as well as chronic and acute risk impacts. A risk of less than 1×10^{-6} for cancer, and a Health Hazard Index of less than 1 for chronic or acute exposures are considered to be insignificant. The results of the screening level health risk prioritization assessment are summarized in Table 9, and the detailed HARP modeling results are enclosed as Attachment 4.

Table 9 Health Risk Screening Results SCA Cogen Facility			
Risk Component	1994 Project HRA	New Boiler 1B	Total
Cancer Risk - Residential	2.45×10^{-7}	3.61×10^{-7}	6.06×10^{-7}
Cancer Risk - Workplace	9.21×10^{-7}	0.33×10^{-7}	9.54×10^{-7}
Acute Hazard Index	0.0690	0.00007	0.06907
Chronic Hazard Index	0.0093	0.00004	0.00934

Table 9 shows that the screening HRA results for Boiler 1B are below the significance thresholds for cancer, acute, and chronic impacts. Additionally, the increased risks associated with Boiler 1B, when added to the reported health risks for the SCA Cogen facility (see August 19, 1994 FDOC), do not result in a total cumulative health risk exceeding the respective significance thresholds. Therefore, the TAC emission impacts for the proposed Boiler 1B project will not be significant, and the project is not expected to create a nuisance due to health risk.

I. Rule 404: Particulate Matter

Rule 404 prohibits emissions of particulate matter (PM) in excess of 0.1 gr/dscf. The exhaust PM concentration from the Boiler 1B (equal to 0.006 gr/dscf @ 12% CO_2) was calculated from the hourly PM emission rate (0.83 lb/hr), USEPA F-factor (1,040 scf CO_2/MMBtu), the reference CO_2 concentration (12%), and the maximum heat input rate (108.7 MMBtu/hr). Therefore, Boiler 1B will comply with the Rule 404 PM emission limit.

J. Rule 406: Specific Contaminants

Rule 406 prohibits emissions of combustion contaminants in excess of 0.1 gr/dscf @ 12% CO_2. As noted above, the exhaust PM concentration from Boiler 1B will be 0.006 gr/dscf @ 12% CO_2. Rule 406 also prohibits emissions of sulfur compounds in excess of 0.2% by volume, or 2,000 ppmv. The exhaust SOx concentration from Boiler 1B (equal to 0.3 ppmv @ 3% O_2) was calculated from the hourly SOx emission rate (0.07 lb/hr), USEPA F-factor (8,710 scf/MMBtu @ 0% O_2), reference O_2 concentration (3%), and maximum heat input rate (108.7 MMBtu/hr). Boiler 1B will comply with the Rule 406 PM and sulfur compound emission limits.

K. Rule 411: NOx from Boilers, Process Heaters and Steam Generators

Rule 411 prohibits NOx and CO emissions in excess of 9 and 400 ppmv @ 3% O_2, respectively, from natural gas-fired boilers with a maximum heat input rating greater than

20 MMBtu/hr. Rule 411 is applicable to Boiler 1B, which has a maximum heat input rating of 108.7 MMBtu/hr. At design NOx and CO concentrations of 5 and 88.6 ppmv @ 3% O_2, respectively, Boiler 1B will comply with the Rule 411 NOx and CO limits. Additionally, Rule 411 limits startup to two hours and shutdown to two hours. Since Boiler 1B will require up to 4 hours to meet 5 ppm, Rule 411 will require that it meet 9 ppm NOx at 3% oxygen within 2 hours of startup.

L. Rule 801: New Source Performance Standards

Rule 801 incorporates, by reference, the federal Standards of Performance for New Stationary Sources (NSPS). Title 40 of the Code of Federal Regulations, Part 60, Subpart Db contains the NSPS for industrial, commercial, and institutional steam generating units with maximum heat input rates greater than 100 MMBtu/hr. Since Boiler 1B has a maximum heat input rating of 108.7 MMBtu/hr, Subpart Db will be applicable to Boiler 1B. Boiler 1B combusts exclusively natural gas, and will be subject to a NOx emission rate no lower than 0.10 lb/MMBtu per Section 60.44b. 5 ppm NOx at 3% oxygen is equivalent to 0.006 lb/MMBtu; therefore, Boiler 1B will comply with Subpart Db.

M. California Environmental Quality Act (CEQA)

Under Rule 202 (Section 307), the Air Pollution Control Officer shall deny an Authority to Construct or Permit to Operate if the Air Pollution Control Officer finds that the project which is the subject of an application would not comply with CEQA. Because the SCA Cogen project underwent review/approval by the CEC, the CEC was responsible for the CEQA review of the Boiler 1B project. As a CEC-approved project, all subsequent SCA Cogen modifications go through the CEC amendment process. This CEC amendment process includes a review to confirm that a proposed project modification complies with applicable CEQA requirements. The applicant is in the process of preparing the petition to the CEC to amend the approval of the SCA Cogen facility to allow the proposed changes discussed in this permit application package. Therefore, the CEQA review of these proposed boiler 1B project will be covered by the CEC amendment process. Normally under this process, the SMAQMD issues a preliminary and final determination of compliance (PDOC/FDOC) for a requested permit change. Once the FDOC is issued, the CEC Staff will finish their analysis and bring the amendment to the Commission for approval. Once the CEC approves the amendment the CEQA process is complete, and the FDOC acts like an authority to construct.

ATTACHMENT 1
SMAQMD APPLICATION FORMS

777 12th Street, 3rd Floor
Sacramento, CA 95814-1908

Sacramento Metropolitan
Air Quality Management District

(916) 874-4800
Fax(916)874-4899

FORM G100
APPLICATION FOR AUTHORITY TO CONSTRUCT AND/OR PERMIT TO OPERATE

A SEPARATE APPLICATION AND FORM(S) SPECIFIC TO THE PROCESS OR EQUIPMENT MUST BE COMPLETED FOR **EACH** PROCESS OR PIECE OF EQUIPMENT

A. Both pages of this application must be completed; an original signature (not a facsimile or copy) is required.
B. The appropriate permit fee must be submitted with the application (refer to SMAQMD Rule 301 or 310 for fee schedule).

1. Name of business or organization that is to receive the permit: Sacramento Cogeneration Authority

Business type: ☐ Sole Proprietorship ☐ Limited Liability Company ☐ Partnership ☐ Corporation ☐ Wholly-owned Subsidiary ☐ Government ■ Other

2. Employer Identification Number (E.I.N.): 68-0329434

3. Number of Employees: 14 4. NAICS Classification No.: 221112 (Electric power generation, fossil fuel)

5. Does this business (including its affiliates) have annual receipts in excess of $750,000? ■ Yes ☐ No

6. Mailing address: PO Box 15830, Mail Stop B355 | Sacramento | CA | 95852-0830 | 916-379-7452
NUMBER STREET | CITY | STATE | ZIP CODE | PHONE NO.

7. Location Address (where the equipment will be operated, if different than above)
5000 83rd Street | Sacramento | CA | 95826 | 916-379-2041
NUMBER STREET | CITY | STATE | ZIP CODE | PHONE NO.

8. Name of Facility that will Operate the Equipment (if different than above):

DBA: _____

9. Description of equipment/process to be permitted: Installation of new auxiliary natural gas boiler rated at a maximum heat input of 108 MMBTU/hour and a steam output of 90,000 lb/hour at the cogeneration power plant. The new boiler will be used to provide steam to the Proctor and Gamble manufacturing plant (Steam Host).

■ Constructing/installing new equipment
Estimated startup date for new equipment: August 31, 2015

☐ Initial permit for existing equipment
Date Operation First Commenced: _____

☐ Modification of existing permitted equipment or permit conditions
Estimated completion date for modification: _____ Previous Permit No.: _____

☐ Change of Ownership
Change of ownership date: _____ Previous Permit No.: _____

10. Is this permit application being submitted in response to a Notice of Violation (NOV) or Notice to Correct (NTC) issued by the SMAQMD? ☐ Yes ■ No If Yes, NOV or NTC #: _____

DO NOT WRITE BELOW (SMAQMD USE ONLY)

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT
DATE STAMP
SEP 30 2014

PERMIT NUMBER	A/C FEE	A/C RECEIPT
24398	2,547	59196
PREVIOUS P/O	P/O FEE	P/O RECEIPT

777 12th Street, 3rd Floor
Sacramento, CA 95814-1908

Sacramento Metropolitan
Air Quality Management District

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5. Does this business (including its affiliates) have annual receipts in excess of $750,000? ■ Yes ☐ No

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NUMBER STREET | CITY | STATE | ZIP CODE | PHONE NO.

7. Location Address (where the equipment will be operated, if different than above)
5000 83rd Street | Sacramento | CA | 95826 | 916-379-2041
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8. Name of Facility that will Operate the Equipment (if different than above):

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9. Description of equipment/process to be permitted: Installation of new auxiliary natural gas boiler rated at a maximum heat input of 108 MMBTU/hour and a steam output of 90,000 lb/hour at the cogeneration power plant. The new boiler will be used to provide steam to the Proctor and Gamble manufacturing plant (Steam Host). SCR

■ Constructing/installing new equipment
Estimated startup date for new equipment: August 31, 2015

☐ Initial permit for existing equipment
Date Operation First Commenced: _____

☐ Modification of existing permitted equipment or permit conditions
Estimated completion date for modification: _____ Previous Permit No.: _____

☐ Change of Ownership
Change of ownership date: _____ Previous Permit No.: _____

Page for SCR permit added by SMAQMD. R. Toledo 10/14/2014

10. Is this permit application being submitted in response to a Notice of Violation (NOV) or Notice to Correct (NTC) issued by the SMAQMD? ☐ Yes ■ No If Yes, NOV or NTC #: _____

SACRAMENTO METROPOLITAN
DATE STAMP SEP 30 2014
AIR QUALITY MANAGEMENT DISTRICT

DO NOT WRITE BELOW (SMAQMD USE ONLY)

PERMIT NUMBER	A/C FEE	A/C RECEIPT
24399	2,547	59196
PREVIOUS P/O	P/O FEE	P/O RECEIPT

777 12th Street, 3rd Floor
Sacramento, CA 95814-1908

Sacramento Metropolitan
Air Quality Management District

(916) 874-4800
Fax (916) 874-4899

APPLICATION FOR AUTHORITY TO CONSTRUCT AND/OR PERMIT TO OPERATE

A SEPARATE APPLICATION AND FORM(S) SPECIFIC TO THE PROCESS
OR EQUIPMENT MUST BE COMPLETED FOR **EACH** PROCESS OR PIECE OF EQUIPMENT

A. Both pages of this application must be completed; an original signature (not a facsimile or copy) is required.
B. The appropriate permit fee must be submitted with the application (refer to the SMAQMD Rules or fee schedule).

11. All information submitted to obtain an Authority to Construct/Permit to Operate is considered public information as defined by section 6254.7 of the California Government Code unless specifically marked as trade secret by the applicant. Each document containing trade secrets must be separated from all non-privileged documents. Each document which is claimed to contain trade secrets must indicate each section or paragraph that contains trade secret information and must have attached a declaration stating with specificity the reason this document contains trade secret information. All emission data is subject to disclosure regardless of any claim of trade secret.

Acknowledgement [P.L] (Please initial) Trade secret documents are included with this application: ☐ Yes ■ No

12. Pursuant to Section 42301.6(f) of the Health and Safety Code, I hereby certify that emission sources in this permit application:

(Initial appropriate box) [ ] **ARE** OR [PL] **ARE NOT** within 1,000 feet of the outer boundary of a school

Pursuant to section 42301.9(a) of the Health and Safety Code, "School" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes.

13. Required information, analyses, plans and/or specifications needed to complete this application are being collected under authority granted by California Health & Safety Code (CH&SC) section 42303. In addition, CH&SC section 42303.5 states that *No person shall knowingly make any false statements in any application for a permit, or in any information, plans, or specifications submitted in conjunction with the application or at the request of the Air Pollution Control Officer.* Violations of the CH&SC may result in criminal or civil penalties, as specified in CH&SC sections 42400 through 42402.3. By signing below, I certify that all information is true and accurate and complete, to the best of my knowledge and ability.

Please be advised that constructing, installing, or operating air pollutant emitting equipment prior to receiving an Authority to Construct from the Air District is a violation of air pollution regulations and is subject to civil or criminal penalties prescribed in the California Health and Safety Code.

Signature of responsible officer, partner or proprietor of firm [signature]

Printed Name: Paul Lau Title: Assistant General Manager, Power Supply and Grid Operations Date: 9/29/14

Phone number: 916-732-6252 Fax number: 916-732-6890 E-mail address: Paul.Lau@smud.org

14. Contact person for information submitted with this application (if different from above):

Name: René Toledo Title: Environmental Specialist

Phone number: 916-732-7452 Fax number: 916-732-6890 E-mail address: Rene.Toledo@smud.org

15. Receipt of future rules and planning notices affecting your permit and facility; check one box:

☐ Please send e-mail notices to _____

☐ I will sign up myself at www.airquality.org/listserve/ to receive e-mailed notices.

☐ I want the District to mail notices to the address on this application.

■ I am already subscribed.

FORM B100
BOILERS AND HEATERS

Business License Name of organization that is to receive permit:

Sacramento Cogeneration Authority

BOILER AND HEATER SUMMARY

Boiler/ Heater Manufacturer: Cleaver Brooks

Model Number: LD-94-R,H (Serial No. W-3549)

Boiler Type: N/A Atmospheric Yes Non- Atmospheric

Maximum Boiler Rating: 108.7 million BTU/hour input

Maximum Burner Rating: N/A BTU/hour input

Is Flue Gas Recirculation used? ✔ Yes _____ No

Boiler/Heater Use:

No space heating Yes industrial process

(CONTINUED NEXT PAGE)

BOILERS & HEATERS

(CONTINUED)

FUEL USAGE SECTION

Indicate Primary Fuel PUC Quality Natural Gas Indicate Standby Fuel None

EXEMPTION - LOW FUEL USAGE

A boiler may qualify for a low fuel usage exemption from the emission standards effective pursuant to the applicable schedule in Section 407 of Rule 411 - Boiler NO_X, if the annual fuel usage does not exceed the applicable level in the table below (1 Therm = 100,000 BTU's).

Boiler Size (mmBtu/hr)	Annual Fuel Usage (therms/yr)
1 - <2.5	40,000
≥2.5 - <5	70,000
≥5 - <100	200,000
≥100	300,000

If you are requesting a low fuel usage exemption from Rule 411 - Boiler NOx then complete the following:

Submit records that clearly demonstrate that the unit has operated below the applicable low fuel usage limits specified above at all times since October 27, 2006.

Check the method used for determining annual fuel usage. ✔ Non-resetting totalizing fuel meter
_____ Non-resetting totalizing hour meter

1) Non-resetting totalizing fuel meter
Meter Type Other (either "Main PG&E meter" used for billing purposes or "other")
If "Main PG&E Meter", then list all other natural gas consuming equipment that are connected to this meter.
The facility's main revenue meter serves three combustion turbines, the existing auxiliary boiler, the proposed auxiliary boiler, and an exempt domestic water heater (199,000 BTU/hr). The facility's natural gas is supplied by a SMUD certified non-ressetable totalizing fuel meter which is functionally equivalent to a PG&E revenue meter.

Note: When using one main PG&E gas meter which has other gas consuming equipment connected to it, compliance with the low fuel exemption will be determined from the totalized meter reading regardless if the boiler's fuel consumption is only a portion of the totalized meter reading.

If "other", then
Make and Model N/A

Date of installation Upon initial boiler installation.
Does the meter compensate for pressure and temperature using integral gauges ✔ Yes _____ No

2) Non-resetting totalizing hour meter
Note: Fuel usage will be determined by multiplying hours by maximum heat input of the unit

Approval of low fuel usage exemption requires one of the following conditions be met. Which of the following will be used?:

N/A Maintain stack-gas oxygen concentrations at less than or equal to 3.00% by volume on a dry basis.
Note: This will require testing to verify compliance

N/A The unit shall be tuned at least once per calendar year in accordance with the procedure described in Attachment A in Rule 411 - Boiler NOx.
Note: The first boiler tune-up shall be performed in the calendar year that the low fuel usage permit is issued.

(CONTINUED NEXT PAGE)

FUEL TYPE/ GAS

Specify Type: ✔ Natural Other (specify) _____

For digester, landfill, field or process gas:
H_2S content N/A grain/100 cubic feet Heat content _____ BTU/cubic feet.

State maximum gas usage : 105,882 cubic feet/day

228.706 - 233.788 million cubic feet/calendar quarter

927.529 million cubic feet/calendar year

This information will be used to determine the maximum emission levels to be imposed in the permit conditions.

FUEL TYPE/ LIQUID
(If you use fuel oil as a standby, complete both gas and liquid sections.)

Specify Type : N/A Diesel No. (specify number):_____ _____Other (specify) _____

Sulfur content: _____% by weight

State maximum liquid fuel usage: _____ gal/week _____ gal/calendar year
State maximum liquid fuel operation _____ hrs/yr maintenance * _____ hrs/yr non-maintenance *
This information will be used to determine the maximum emission levels as set forth in the permit conditions.

* A boiler that uses a non gaseous fuel as emergency standby may qualify for a less stringent NO_X concentration limit (150 ppmvd @ 3% O_2), in Rule 411 - Boiler NO_X, if the boiler is operated for no more than 168 hours per year for actual emergency operations and for no more than 48 hours per year for equipment and emission testing time.

Are you requesting a liquid fuel emergency standby limit? _____Yes _____No

If "Yes", a non-resetting totalizing hour meter will be required to verify compliance with the annual hourly limits specified above.

☐ I have included manufacturer emission data guarantees or source test report.

☑ I was unable to obtain emission data guarantees or source test report. Explain _____
SMUD is committed to designing and installing a boiler control system that will achieve a NOx effluent emission concentration of 5 ppmvd @ 3% O2 through selective catalytic reduction (SCR) with ammonia injection. The existing boiler is equipped with an Ultra-Low NOx burner capable of achieving a NOx emission below 9 ppmvd @ 3% O2. The boiler's SCR system will be custom built for this application (see application supplemental information).

Print name of person to contact regarding the information on this form :
Rene Toledo, SMUD Environmental Specialist

Business contact phone number:
916-732-7452, Rene.Toledo@SMUD.org

B100 revised 10-15-07

FORM HRA100
HEALTH RISK ASSESSMENT INFORMATION

PURPOSE: The purpose of this form is to gather the basic information needed to run an air dispersion model and perform a health risk assessment for a simple emissions unit. Additional information may be needed depending on type of process and potential risk to the public.

STACK/VENT EMISSIONS: Complete this section if pollutants are being released to the atmosphere via a stack or vent (e.g. roof vent).

Stack Height: 80 ft. above ground

Stack Inner Diameter: 42 in.

Exhaust Gas Flow Rate: 37793 acfm

Exhaust Gas Temperature 295 degrees F.

FUGITIVE EMISSIONS: Complete this section if pollutants are being released to the atmosphere without the benefit of a stack or vent (e.g. emissions from windows, eaves and doors, ponds, open tanks, and wind blown emissions from piles and fields).

Source Base Elevation: _____ ft. above ground

Source Height: _____ ft. above ground

Source Width (East/West Dimension): _____ feet

Source Length (North/South Dimension): _____ feet

DRAWINGS REQUIRED: Drawings should be submitted on 8-1/2" X 11" sheets or larger. Drawings must clearly show the required information but do not need to be professionally drawn. All drawings should be drawn with north facing up and to scale.

Nearby Buildings:
Submit a drawing showing all buildings affecting the exhaust stack or point of release. The area of influence for a building is defined as the area within 5 times the lesser of the height or width of a building. For each building, the drawing must show length, width, and height of the building, and distance to exhaust stack or point of release.

Property Line:
Submit a drawing showing the exhaust stack in relation to the property line. The drawing must be drawn to scale, with north facing up, and must show the entire property.

Receptors:
Submit a drawing showing residential and commercial buildings surrounding the property. Indicate the distance from the stack/point of release to the residential/commercial buildings.

FORM G101
GENERAL INFORMATION

A separate application is required for each emissions unit (equipment the use of which may cause the issuance of air contaminants). Such a unit may consist of one individual item, or a group of two or more items. A separate application is also required for each air pollution control system (equipment which eliminates or reduces the emission of air contaminants).

With each application for authority to construct and permit to operate, the following data, specifications, plans and drawings must be submitted. **If this information has already been submitted to the district (e.g. site plans already submitted for another permit application) or is included in a supplemental application form, please reference the form, application or permit number containing the appropriate information:**

1. EQUIPMENT LOCATION DRAWING: The drawing or sketch submitted must show at least the following: See Application Discussion, Section D - Figure 1 (Page 3)

   a. The property involved and outlines of all buildings on it. Identify property lines plainly.

   b. Location and identification of the proposed equipment within the property/building.

   c. Location of the property with respect to streets. Indicate direction (north) on the drawing.

2. DESCRIPTION OF EQUIPMENT: State make, model, size and type for either the entire unit or for its major parts. Equipment-specific forms are available for commonly permitted equipment. See SMAQMD Form B100

3. DESCRIPTION OF PROCESS: The application must be accompanied by written description of each process to be carried out in the equipment and of the function of the equipment itself in the process. The descriptions must be complete and in detail concerning all operations. Particular attention must be given to explaining all stages in the process where the discharge of any materials might contribute in any way to air pollution. All obtainable data must be supplied concerning the nature, volumes, particle sizes, weights and concentrations of all types of air contaminants that may be discharged at each stage in the process. Similarly, control procedures must be described in sufficient detail to show the extent of control of air contaminants anticipated in the design, specifying the expected efficiency of the control device. See Application Discussion, Section D (Page 2)

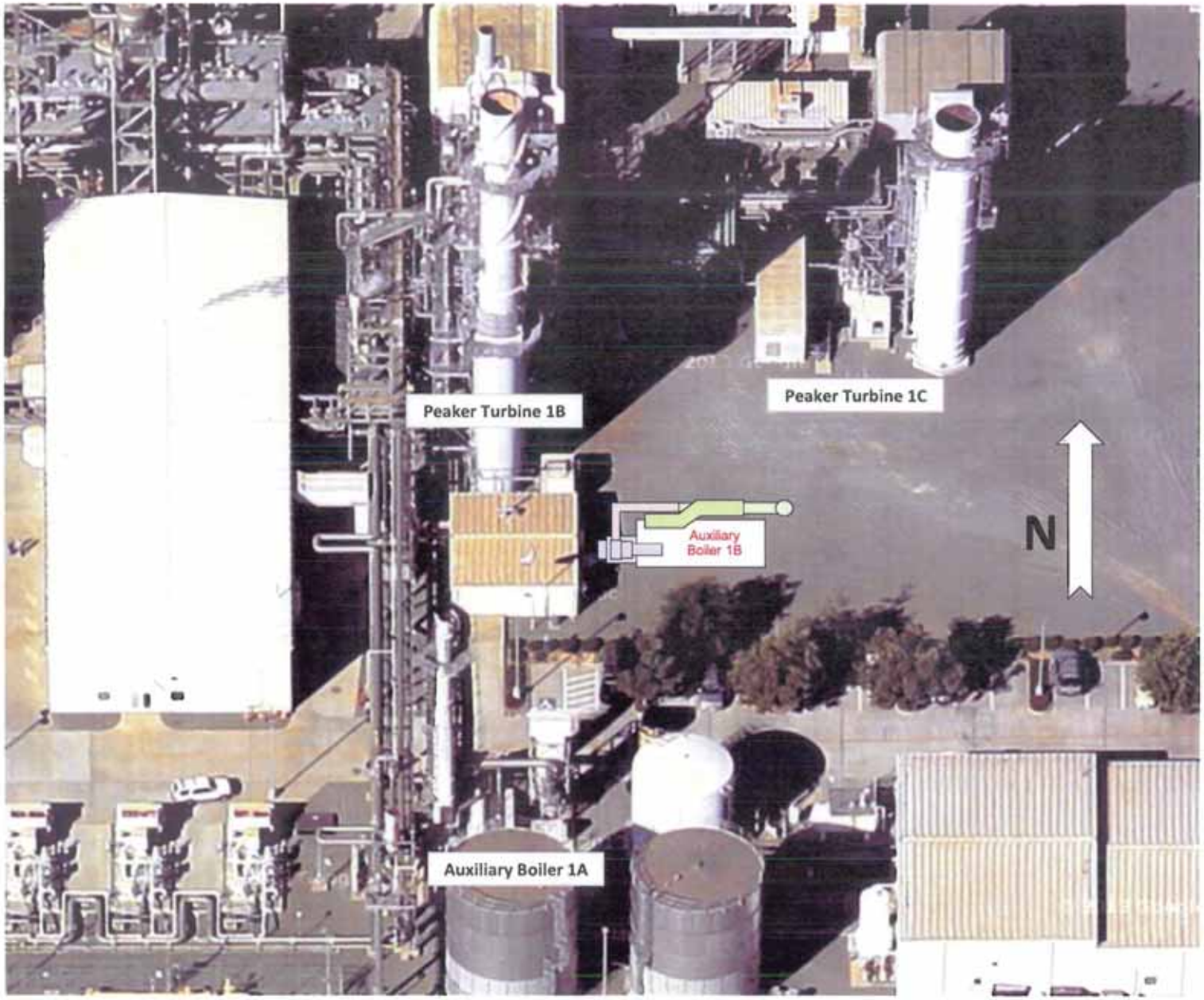
(Continued on reverse side)

4. FACILITY DESCRIPTION: Describe the general nature of the business. Types of products manufactured/produced/mined/recovered or types of services provided.
   See Application Discussion, Section C (Page 3)
5. OPERATING SCHEDULE: Specify the hours per day, days per week and weeks per year the equipment is to be operated.
   See Applicaiton Discussion, Section E (Page 4)
6. PROCESS WEIGHT: Detail types and total weight of each material charged into the equipment or the process on the basis of pounds per hour or per other specified unit of time.
   See SMAQMD Form B100, Fuel Type/Gas Section
7. FUELS AND BURNERS USED: Indicate for fuel gas-types and cubic feet per hour; for fuel oil-grade and gallons per hour; for solid fuels-type and pounds per hour.
   See SMAQMD Form B100, Fuel Type/Gas Section
8. FLOW DIAGRAM: For continuous processes, show the flow of materials either on a separate flow diagram or on the drawings accompanying the application.
   None
9. DRAWINGS OF EQUIPMENT: Supply drawing, to show clearly the design and operation of the equipment and the means by which air contaminants are controlled. The following must be shown:
   See Attachment 1
   a. Size and shape of the equipment.
   b. Locations, sizes and shape details of all features which may affect the production, collection, conveying or control of air contaminants of any kind.
   c. Horsepower rating of all electric motors driving the equipment.

After authority to construct or to install is granted for any equipment, deviations from the approved plans are not permissible without first securing additional approval for the changes from the Air Pollution Control Officer.

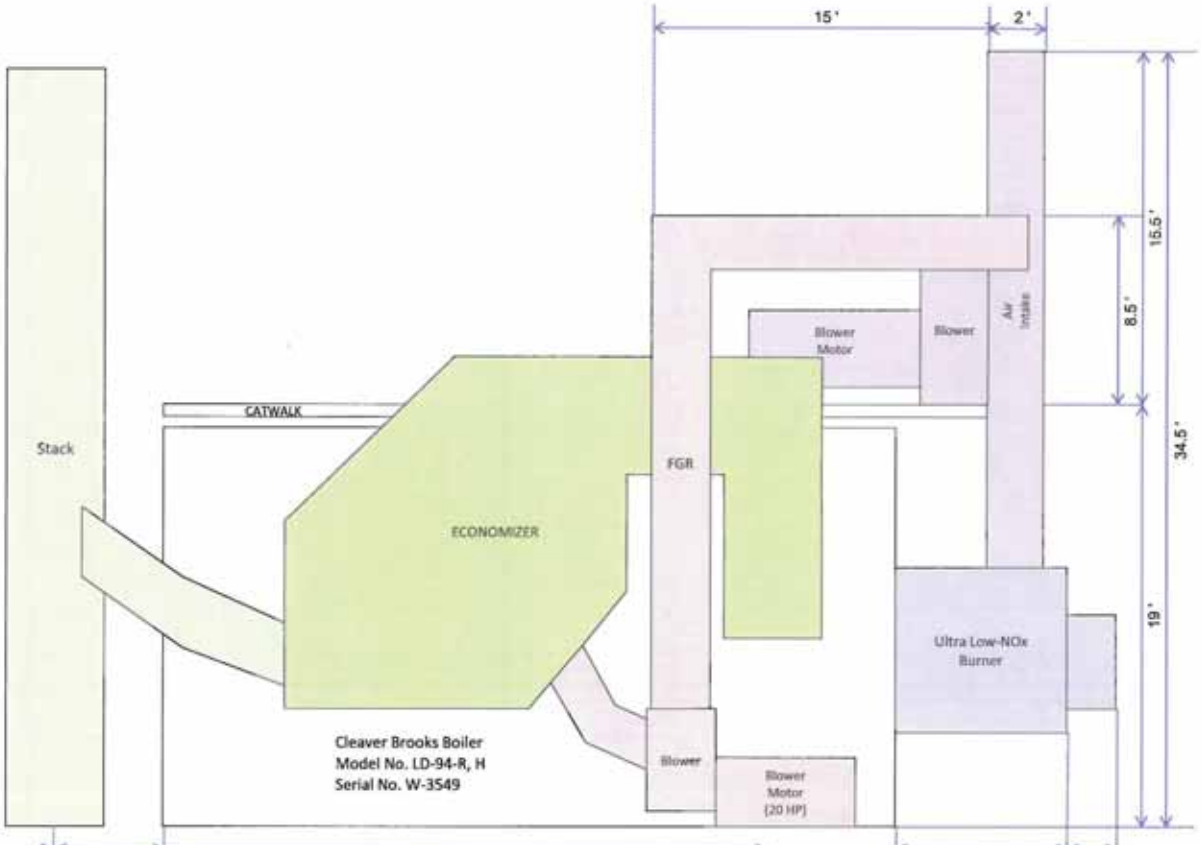
Further information or clarification concerning permit can be obtained by writing or calling (916) 874-4800.

SCA FACILITY DRAWING

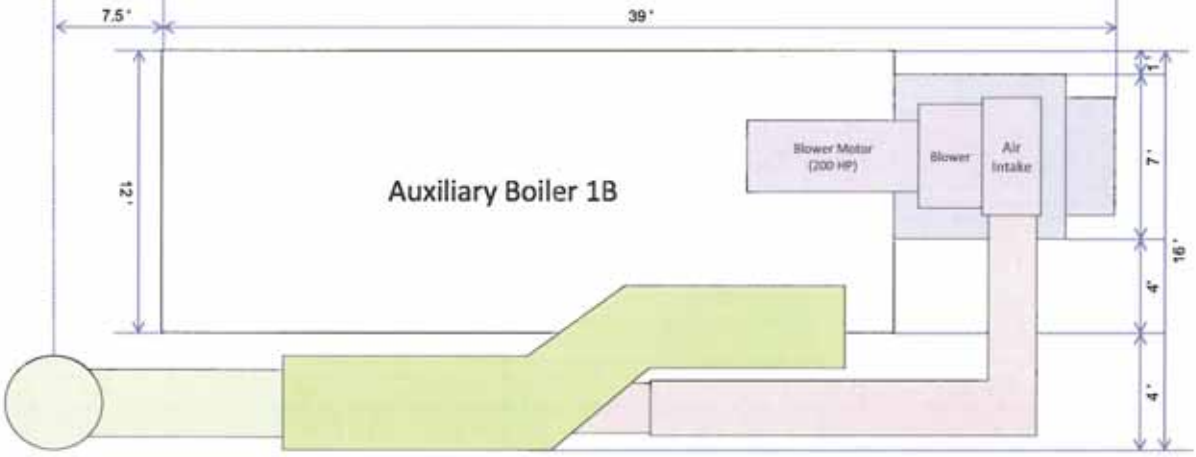


R. Toledo (09/30/2014)

SCA FACILITY DRAWING



BOILER PROFILE VIEW



BOILER PLAN VIEW

R. Toledo (09/30/2014)

777 12th Street 3rd Floor
Sacramento, CA 95814-1908

Sacramento Metropolitan
Air Quality Management District

(916) 874-4800
Fax: (916) 874-4899

TITLE V PERMIT APPLICATION

STATIONARY SOURCE SUMMARY

I. FACILITY IDENTIFICATION

1. Facility Name: Sacramento Cogeneration Authority (SCA)
2. Four digit SIC Code: 4931 EPA Plant ID: 7551 / TV2007-12-01A
3. Parent Company: _____
   (if different from Facility name)
4. Mailing Address: P.O. Box 15830, Mail Stop B355; Sacramento, CA 95826
5. Street Address or Source Location: 5000 83rd Street; Sacramento, CA
6. Is source located within 50 miles of the state line?: [ ] Yes [x] No
7. Is source located within 1000 feet of a school?: [ ] Yes [x] No
8. Type of Organization: [ ] Corporation [ ] Sole Ownership [ ] Government
   [ ] Partnership [ ] Utility Company [x] Joint Powers Authority
9. Legal Owner's Name: Sacramento Cogeneration Authority
10. Owner's Agent Name (if any): _____
11. Responsible Official: Paul Lau (Authority Representative, SCA) Telephone No.: 916-732-6890
    Title: Assistant General Manager, Power Supply & Grid Operations
12. Plant Site Manager/Contact: Jeff White Telephone No.: 916-379-2041
    Title: Plant Manager, Carson Energy Group
13. Type of facility: Generation of Electricity and Thermal Energy
14. General description of processes/products: The SCA facility generates electricity for the Sacramento Municipal Utility District (SMUD) and produces process steam for use by the Procter & Gamble Manufacturing Company (steam host). The site is equipped with two (2) combined-cycle combustion turbines providing steam to a single steam turbine and/or the steam host, one (1) simple-cycle combustion turbine, one (1) 3-celled cooling tower; and one (1) auxiliary boiler that can be used to provide steam to the steam host in lieu of a combined cycle combustion turbine.
15. Is a Federal Risk Management Plan required [pursuant to Section 112(r)]? [ ] Yes [x] No
    (If yes, attach verification that the Risk Management Plan is registered with appropriate agency.)

STATIONARY SOURCE SUMMARY

II. TYPE OF PERMIT ACTION

16. Indicate type of permit action being requested.

	CURRENT PERMIT (permit number)	EXPIRATION (date)
☐ **Initial Title V Application**		
☐ **Permit Renewal**		
☑ **Significant Permit Modification**	TV2007-12-01A	06/05/2013
☐ **Minor Permit Modification**		
☐ **Administrative Amendment**		

III. DESCRIPTION OF PERMIT ACTION

17. Does the permit action requested involve: [ ] Temporary Source [ ] Voluntary Emissions Caps
[x] Acid Rain Source [ ] Alternative Operating Scenarios
[ ] Source Subject to MACT Requirements [Section 112]

18. Is source operating under Compliance Schedule? [ ] Yes [x] No

19. For permit modifications, provide a general description of the proposed permit modification:
This application is being submitted as part of the Enhanced New Source Review provisions of SMAQMD Rule 202 (New Source Review) as requested in the Authority to Construct application of the new auxiliary boiler being proposed for the site. The new boiler will act as a functional replacement to at least a combine-cycle combustion turbine during periods when it is not environmentally beneficial and/or economically advantageous to operate the combined-cycle turbine for the sole purpose of complying with the Steam Sales Agreement between SCA and the steam host. The boiler will not be used to provide steam to the site's steam generator for the production of electricity. The project will not result in an increase in the facility's daily, quarterly, or yearly emission limits.

➢ SMAQMD USE ONLY ≺			
	APPLICATION AND PERMIT NUMBER	DATE SENT TO EPA FOR REVIEW	DATE EPA COMMENTS RECEIVED
	DATE APPLICATION DEEMED COMPLETE	EVALUATION FEE	RECEIPT NUMBER
	DATE PERMIT ISSUED	MAP PAGE	ZONE

Sacramento Metropolitan Air Quality Management District

TOTAL STATIONARY SOURCE EMISSIONS

I. FACILITY IDENTIFICATION

1. Facility Name: Sacramento Cogeneration Authority (SCA)
2. Street Address or Source Location: 5000 83rd Street; Sacramento, CA 95826

II. TOTAL STATIONARY SOURCE EMISSIONS

POLLUTANT (name)	EMISSIONS (tons per year)	PRE-MODIFICATION EMISSIONS (tons per year)	EMISSIONS CHANGE (tons per year)
VOC (ROC)	16.81	N/A	N/A
NO_X	58.77	N/A	N/A
SO_X	3.86	N/A	N/A
PM_{10} / $PM_{2.5}$	34.92	N/A	N/A
CO	99.34	N/A	N/A
CO_2	779,425	N/A	N/A
CH_4	14.46	N/A	N/A
N_2O	1.45	N/A	N/A
CO_{2e}	780,177	N/A	N/A

III. CERTIFICATION

Under penalty of perjury, I certify that based on information and belief formed after reasonable inquiry that the answers, statements and information contained in this application (and supplemental attachments thereto) are true, accurate and complete. This application consists of the application forms provided by the SMAQMD, information required pursuant to the List and Criteria and any supplemental information and/or attachments submitted with the application. I also certify that I am the responsible official as defined in SMAQMD Rule 207.

Signature of Responsible Official — Date: 9/29/14

Paul Lau (Authority Representative, SCA)
Print Name of Responsible Official

Assistant General Manager, Power Supply and Grid Operations
Title of Responsible Official and Company Name

Telephone Number of Responsible Official: (916) 732 - 6890

EXEMPT EQUIPMENT

I. FACILITY IDENTIFICATION

1. Facility Name: Sacramento Cogeneration Authority (SCA)
2. Street Address or Source Location: 5000 83rd Street; Sacramento, CA 95826

II. EXEMPT EQUIPMENT

3. In the spaces provided below, list all equipment that is exempt from the Federal Operating Permit Program pursuant to the SMAQMD "List and Criteria" document, Part B, Section 5, modified April 2001.

EXEMPT EQUIPMENT	BASIS FOR EXEMPTION
A. Fugitive Emission Sources Associated with Insignificant Activities • Fuel gas compressor • Fuel gas piping, valves, and fittings	"List & Criteria", Part B, Section 5.II.A – Insignificant air pollutant emissions.
B. Combustion and Heat Transfer Equipment • Water heater, 30 gallon, natural gas, one @ 30,000 Btu/hr • Water heater, 100 gallon, natural gas, one @ 199,000 Btu/hr • Space heaters, natural gas, seven @ 25,000 Btu/hr each • Portable pressure washer (13.5 BHP) • Portable welder (16 BHP)	"List & Criteria", Part B, Section 5.II.B.2 – 1) Combustion equipment that has a maximum heat input rating of no more than five MMBtu/hr gross and is equipped to be fired exclusively with natural gas, or 2) Piston-type internal combustion engine rated < 50 BHP.
C. Cooling Towers • SCA's wet cooling tower has water circulation rate > 10,000 GPM and is not exempt	Not Applicable
D. Printing and Reproduction Equipment • Office printers and copiers	"List & Criteria", Part B, Section 5.II.D.2 – Insignificant air pollutant emissions.
E. Food Processing Equipment • No Equipment of this type at SCA	Not Applicable
F. Plastic and/or Rubber Processing • No Equipment of this type at SCA	Not Applicable
G. Storage Containers, Reservoirs, and Tanks – Fuel, Fuel Oil, Asphalt • No Equipment of this type at SCA	Not Applicable
H. Storage Containers, Reservoirs, and Tanks – General Organic and VOC-containing material • Turbine lube oil storage • Waste lube oil storage • Hydraulic oil storage • Oily water separator	"List & Criteria", Part B, Section 5.II.H.1 – Initial boiling point of 150° C or greater, or vapor pressure of no more than five mmHg.

EXEMPT EQUIPMENT	BASIS FOR EXEMPTION
I. Storage Containers, Reservoirs, and Tanks – Inorganic Materials • Water treatment chemicals • Water storage • Aqueous ammonia storage tank	"List & Criteria", Part B, Section 5.II.I. – Insignificant air pollutant emissions.
J. Storage Containers, Reservoirs, and Tanks – Liquefied Gases • Aqueous ammonia storage • Hydrogen storage • Carbon dioxide storage • Calibration gas cylinders • Welding gas cylinders	"List & Criteria", Part B, Section 5.II.J – Insignificant air pollutant emissions.
K. Compression and Storage of Dry Natural Gas • Fuel gas compressor (electric)	"List & Criteria", Part B, Section 5.II.K – Insignificant air pollutant emissions.
L. Transfer Equipment • Pumps and piping associated with G-K above	"List & Criteria", Part B, Section 5.II.L – Insignificant air pollutant emissions.
M. Adhesive Application • Miscellaneous and non-process use of adhesives for office and plant maintenance purposes	"List & Criteria", Part B, Section 5.II.M – No more than 173 gallons of adhesive applied in consecutive 12-month period
N. Surface Coating • Miscellaneous and non-process surface coating activities in plant maintenance shop	"List & Criteria", Part B, Section 5.II.N – 1) Use of no more than one gallon per day of surface coating, or any combination of surface coating and solvent, which contains either VOC and/or hazardous air pollutants, or 2) Coating operation using < 10,950 gallons per year of coatings that contain < 20 grams VOC per liter.
O. Solvent Cleaning • Miscellaneous and non-process solvent cleaning activities for plant maintenance • Wipe cleaning • Degreaser, water based cleaner	"List & Criteria", Part B, Section 5.II.O – 1) Equipment or activity using no more than one gallon per day of solvent, or combination of solvent and surface coating, which contains VOC and/or HAP, 2) Unheated non-conveyorized cleaning equipment meeting specific criteria from the "List & Criteria" document, and 3) Solvent wipe cleaning meeting specific criteria from the "List & Criteria" document.
P. Abrasive Blasting • Abrasive blast cabinet - Free-standing cabinet with glove-box access. Vents to dust collector that discharges air to indoor shop area.	"List & Criteria", Part B, Section 5.II.P – Insignificant air pollutant emissions due to: 1) Blast cleaning equipment using a suspension of abrasive material in water and the control equipment venting such blast cleaning equipment, or 2) Abrasive blast room when vented to a control device that discharges back to the room.
Q. Brazing, Soldering, Welding, and Cutting Torches • Welding equipment	List & Criteria, Part B, Section 5.II.Q – Trivial activity according to USEPA.
R. Solder Leveler, Hydrosqueegee, Wave Solder Machine, or Drag Solder Machine • No Equipment of this type at SCA	Not Applicable

EXEMPT EQUIPMENT	BASIS FOR EXEMPTION
S. Metal Products (inspection equipment) • No Equipment of this type at SCA	Not Applicable
T. Aerosol Can Puncturing or Crushing • No Equipment of this type at SCA	Not Applicable
U. Biotechnology Manufacture • No Equipment of this type at SCA	Not Applicable
V. Textile Dyeing, Stripping, or Bleaching • No Equipment of this type at SCA	Not Applicable
W. Laboratory Fume Hoods and Vents • No Equipment of this type at SCA	Not Applicable
X. Refrigeration Units • Building/enclosure air conditioners	"List & Criteria, Part B, Section 5.II.X – Insignificant air pollutant emissions where equipment 1) contains < 50 pounds of refrigerant, and 2) is not used in conjunction with air pollution controls.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT
RECEIPT FOR FEES AND PAYMENTS

Receipt No. 59196

Date 9/30/14

Received from SMUD ($ 5,094)

and /100 Dollars

( ) Cash ( ) Money Order Check No. 0000078 0876 Invoice No.

( ) DMV Surcharge 91915100	($) No.		( ) Miscellaneous 97979000	($) No.	
(✓) Initial permit Fee 92929051	($ 5,094) No.	2 Apps	( ) Asbestos plan Fee 97979016	($) No.	
( ) Annual Renewal 92929052	($) No.		( ) Toxic Emission Fee 97979020	($) No.	
( ) Settlement 93934000	($) No.		( ) Variance 97979022	($) No.	
( ) Other	($) No.		( ) Other	($) No.	

By [illegible]

Sacramento Municipal Utility District
6201 S Street, P.O. BOX 15830, Sacramento CA 95817-1899 Tel: (916) 452-3211

VENDOR NO. 101173
CHECK NO. 00000780876
VENDOR / CUSTOMER NAME
SACRAMENTO

INVOICE NO.	DATE	GROSS	DEDUCTIONS	DISCOUNT	NET
SEPT 2014 PERMIT	09/23/2014	5,094.00	0.00	0.00	5,094.00
	Filing fee for air quality permit apps @SCA				

COPY

COPY

Check Amount :

SMUD-0279 8/10

DETACH BEFORE DEPOSITING CHECK

SMUD™
Sacramento Municipal Utility District
6201 S Street P.O. BOX 15830 Sacramento CA 95817-1899

00000780876
70-2328/0719

Bank America Illinois
Northbrook, Illinois

VOID 6 MONTHS AFTER ISSUE

COPY

VENDOR NO.	DATE
101173	09/26/2014

PAY EXACTLY *****$5,094.00*

*** FIVE THOUSAND NINETY-FOUR USD***

SMUD Commercial Disbursement Account

PAY TO THE ORDER OF
SACRAMENTO METROPOLITAN AIR
QUALITY MANAGEMENT DISTRICT
777 12TH STREET, 3RD FLOOR
SACRAMENTO CA 95814-1908

⑈00007808 76⑈ ⑆07192328 4⑆ 87650⑈02383⑈

ATTACHMENT 2
EMISSION CALCULATIONS

Boiler 1B Emissions										
	ppm@3% O2	lb/MMBtu	MMBtu/hr	lb/hr	lb/day	Q1 (lb)	Q2 (lb)	Q3 (lb)	Q4 (lb)	Total (tons)
NOx	5	0.00607	108.7	0.66	15.8	1,425	1,441	1,457	1,457	2.9
CO	88.6	0.06550	108.7	7.12	170.9	15,379	15,550	15,721	15,721	31.2
PM10/PM2.5		0.00497	108.7	0.54	13.0	1,167	1,180	1,193	1,193	2.4
ROC	8.9	0.00377	108.7	0.41	9.8	885	895	905	905	1.8
SOx		0.0006	108.7	0.07	1.6	141	142	144	144	0.3
NH3	20	0.00897	108.7	0.98	23.4	2,107	2,130	2,154	2,154	4.3
CO2e[1]		117.10	108.7	6.36	152.7	13,747	13,900	14,052	14,052	55,751

Note 1) CO2e emission rates in short tons and lb/MMBtu value based on 40 CFR 98 factor of 53.1148 kg/MMBtu (including CH4 and N2O contributions).

Calculation of Noncriteria Pollutant Emissions from Boiler 1B

Compound	Emission Factor, lb/MMscf (1)	Hourly Emissions, lb/hr (2)	Total Annual Emissions (3) lb/yr	tpy	Emissions in g/s Hourly	Ann Avg
Propylene	1.55E-02	1.69E-03	14.8	7.39E-03	2.13E-04	2.13E-04
Hazardous Air Pollutants						
Acetaldehyde	9.00E-04	9.78E-05	0.9	4.28E-04	1.23E-05	1.23E-05
Acrolein	8.00E-04	8.70E-05	0.8	3.81E-04	1.10E-05	1.10E-05
Benzene	1.70E-03	1.85E-04	1.6	8.09E-04	2.33E-05	2.33E-05
Ethylbenzene	2.00E-03	2.17E-04	1.9	9.52E-04	2.74E-05	2.74E-05
Formaldehyde	3.60E-03	3.91E-04	3.4	1.71E-03	4.93E-05	4.93E-05
Hexane	1.30E-03	1.41E-04	1.2	6.19E-04	1.78E-05	1.78E-05
PAHs (4)	4.00E-04	4.35E-05	0.38	1.90E-04	5.48E-06	5.48E-06
Toluene	7.80E-03	8.48E-04	7.4	3.71E-03	1.07E-04	1.07E-04
Xylene	5.80E-03	6.30E-04	5.5	2.76E-03	7.94E-05	7.94E-05
Total HAPs			23.1	1.16E-02		

Notes:
(1) All factors from Ventura County APCD, "AB2588 Combustion Emission Factors," Natural Gas Fired External Combustion Equipment >100 MMBtu/hr. Available at http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
(2) Based on maximum hourly heat input of
(3) Based on total annual fuel use of 108700 scf/hr
952.2 MMscf/yr
(4) Total PAHs, including naphthalene.

ATTACHMENT 3
MODELING DATA

Maximum Background Concentrations[a], Project Area, 2011–2013 (µg/m^3)				
Pollutant	**Averaging Time**	**2011**	**2012**	**2013**
NO_2 (Sacramento T Street)	1-hour	107.2	**116.6**	111.5
	Fed. 1-hour[b]	94.0	95.9	**98.1**
	Annual	**24.4**	22.6	22.6
SO_2 (Sacramento Del Paso Manor)	1-hour	**13.1**	10.5	**13.1**
	Fed. 1-hour[c]	5.2	5.2	**7.8**
	24-hour	2.6	**5.3**	**5.3**
CO (Sacramento El Camino and Watt)	1-hour	**2.6**	2.4	**2.6**
	8-hour	**3.1**	2.7	2.7
PM_{10} (Sacramento T Street)	24-hour (Fed)	38.8	36.2	**53.1**
	24-hour (CA)	42.2	36.7	**92.3**
	Annual (CA)	**19.2**	17.8	*
$PM_{2.5}$ (Sacramento T Street)	24-hour[d] (Fed)	**45.1**	20.5	33.4
	Annual (Fed)	**10.1**	8.3	10.0
	Annual (CA)	**10.1**	*	**10.1**

Notes:

Reported values have been rounded to the nearest tenth of a µg/m^3.

* There were insufficient data to determine the values.

[a] With the exception of federal 1-hr NO2, federal 1-hr SO2, and 24-hr PM2.5, bolded values are the highest during the three years and are used to represent background concentrations.
presented in this table to represent "maximum" background concentrations.

[b] Federal 1-hour NO2 is shown as the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations.

[c] Federal 1-hour SO2 is shown as the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations.

[d] 24-hour average PM2.5 concentrations shown are 3-year average 98th percentile values.

Stack Parameters

Unit/Case	Stack Height (ft)	Stack Diameter (ft)	Stack Temp (F)	Stack O2	MMBtu/hr	Method 19 wscf/MMBtu	Stack Flow (acfm)	Stack Area (ft2)	Velocity ft/sec	Velocity m/sec
Unit 1 (100%)	127.21	10.00	245	13.60%	583.2	10610	394,240	78.54	83.7	25.50
Unit 1 (50%)	127.21	10.00	245	15.70%	275.0	10610	260,973	78.54	55.4	16.88
Unit 2 (100%)	127.21	10.00	245	13.60%	583.2	10610	394,240	78.54	83.7	25.50
Unit 2 (50%)	127.21	10.00	245	15.70%	275.0	10610	260,973	78.54	55.4	16.88
Aux Boiler 1A (100%)	80.00	3.50	295	5.70%	108.7	10610	37,793	9.62	65.5	19.95
Aux Boiler 1A (50%)	80.00	3.50	295	5.90%	58.6	10610	20,646	9.62	35.8	10.90
New Boiler 1B (100%)	80.00	3.50	295	5.70%	108.7	10610	37,793	9.62	65.5	19.95
New Boiler 1B (50%)	80.00	3.50	295	5.90%	58.6	10610	20,646	9.62	35.8	10.90

Emission Rates Used for AQ Modeling

Source	Case	Units	ROC	NOx	SOx	PM10/PM2.5	CO
Turbine 1A	100% 1 hr	lb/hr	1.8	5.37	0.35	3.3	7.85
Turbine 1B		g/sec	0.227	0.677	0.044	0.416	0.989
(per turbine)							
	100% Annual	lb/day	43.2	144.9	8.4	79.2	197.3
	(Includes SU)	g/sec	0.227	0.761	0.044	0.416	1.036
	50% 1 hr Startup	lb/MMBtu	0.0024	0.0910	0.0006	0.0050	0.149
MMBtu/hr	275	lb/hr	0.66	25.0	0.17	1.38	41.0
		g/sec	0.083	3.153	0.021	0.173	5.163
Aux Boiler 1A	100% 1 hr	lb/hr	0.41	1.15	0.08	0.54	7.12
	(Includes SU)	g/sec	0.052	0.145	0.010	0.068	0.897
	100% Annual	lb/day	9.8	27.6	1.8	13.1	170.8
	(Includes SU)	g/sec	0.051	0.145	0.009	0.069	0.897
	50% 1 hr, annual	lb/MMBtu	0.0038	0.0106	0.0006	0.0050	0.0655
MMBtu/hr	58.6	lb/hr	0.22	0.62	0.04	0.29	3.84
		g/sec	0.028	0.078	0.004	0.037	0.484
New Boiler 1B	100% 1 hr	lb/hr	0.41	0.66	0.08	0.54	7.12
		g/sec	0.052	0.083	0.010	0.068	0.897
	100% Annual	lb/day	9.8	15.84	1.8	13.1	170.8
	(Includes SU)	g/sec	0.051	0.083	0.009	0.069	0.897
	50% 1 hr, annual	lb/MMBtu	0.00377	0.00607	0.0006	0.00497	0.0655
MMBtu/hr	58.6	lb/hr	0.22	0.36	0.04	0.29	3.84
		g/sec	0.028	0.045	0.004	0.037	0.484
	Startup Hour	lb/hr		2.13			
MMBtu/hr	58.6	lb/MMBtu	0.0038	0.03642	0.0006	0.0050	0.0655
		lb/hr	0.22	2.13	0.04	0.29	3.84
		g/sec	0.028	0.269	0.004	0.037	0.484

Modeling impacts for Boiler 1B (Coarse + Fine grid receptors)

1. Annual average modeling impacts

Cases:

1 Aux Boiler and New Boiler both at 100% load for entire year, 100 hours startup NOx only (no turbines)

2 Aux Boiler and New Boiler both at 50% load for entire year, 100 hours startup NOx only (no turbines)

3 New Boiler at 100% load, 100 hours startup NOx, 1 combined cycle turbine at 100% load for entire year

4 New Boiler at 50% load, 100 hours startup NOx, 1 combined cycle turbine at 100% load for entire year

Pollutant	Case	2009	2010	2011	2012	2013	Maximum
NO2	**Case 1**	**0.2264**	**0.2076**	**0.2006**	**0.2238**	**0.2248**	**0.2264**
	Case 2	0.1764	0.1618	0.1561	0.1749	0.1752	0.1764
	Case 3A[1]	0.1845	0.1710	0.1650	0.1806	0.1821	
	Case 3B[1]	0.1871	0.1717	0.1656	0.1828	0.1836	
	Case 3	0.1871	0.1717	0.1656	0.1828	0.1836	0.1871
	Case 4A	0.1665	0.1539	0.1485	0.1628	0.1639	
	Case 4B	0.1682	0.1536	0.1485	0.1635	0.1645	
	Case 4	0.1682	0.1539	0.1485	0.1635	0.1645	0.1682
SO2	**Case 1**	**0.0186**	**0.0171**	**0.0165**	**0.0184**	**0.0184**	**0.0186**
	Case 2	0.0124	0.0114	0.0111	0.0123	0.0124	0.0124
	Case 3A	0.0147	0.0137	0.0133	0.0145	0.0146	
	Case 3B	0.0149	0.0138	0.0133	0.0147	0.0147	
	Case 3	0.0149	0.0138	0.0133	0.0147	0.0147	0.0149
	Case 4A	0.0116	0.0107	0.0104	0.0114	0.0115	
	Case 4B	0.0117	0.0107	0.0104	0.0115	0.0115	
	Case 4	0.0117	0.0107	0.0104	0.0115	0.0115	0.0117
PM	**Case 1**	**0.1353**	**0.1245**	**0.1197**	**0.1336**	**0.1341**	**0.1353**
	Case 2	0.1030	0.0940	0.0915	0.1017	0.1024	0.1030
	Case 3A	0.1200	0.1118	0.1079	0.1182	0.1190	
	Case 3B	0.1222	0.1123	0.1082	0.1198	0.1204	
	Case 3	0.1222	0.1123	0.1082	0.1198	0.1204	0.1222
	Case 4A	0.1031	0.0955	0.0928	0.1012	0.1018	
	Case 4B	0.1041	0.0956	0.0925	0.1021	0.1026	
	Case 4	0.1041	0.0956	0.0928	0.1021	0.1026	0.1041

Note:

1. There are two combined cycle turbines; Cases 3A and 4A apply to turbine Unit 1A, while Cases 3B and 4B apply to turbine Unit 1B operating in conjunction with Boiler 1B.

2. 24 hour average modeling impacts

Cases:

1 Aux Boiler and New Boiler both at 100% load for entire year, 100 hours startup NOx only (no turbines)
2 Aux Boiler and New Boiler both at 50% load for entire year, 100 hours startup NOx only (no turbines)
3 New Boiler at 100% load, 100 hours startup NOx, 1 combined cycle turbine at 100% load for entire year
4 New Boiler at 50% load, 100 hours startup NOx, 1 combined cycle turbine at 100% load for entire year
5 New boiler in startup for 4 hours, then 12 hours at 100% load, 2 combined cycle turbines at 100% load
6 New boiler in startup for 4 hours then 20 hours at 50% load, Aux boiler at 50% load for 2 hours, and 1 combined cycle turbine at 100% load
7 Aux Boiler and New Boiler at 100% load, 1 turbine in startup for 1 hour

Pollutant	Case	2009	2010	2011	2012	2013	Maximum
SO2	Case 1	0.1162	0.1116	0.1208	0.0921	0.1176	0.1208
	Case 2	0.0759	0.0761	0.0744	0.0616	0.0813	0.0813
	Case 3A[1]	0.0844	0.0730	0.0739	0.0641	0.0878	
	Case 3B[1]	0.0896	0.0774	0.0780	0.0673	0.0917	
	Case 3	0.0896	0.0774	0.0780	0.0673	0.0917	0.0917
	Case 4A	0.0668	0.0539	0.0552	0.0496	0.0681	
	Case 4B	0.0699	0.0569	0.0577	0.0524	0.0708	
	Case 4	0.0699	0.0569	0.0577	0.0524	0.0708	0.0708
	Case 5A[2]	0.1146	0.0884	0.0934	0.0843	0.1114	
	Case 5B[2]	0.1320	0.1049	0.1101	0.0967	0.1308	
	Case 5C[2]	0.0966	0.0726	0.0792	0.0703	0.0892	
	Case 5	0.1173	0.0914	0.0970	0.0859	0.1137	0.1173
	CS6A1[3]	0.0668	0.0539	0.0552	0.0496	0.0681	
	CS6B1[3]	0.0910	0.0863	0.0825	0.0727	0.0981	
	CS6C1[3]	0.0668	0.0539	0.0552	0.0496	0.0681	
	Case6,1	0.0925	0.0854	0.0826	0.0730	0.0988	
	CS6A2	0.0699	0.0569	0.0577	0.0524	0.0708	
	CS6B2	0.0941	0.0881	0.0846	0.0736	0.0993	
	CS6C2	0.0699	0.0569	0.0577	0.0524	0.0708	
	Case6,2	0.0959	0.0876	0.0850	0.0745	0.1005	
	Case6	0.0959	0.0876	0.0850	0.0745	0.1005	0.1005
	CS7A1	0.1162	0.1116	0.1208	0.0921	0.1176	
	CS7B1	0.1340	0.1235	0.1297	0.1046	0.1358	
	Case7,1	0.1218	0.1168	0.1262	0.0964	0.1232	
	CS7A2	0.1162	0.1116	0.1208	0.0921	0.1176	
	CS7B2	0.1362	0.1266	0.1324	0.1057	0.1369	
	Case7,2	0.1219	0.1169	0.1263	0.0965	0.1233	
	Case 7	**0.1219**	**0.1169**	**0.1263**	**0.0965**	**0.1233**	**0.1263**

24 hour average modeling impacts (cont.)							
Pollutant	**Case**	**2009**	**2010**	**2011**	**2012**	**2013**	**Maximum**
PM	Case 1	0.8459	0.8124	0.8793	0.6700	0.8557	0.8793
	Case 2	0.6290	0.6303	0.6160	0.5100	0.6735	0.6735
	Case 3A	0.7131	0.5891	0.6090	0.5281	0.7273	
	Case 3B	0.7495	0.6234	0.6397	0.5552	0.7574	
	Case 3	0.7495	0.6234	0.6397	0.5552	0.7574	0.7574
	Case 4A	0.6088	0.4841	0.5001	0.4484	0.6114	
	Case 4B	0.6347	0.5070	0.5201	0.4722	0.6366	
	Case 4	0.6366	0.5070	0.5201	0.4722	0.6366	0.6366
	Case 5A	1.0591	0.8135	0.8625	0.7782	1.0238	
	Case 5B	1.1637	0.9083	0.9600	0.8491	1.1389	
	Case 5C	0.9112	0.6842	0.7468	0.6630	0.8407	
	Case 5	**1.0621**	**0.8178**	**0.8727**	**0.7752**	**1.0203**	**1.0621**
	CS6A1	0.6088	0.4841	0.5001	0.4484	0.6114	
	CS6B1	0.8029	0.7303	0.7068	0.6216	0.8486	
	CS6C1	0.6088	0.4841	0.5001	0.4484	0.6114	
	Case6,1	0.8212	0.7296	0.7140	0.6301	0.8601	
	CS6A2	0.6347	0.5070	0.5201	0.4722	0.6366	
	CS6B2	0.8314	0.7516	0.7284	0.6342	0.8591	
	CS6C2	0.6347	0.5070	0.5201	0.4722	0.6366	
	Case6,2	0.8515	0.7531	0.7370	0.6466	0.8751	
	Case6	0.8515	0.7531	0.7370	0.6466	0.8751	0.8751
	CS7A1	0.8459	0.8124	0.8793	0.6700	0.8557	
	CS7B1	0.9955	0.9138	0.9526	0.7743	1.0083	
	Case7,1	0.8874	0.8505	0.9190	0.7023	0.8977	
	CS7A2	0.8459	0.8124	0.8793	0.6700	0.8557	
	CS7B2	1.0170	0.9362	0.9785	0.7836	1.0200	
	Case7,2	0.8883	0.8514	0.9201	0.7027	0.8982	
	Case 7	0.8883	0.8514	0.9201	0.7027	0.8982	0.9201

Note:

1. There are two combined cycle turbines; Cases 3A and 4A apply to turbine Unit 1A, while Cases 3B and 4B apply to turbine Unit 1B operating in conjunction with Boiler 1B.
2. Case 5A, 5B, 5C define the 3 operating scenarios described above.
3. Cases 6A1, 6B1, 6C1, 7A1, 7B1, 7C1 are operating scenarios defined above for turbine Unit 1A, Cases 6A2, 6B2, 6C2, 7A2, 7B2, 7C2 are operating scenarios defined above for turbine Unit 1B.

3. 8-hour average modeling impacts

Cases:

1 Aux Boiler and New Boiler both at 100% load for entire year, 100 hours startup NOx only (no turbines)
2 Aux Boiler and New Boiler both at 50% load for entire year, 100 hours startup NOx only (no turbines)
3 New Boiler at 100% load, 100 hours startup NOx, 1 combined cycle turbine at 100% load for entire year
4 New Boiler at 50% load, 100 hours startup NOx, 1 combined cycle turbine at 100% load for entire year
5 New boiler in startup for 4 hours, then 4 hours at 100% load, 2 combined cycle turbines at 100% load
6 New boiler in startup for 4 hours then 4 hours at 50% load, Aux boiler at 50% load for 2 hours, and 1 combined cycle turbine at 100% load
7 Aux Boiler and New Boiler at 100% load, 1 turbine in startup for 1 hour

Pollutant	Case	2009	2010	2011	2012	2013	Maximum
CO	Case 1	15.8984	15.1916	16.3624	16.3941	15.8984	16.3941
	Case 2	12.1798	12.0986	12.0158	11.9160	12.1798	12.1798
	Case 3A[1]	8.7039	8.7416	9.1108	9.5457	8.7039	
	Case 3B[1]	8.9643	8.9700	9.2339	9.6824	8.9643	
	Case 3	8.9643	8.9700	9.2339	9.6824	8.9643	9.6824
	Case 4A	7.6900	7.1929	7.1202	7.2987	7.6900	
	Case 4B	7.6901	7.3421	7.1290	7.3340	7.6901	
	Case 4	7.6901	7.3421	7.1290	7.3340	7.6901	7.6901
	Case 5A[2]	7.6901	7.4899	7.8829	8.1486	7.6901	
	Case 5B[2]	9.7099	9.7376	10.0765	10.6473	9.7099	
	Case 5	8.7000	8.6137	8.9797	9.3980	8.7000	9.3980
	CS6A1[3]	7.6900	7.1929	7.1202	7.2987	7.6900	
	CS6B1[3]	12.5390	12.2884	12.6201	12.9815	12.5390	
	CS6C1[3]	7.6900	7.1929	7.1202	7.2987	7.6900	
	Case6,1	12.0370	11.5389	11.6502	11.9648	12.0370	
	CS6A2	7.6901	7.3421	7.1290	7.3340	7.6901	
	CS6B2	12.6656	12.3879	12.7773	12.8961	12.6656	
	CS6C2	7.6901	7.3421	7.1290	7.3340	7.6901	
	Case6,2	12.1004	11.7005	11.7354	11.9485	12.1004	
	Case6	12.1004	11.7005	11.7354	11.9648	12.1004	12.1004
	CS7A1	15.8984	15.1916	16.3624	16.3941	15.8984	
	CS7B1	23.6550	23.9334	22.7556	25.7404	23.6550	
	Case7,1	18.8552	18.1833	19.2068	19.6117	18.8552	
	CS7A2	15.8984	15.1916	16.3624	16.3941	15.8984	
	CS7B2	24.2618	24.6559	23.8621	25.6590	24.2618	
	Case7,2	18.9311	18.2736	19.3452	19.6015	18.9311	
	Case 7	**18.9311**	**18.2736**	**19.3452**	**19.6117**	**18.9311**	**19.6117**

Notes:

1. There are two combined cycle turbines; Cases 3A and 4A apply to turbine Unit 1A, while Cases 3B and 4B apply to turbine Unit 1B operating in conjunction with Boiler 1B.
2. Case 5A, 5B, 5C define the 3 operating scenarios described above.
3. Cases 6A1, 6B1, 6C1, 7A1, 7B1, 7C1 are operating scenarios defined above for turbine Unit 1A, Cases 6A2, 6B2, 6C2, 7A2, 7B2, 7C2 are operating scenarios defined above for turbine Unit 1B.

4. 1-hour average modeling impacts

Cases:

1 Aux Boiler and New Boiler both at 100% load for entire year, 100 hours startup NOx only (no turbines)
2 Aux Boiler and New Boiler both at 50% load for entire year, 100 hours startup NOx only (no turbines)
3 New Boiler at 100% load, 100 hours startup NOx, 1 combined cycle turbine at 100% load for entire year
4 New Boiler at 50% load, 100 hours startup NOx, 1 combined cycle turbine at 100% load for entire year
5 New boiler in startup for 1 hour, 2 combined cycle turbines at 100% load
6 New boiler in startup for 1 hour, Aux boiler at 50% load, 1 combined cycle turbine at 100% load
7 Aux Boiler and New Boiler at 100% load, 1 turbine in startup for 1 hour

Pollutant	Case	2009	2010	2011	2012	2013	Maximum
NO2	Case 1	2.51815	2.52899	2.46191	2.53123	2.51563	2.53123
	Case 2	1.91473	1.99214	1.92813	2.00461	1.88032	2.00461
	Case 3A[1]	2.15618	2.05374	2.10086	2.13812	2.01036	
	Case 3B[1]	2.16654	2.07035	2.11279	2.18226	1.96203	
	Case 3	2.16654	2.07035	2.11279	2.18226	2.01036	2.18226
	Case 4A	1.98297	1.8908	1.94568	1.97533	1.75466	
	Case 4B	1.99002	1.90474	1.95554	2.00892	1.72961	
	Case 4	1.99002	1.90474	1.95554	2.00892	1.75466	2.00892
	Case 5	5.91962	5.81949	5.69931	5.88197	6.03317	6.03317
	CS6A[3]	6.04677	6.02334	6.06519	6.05264	6.03325	
	CS6B[3]	5.9862	5.97764	5.97758	5.97061	6.03327	
	Case6	6.04677	6.02334	6.06519	6.05264	6.03327	6.06519
	CS7A[4]	11.27438	10.70816	10.65954	11.74575	10.56358	
	CS7B[4]	11.2897	10.73197	10.68794	11.85256	10.61805	
	Case7	**11.2897**	**10.73197**	**10.68794**	**11.85256**	**10.61805**	**11.85256**
SO2	Case 1	0.2232	0.22178	0.21729	0.2222	0.22027	0.2232
	Case 2	0.13667	0.14288	0.13868	0.14443	0.13601	0.14443
	Case 3A[1]	0.1741	0.17501	0.16956	0.17994	0.17681	
	Case 3B[1]	0.16818	0.16634	0.16395	0.17141	0.16718	
	Case 3	0.1741	0.17501	0.16956	0.17994	0.17681	0.17994
	Case 4A	0.13912	0.13231	0.13549	0.13803	0.1313	
	Case 4B	0.13989	0.13339	0.13634	0.14093	0.12649	
	Case 4	0.13989	0.13339	0.13634	0.14093	0.1313	0.14093
	Case 5	0.24939	0.23842	0.2456	0.24881	0.20674	0.24939
	CS6A[3]	0.18527	0.1855	0.18227	0.18767	0.18428	
	CS6B[3]	0.17882	0.17573	0.17626	0.17772	0.17896	
	Case6	0.18527	0.1855	0.18227	0.18767	0.18428	0.18767
	CS7A[4]	0.25823	0.25347	0.25385	0.26292	0.25691	
	CS7B[4]	0.25738	0.25498	0.25636	0.25884	0.25617	
	Case7	**0.25823**	**0.25498**	**0.25636**	**0.26292**	**0.25691**	**0.26292**

1-hour average modeling impacts (cont.)							
Pollutant	**Case**	**2009**	**2010**	**2011**	**2012**	**2013**	**Maximum**
CO	Case 1	19.86521	19.7384	19.33843	19.77604	19.60384	19.86521
	Case 2	14.91973	15.59767	15.13972	15.76707	14.84796	15.76707
	Case 3A[1]	11.69171	11.27042	11.62115	11.72391	11.48167	
	Case 3B[1]	11.69172	11.35714	11.62886	11.50469	11.43368	
	Case 3	11.69172	11.35714	11.62886	11.72391	11.48167	11.72391
	Case 4A	10.64514	10.46509	9.3748	10.57746	10.84934	
	Case 4B	10.64516	10.46511	9.37531	10.57747	10.84936	
	Case 4	10.64516	10.46511	9.37531	10.57747	10.84936	10.84936
	Case 5	10.64516	10.46511	9.76259	10.57747	10.84936	10.84936
	CS6A[3]	15.7125	15.78723	15.58137	15.78679	15.54598	
	CS6B[3]	15.85756	16.06135	15.64653	15.7898	15.32576	
	Case6	15.85756	16.06135	15.64653	15.7898	15.54598	16.06135
	CS7A[4]	29.85343	29.78708	29.78819	30.92661	30.28422	
	CS7B[4]	29.4274	28.91524	29.02545	30.88859	30.25867	
	Case7	**29.85343**	**29.78708**	**29.78819**	**30.92661**	**30.28422**	**30.92661**

NO2 1 hour with OLM

Pollutant	Case	2009	2010	2011	2012	2013	Maximum
NO2	Case 1	2.26633	2.27609	2.21572	2.27811	2.26406	2.27811
	Case 2	1.72326	1.79293	1.73531	1.80415	1.69229	1.80415
	Case 3A[1]	1.94056	1.77749	1.89078	1.92001	1.80932	
	Case 3B[1]	1.94989	1.79436	1.90151	1.96404	1.76582	
	Case 3	1.94989	1.79436	1.90151	1.96404	1.80932	1.96404
	Case 4A	1.78468	1.63711	1.75111	1.76541	1.57919	
	Case 4B	1.79102	1.65084	1.75998	1.80803	1.55665	
	Case 4	1.79102	1.65084	1.75998	1.80803	1.57919	1.80803
	Case 5	5.32765	5.23754	5.12938	5.29377	5.42985	5.42985
	CS6A[2]	5.44209	5.42101	5.45867	5.44738	5.42993	
	CS6B[2]	5.38758	5.37988	5.37982	5.37355	5.42994	
	Case6	5.44209	5.42101	5.45867	5.44738	5.42994	5.45867
	CS7A[4]	10.14694	9.28731	9.59358	10.57117	9.50722	
	CS7B[4]	10.16073	9.29362	9.61914	10.6673	9.55625	
	Case7	**10.16073**	**9.29362**	**9.61914**	**10.6673**	**9.55625**	**10.6673**

Notes:

1. There are two combined cycle turbines; Cases 3A and 4A apply to turbine Unit 1A, while Cases 3B and 4B apply to turbine Unit 1B operating in conjunction with Boiler 1B.

2. Cases 6A and 7A are operating scenarios defined above for turbine Unit 1A, Cases 6B and 7B are operating scenarios defined above for turbine Unit 1B.

ATTACHMENT 4
HARP MODEL OUTPUT

Boiler 1B HARP Model Results

	Year	Receptor No.	Result
Cancer Risk - Residence (PMI), Derived Adjusted	2009	7053	3.61E-07
Cancer Risk - Worker (PMI)	2009	7053	3.30E-08
Chronic HHI	2009	7053	3.73E-05
Acute HHI	2009	8101	6.92E-05

```
** HARP output file
This file: Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt

Created by HARP Version 1.4f  Build 23.11.01
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 9/16/2014 10:28:39 AM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: NBHRA09.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: NBHRA09.EMS
   Site parameters file: SMUD.sit

Coordinate system: UTM NAD83

Screening mode is OFF

Exposure duration: 70 year (adult resident)
Analysis method:   Derived  (Adjusted) Method
Health effect:     Cancer Risk
Receptor(s):       All
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)             0.02

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source          0.15
   Fraction of ingested exposed vegetable
     from home grown source          0.15
   Fraction of ingested protected vegetable
     from home grown source          0.15
   Fraction of ingested root vegetable
     from home grown source          0.15

PIGS, CHICKENS AND EGGS

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK
```

*** Pathway enabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0002	107028	Acrolein	Acrolein	0.000E+00
0003	71432	Benzene	Benzene	0.000E+00
0004	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0005	50000	Formaldehyde	Formaldehyde	0.000E+00
0006	110543	Hexane	Hexane	0.000E+00
0007	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0008	115071	Propylene	Propylene	0.000E+00
0009	108883	Toluene	Toluene	0.000E+00
0010	1330207	Xylenes	Xylenes (mixed)	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	75070	Acetaldehyde	1.00E-02	*	1.40E+02	*	4.70E+02
0002	107028	Acrolein	*	*	3.50E-01	*	2.50E+00
0003	71432	Benzene	1.00E-01	*	3.00E+00	*	2.70E+01
0004	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0005	50000	Formaldehyde	2.10E-02	*	9.00E+00	*	5.50E+01
0006	110543	Hexane	*	*	7.00E+03	*	*
0007	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0008	115071	Propylene	*	*	3.00E+03	*	*
0009	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0010	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04

EMISSIONS DATA SOURCE: Emission rates loaded from file: M:\stacks\SMUD_KLIENFELDER\Model\HRA\NBHRA09.EMS
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=1 DEV=* PRO=* STK=1 NAME=NBHRA EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	8.57E-01	9.78E-05
107028	Acrolein	1	0	7.62E-01	8.70E-05
71432	Benzene	1	0	1.62E+00	1.85E-04
100414	Ethylbenzene	1	0	1.90E+00	2.17E-04
50000	Formaldehyde	1	0	3.43E+00	3.91E-04
110543	Hexane	1	0	1.24E+00	1.41E-04
1151	PAHs	1	0	3.81E-01	4.35E-05
115071	Propylene	1	0	1.48E+01	1.69E-03
108883	Toluene	1	0	7.43E+00	8.48E-04
1330207	Xylene	1	0	5.52E+00	6.30E-04

File nmae: 09Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt, 2009 Residential Cancer Risk Harp outpur file
Type of Health Risk: 70 year Residential Cacner
Receptor #7053: PMI receptor of Residnetial Cancer Risk
CANCER RISK REPORT

REC	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
7053	6.62E-09	7.37E-08	1.10E-08	0.00E+00	0.00E+00	0.00E+00	2.69E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.54E-07	3.61E-07

File name: 09Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site.txt, 2009 Worker Cancer Risk Harp outpur file
Type of Health Risk: 40 year Worker Cancer Risk
Receptor #7053: PMI receptor of the Worker cancer risk
CANCER RISK REPORT

REC	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
7053	1.43E-09	2.80E-08	3.63E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.16E-08	3.30E-08

File name: 09Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt, 2009 Chronic HHI risk Harp output file
Type of Health Risk: Chronic health risk for residents
Receptor #7053: the receptor of Chronic PMI

CHRONIC HI REPORT

REC	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
7053	0.00E+00	4.71E-07	0.00E+00	3.69E-07	1.36E-08	1.13E-07	1.36E-08	0.00E+00	1.36E-08	3.69E-07	3.73E-05	0.00E+00	7.75E-06	3.73E-05

File name: 09Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt, 2009 Acute HHI risk Harp output file
Type of Health Risk: Acute Health risk
Receptor #8101: PMI receptor for Acute HHI
ACUTE HI REPORT

REC	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX
8101	0.00E+00	8.47E-08	0.00E+00	1.13E-05	0.00E+00	6.92E-05	0.00E+00	1.13E-05	0.00E+00	1.13E-05	5.76E-05	0.00E+00	1.13E-05	6.92E-05

Source parameters in the AERMOD Input file:

```
   LOCATION NBHRA        POINT      639457.295  4265912.530       13.420

   SRCPARAM NBHRA        1.0   24.384   419.261  19.95479     1.067

SO BUILDHGT NBHRA      12.30   12.30   15.85   15.85    6.83    6.83
SO BUILDHGT NBHRA       6.83    6.83   17.22   17.22   17.22   17.22
SO BUILDHGT NBHRA      17.22   17.22   17.22   10.05    4.17   10.05
SO BUILDHGT NBHRA      15.85   15.85   15.85   15.85    6.83    6.83
SO BUILDHGT NBHRA       6.83    6.83   17.22   17.22   17.22   17.22
SO BUILDHGT NBHRA      17.22   17.22   17.22   10.05    4.17   12.30
SO BUILDWID NBHRA      23.86   22.77   13.05   15.07    6.07    6.11
SO BUILDWID NBHRA       5.95    5.62   31.48   31.51   30.57   28.71
SO BUILDWID NBHRA      25.99   22.46   18.26   20.10    7.94   10.28
SO BUILDWID NBHRA       7.89   10.63   13.05   15.07    6.07    6.11
SO BUILDWID NBHRA       5.95    5.62   31.48   31.51   30.58   28.72
SO BUILDWID NBHRA      25.99   22.46   18.26   20.10    7.94   24.23
SO BUILDLEN NBHRA      12.29   14.24   17.52   16.35    5.72    5.26
SO BUILDLEN NBHRA       4.64    3.88    4.00    9.38   14.48   19.14
SO BUILDLEN NBHRA      23.22   26.59   29.16   43.88    6.54   29.02
SO BUILDLEN NBHRA      18.23   18.15   17.52   16.35    5.72    5.26
SO BUILDLEN NBHRA       4.64    3.88    4.00    9.38   14.48   19.14
SO BUILDLEN NBHRA      23.22   26.59   29.16   43.88    6.54    9.96
SO XBADJ    NBHRA     -60.95  -62.14   23.37   22.05   -0.23    0.56
SO XBADJ    NBHRA       1.33    2.06  -81.38  -86.75  -89.49  -89.51
SO XBADJ    NBHRA     -44.51  -46.19  -46.48  -58.39    1.26  -52.04
SO XBADJ    NBHRA     -42.09  -42.13  -40.89  -38.41   -5.50   -5.82
SO XBADJ    NBHRA      -5.97   -5.94   21.35   22.36   22.69   22.32
SO XBADJ    NBHRA      21.29   19.60   17.32   14.51   -7.80  -57.92
SO YBADJ    NBHRA       5.98   -3.63    8.14   13.60   -3.44   -2.93
SO YBADJ    NBHRA      -2.33   -1.67   22.39    8.27   -6.11  -20.30
SO YBADJ    NBHRA       2.88   -2.87   -8.54  -10.65   -2.01    9.25
SO YBADJ    NBHRA       3.34   -2.44   -8.14  -13.60    3.44    2.93
SO YBADJ    NBHRA       2.33    1.67  -23.35  -18.94  -13.96   -8.55
SO YBADJ    NBHRA      -2.88    2.87    8.54   10.65    2.01   15.40
```

Appendix B
Cultural Resources Report

Cultural Resources Report for the Sacramento Cogeneration Authority's Petition for Post-certification License Amendment of the Procter and Gamble Cogeneration Project (93-AFC-2C)

Prepared for

Sacramento Cogeneration Authority

October 2014

Prepared by

CH2MHILL®

6 Hutton Centre Drive, Suite 700
Santa Ana, California 92707

Author: Clint Helton M.A., RPA

Cultural Resources Report
for the
Sacramento Cogeneration Authority's
Petition for Post-certification License Amendment
of the
Procter and Gamble Cogeneration Project,
Sacramento County, California

Prepared For:

Sacramento Cogeneration Authority

Prepared by:

Clint Helton, M.A., RPA
CH2M HILL
6 Hutton Centre Drive, Suite 700
Santa Ana, CA 92707

October 2014

Executive Summary

CH2M HILL completed a cultural resources archival literature search for the Sacramento Cogeneration Authority's (SCA) Procter and Gamble Cogeneration Project (PGCP) to assist SCA in its Petition to Amend its California Energy Commission (CEC) license for the PGCP. SCA proposes to install a second auxiliary boiler (Boiler 1B) and associated facilities at the PGCP facility to provide more operational flexibility during low electrical demand periods. The PGCP is located at 5000 83rd Street in the middle of an industrial park in Sacramento, California. The study area for the cultural resources analysis consists of the PGCP parcel on which the Boiler 1B project will be constructed.

Historic architectural resources have been analyzed separately and a technical report has been prepared by JRP Historical Consulting, LLC (2014). That report is being submitted in tandem with this archaeological archival literature review to SCA in support of the Petition to Amend its existing California Energy Commission license.

This study was conducted in compliance with Section 5024.1 of the California Public Resources Code (PRC) to identify archaeological resources in the study area. "Historical Resource" is a CEQA term referring to a resource eligible for or listed on the California Register of Historical Resources and generally older than 50 years of age by definition. Cultural resources include prehistoric and historic archaeological sites; standing historic structures, buildings, districts and objects; and locations of important historic events, or sites of traditional/cultural importance to various groups. This assessment includes a review of previous studies and preliminary site evaluations of recorded resources.

A search of the California Historical Resources Information System (CHRIS) was commissioned by CH2M HILL on October 14, 2014. No previously recorded archaeological resources were identified within the project area or within the 1-mile search radius.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that the County Coroner must be notified of the find immediately and no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to California PRC Section 5097.98. If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

A copy of this report will be filed with the CHRIS.

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Figure

1 Project Location

Table

1 Previously Recorded Resources within 1 Mile of the Project Area

Attachment

A Confidential CHRIS Literature Search Data

SECTION 1

Introduction

CH2M HILL was contracted by the Sacramento Cogeneration Authority (SWA) to complete a cultural resources archival literature search in compliance with Section 5024.1 of the California Public Resources Code (PRC) to identify archaeological or historical resources in the study area, and in support of a Petition to Amend (PTA) the Procter and Gamble Cogeneration Project (PGCP) to be submitted to the California Energy Commission (CEC).

SCA operates two General Electric (GE) LM6000 SPRINT combined-cycle gas turbines, Units #1 and #2, which produce electricity and steam at its PGCP facility located at 5000 83rd Street, Sacramento, California (Figure 1). This steam is used to power a steam turbine for additional electricity production, as well as to supply the adjacent Procter & Gamble (P&G) facility with steam for its production needs. To support its steam production requirements, PGCP also has an existing Auxiliary Boiler 1A. In addition to the two combined- cycle units, the facility also includes a simple-cycle gas turbine for peak power production.

SCA's existing steam supply contract with P&G requires it to maintain two separate steam generation sources in service at all times. The purpose of the new auxiliary boiler project (designated as Boiler 1B) is to provide sufficient steam and steam backup capacity for the P&G facility processes such that SCA would not have to run at least one of its combined-cycle turbines at all times. This would allow PGCP to reduce facility-wide emissions since it would be replacing the operation of a 500 million Btu per hour (MMBtu/hr) gas turbine with a 108.7 MMBtu/hr boiler. The net result is that the Boiler 1B project will not increase the maximum facility-wide emissions on an hourly, daily, quarterly, or annual basis.

The CEC approved the SCA PGCP in November 1994. The PGCP site, located at 5000 83rd Street (Assessor's Parcel Number 061-0010-030), is situated adjacent to the P&G manufacturing facility, located at 8201 Fruitridge Road, Sacramento, California.

The potential archaeological resource impacts associated with the addition of an auxiliary boiler and associated facilities to the PGCP facility are evaluated herein.

1.1 Project Background

Submitted in October 1993, the Application for Certification (AFC) for the PGCP analyzed the impacts associated with the 171-megawatt (MW) natural gas-fired combined cycle power plant (93-AFC-2C). The AFC was determined data adequate by the CEC in November 1993, project construction began in June 1995, and the project declared commercial operation on March 1, 1997. The project's simple-cycle peaking gas turbine was later added and declared commercial operation on May 1, 2001.

On September 27, 2012, Campbell Soup Supply Company LLC (CSSC) made a public announcement that it would close its South Sacramento facility in 2013. On October 30, 2012, the CSSC provided official written notice to the Sacramento Municipal Utility District (SMUD) of its intent to close the CSSC's Sacramento facility and terminate the Steam Sales Agreement between SMUD and CSSC effective October 30, 2013. On May 9, 2013, CSSC shut down all steam systems and ceased receipt of steam from its steam supplier, the Sacramento Power Authority. Upon closure of the facility, SMUD purchased three of CSSC's auxiliary boilers, subsequently assigning ownership of one boiler to SCA for use at the PGCP.

1.2 Proposed Amendment

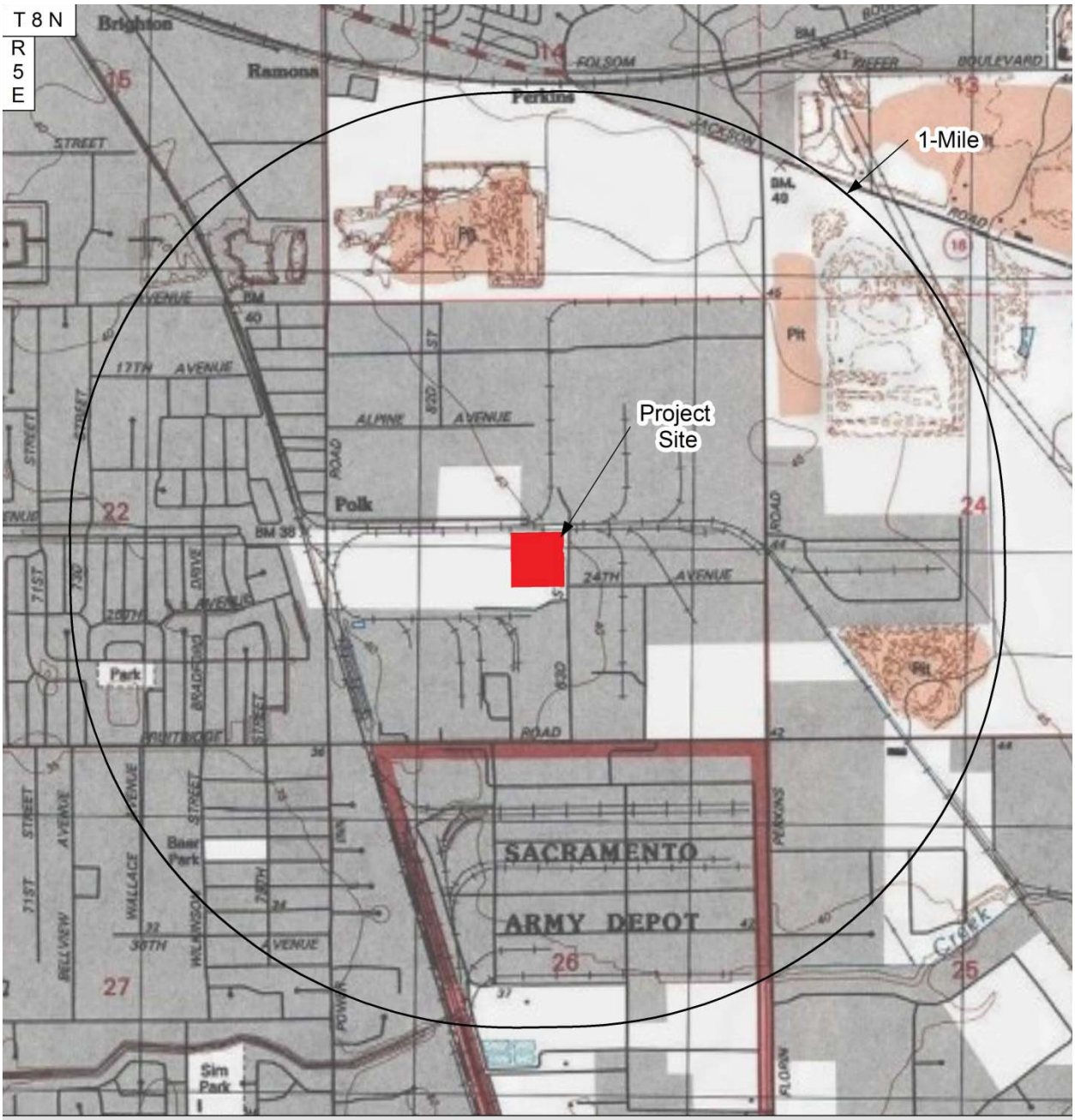
SCA is required to submit a PTA to the CEC to modify its license for PGCP and assure that construction and operation of the proposed auxiliary boiler and associated facilities will comply with applicable laws, regulations, ordinances, and standards. This section includes a description of the proposed SCA modifications, consistent with CEC Sitting Regulations (Title 20, CCR, Section 1769 (a)(1)(A)).

SCA proposes to install a second auxiliary boiler (Boiler 1B) and associated facilities at the PGCP facility to provide more operational flexibility during low-electrical-demand periods. During such periods, this change would allow SCA to shut down both combined-cycle gas turbines and rely solely on its two auxiliary boilers to generate and supply steam to the adjacent P&G facility for its production needs when it is not economically beneficial to operate the combustion turbines.

The proposed auxiliary boiler would be natural-gas-fired with a maximum rated heat input of approximately 108.7 MMBtu/hr. The installation of the auxiliary boiler would include the following tasks:

- Utility tie-in
- Site preparation (civil work)
- Boiler foundation construction
- Disassembly and transport of the boiler
- Boiler installation and mechanical/electrical tie-in to existing system
- Construction and installation of appurtenant facilities
- Tie-in to substation

It is expected that site preparation, foundation construction, boiler installation, and associated connection activities would take up to 5 months of non-continuous construction. Other than the transportation of the auxiliary boiler to the project site, construction activities would generally occur between 7:00 a.m. and 7:00 p.m. on weekdays, with noisy construction limited to occur between the hours of 7:00 a.m. and 6:00 p.m. It is expected, at peak, that 20 construction workers would commute to the PGCP site on a daily basis during that 2-month period (October and November), and that 3 to 5 materials deliveries would occur daily during the peak construction months.



AUXILIARY BOILER LICENSE AMENDMENT - SACRAMENTO COGENERATION AUTHORITY

Project Site

Project Site 1-Mile Buffer

The project site is approximately 9.564 acres located in the central area of the County of Sacramento in the city of Sacramento.

The project site is located on the Sacramento East USGS 7.5-minute quadrangle map; The project occurs within Township 8 North and Range 5 East, Section 23.

Center coordinates for the project site are:
WGS84 Latitude 38.531035, Longitude -121.400367
UTM Zone 10 South NAD83 Northing 4265949m, Easting 639428m

N

0 2,000 4,000 feet

1 inch = 2,000 feet

Data Source:
- Area West Environmental, Inc. 2014
- ESRI ArcGIS Online, USGS and ©2013 National Geographic Society

Date: 9-24-14

AREA WEST ENVIRONMENTAL, INC.

SMUD CH2MHILL

D:\AWE\12-002-014 SCA Boiler\mxd\SMUD_SCA_Figure_2_20140923.mxd

Figure 1: Project Location

SECTION 2

Environmental Setting

2.1 Current Land Use

The proposed auxiliary boiler would be located within the boundaries of the existing PGCP facility located at 5000 83rd Street, Sacramento, California.

The project site is located within the geologic deposits known as the Victor Formation, comprising both the Riverbank and Modesto Formations and dating to the Middle to Late Pleistocene. The site is relatively flat and is not near major or permanent water sources. A considerable amount of disturbance has occurred over the entire existing PGCP facility. Extensive excavation, grading, and deposition of fill occurred during the initial construction in the 1990s and proceeded during various stages of upgrades and expansions up to the present.

2.2 Prehistoric and Historic Setting

A complete historical context and setting has been prepared by JRP (2014) as part of its companion technical report analyzing potential impacts to historic built-environment resources and is not be repeated here. Section 6.8 of the original AFC (SCA, 1993) contains a thorough prehistoric cultural context and is not repeated here.

SECTION 3

Methods

3.1 Literature Search

CH2M HILL commissioned a literature search of the project area from staff of the California Historical Resources Information System (CHRIS) North Central Information Center using a definition of a 1-mile buffer zone around the site for the original AFC filing in 1993.

Submitted in October 1993, the AFC for the PGCP analyzed the impacts associated with the 171-megawatt (MW) natural-gas-fired combined cycle power plant (93-AFC-2C). The project declared commercial operation on March 1, 1997.

The records search included a review of all recorded prehistoric and historic archaeological sites and historic architectural resources, as well as all known cultural resource survey and excavation reports within a 1-mile radius around the study area. Additionally, the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), California Historical Landmarks, and California Points of Historic Interest were all examined.

3.2 Field Survey

This study was requested as archival research only. The PGCP project site is completely developed and in use. No visible native soils are present. The site was previously subject to intensive pedestrian survey as well as subsurface testing, which yielded negative results. Significant disturbance has occurred within the property for decades. Therefore, a field survey for archaeological resources was not possible, and none was conducted.

3.3 Consultation

Native American consultation and consultation with local historical societies and agencies was completed during the original AFC process (93-AFC-2C). No additional consultation was conducted for this study.

SECTION 4

Results

4.1 Literature Search

CH2M HILL requested a record search from the CHRIS North Central Information Center for the project area and a 1-mile radius. The results were received October 14, 2014. No resources were found within the project area. Thirteen resources were found within a 1-mile radius, but none were in the project area of analysis (see Table 1), and none represent archaeological resources. No properties in the project area of analysis were found listed in the NRHP or CRHR, nor were any properties determined eligible for the NRHP or CRHR as a result of this study or previous studies.

All data provided by the CHRIS North Central Information Center is provided as Confidential Attachment A.

TABLE 1
Previously Recorded Resources Within 1 Mile of the Project Area

Primary No.	Trinomial	Other IDs	Type	Age	Reports
P-34-000005		Resource Name - Davis Homesite and Winery	Other	Historic	000310
P-34-000728	CA-SAC-000556H	Resource Name - Cartopassi Place; Other - Army Depot 1	Building, Structure	Historic	003405, 003407
P-34-000729	CA-SAC-000557H	Other - Army Depot 2	Structure, Other	Historic	003405, 003407
P-34-000730	CA-SAC-000558H	Other - Army Depot 3	Site	Historic	003405, 003407
P-34-000731	CA-SAC-000559H	Other - Army Depot 4	Building	Historic	003405, 003407
P-34-000732	CA-SAC-000560H	Other - Army Depot 5	Building, Structure	Historic	003405, 003407
P-34-000733	CA-SAC-000561H	Other - Army Depot 6	Structure	Historic	003405, 003407
P-34-000734	CA-SAC-000562H	Other - Army Depot 7	Building	Historic	003405, 003407
P-34-000735	CA-SAC-000563H	Other - Army Depot 8	Site	Historic	003405, 003407
P-34-000736	CA-SAC-000564H	Other - Army Depot 9	Building, Structure	Historic	003405, 003407
P-34-000737	CA-SAC-000565H	Other - Army Depot 10	Building, Structure	Historic	003405, 003407
P-34-000738	CA-SAC-000566H	Other - Army Depot 11	Building, Structure	Historic	003405
P-34-004100		Resource Name - Sacramento Army Depot; Other - HAER 34-SAC-49; Other - HAER CA-27	Building	Historic	

The project site was surveyed for the original AFC license on May 18, 1993 (Section 6.8, 93-AFC-2C). At that time the site was determined to have low potential for containing archaeological resources. The site was surveyed using transects spaced 10 meters apart and subsurface test units were placed at 20-meter intervals across the site. No resources were found.

SECTION 5

Determination of Eligibility and Assessment of Potential Effects

5.1 Standards of Significance

Standards of significance for the proposed project were determined from adopted standards from the following sources:

- California Environmental Quality Act (CEQA) Guidelines Appendix G (2002)
- Office of Historic Preservation (1995)

Adopted standards of significance that are applicable to cultural resources are provided in the CEQA Guidelines Appendix G (2002). Significance criteria considered for the cultural resources impact analysis are provided below.

Adverse effects on cultural resources can include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or that alter its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of federal agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance.

The protection of cultural resources is governed by several federal laws and regulations, including the National Historic Preservation Act (1966), the Archaeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (1990).

5.1.1 CEQA Guidelines

According to the CEQA Guidelines Appendix G (2002), impacts to cultural resources would be considered significant if the project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5
- Cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5
- Disturb any human remains, including those interred outside of formal cemeteries

A historical resource is a resource listed in, or determined to be eligible for listing in, the CRHR. Historical resources as defined in subdivision (k) of Section 4020.1, and included as such in a local register, or deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1, are presumed to be historically or culturally significant for purposes of this section, unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant. The fact that a resource is not listed in, or determined to be eligible for listing in, the CRHR, not included in a local register, or not deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1, shall not preclude a lead agency from determining whether the resource may be a historical resource.

5.1.1.1 Applicable Standards

Pursuant to Section 15064.5 (Determining the Significance of Impacts to Archaeological and Historical Resources of the State California Environmental Quality Act), a resource shall be considered to be

historically significant if it meets the criteria for listing on the CRHR (PRC Section 5024.1, Title 14 CCR, Section 4852), including the following:

- It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States (Criterion 1)
- It is associated with the lives of persons important to local, California, or national history (Criterion 2)
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values (Criterion 3)
- Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation (Criterion 4)

In addition to the above criteria, a resource must retain integrity to be considered historically significant. Integrity is the authenticity of the physical identity that is evidenced by the survival of characteristics that existed during the resource's period of significance. Historical resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Rehabilitation or restoration does not necessarily discount a resource from eligibility. Integrity must also be evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR, if it maintains the potential to yield significant scientific or historical information or specific data.

An adverse effect on a cultural resource is defined as:

- Substantial adverse change in the significance of a historical resource by physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings
- Demolishes or materially alters those physical characteristics of a historical resource that convey its significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR, or inclusion in a local register

Section 7052 of the Health and Safety Code establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives. Penal Code Section 622.5 provides misdemeanor penalties for injuring or destroying objects of historical or archaeological interest location on public or private lands, but specifically excludes the landowner. PRC Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands.

5.1.1.2 California Register of Historical Resources

As provided in California PRC Section 5020.4, the California Legislature established the CRHR in 1992. The CRHR is used as a guide by state and local agencies, private groups, and citizens to identify the state historical resources and to include which properties are to be protected, to the extent prudent and feasible, from substantial adverse change. The CRHR, as instituted by the California PRC, automatically includes all California properties already listed in the NRHP. It also includes those formally determined to be eligible for listing in the NRHP (Categories 1 and 2 in the State Inventory of Historical Resources), as well as specific listings of the State Historical Landmarks and in the State Inventory of Historical Resources), as well as specific listings of State Historical Landmarks and State Points of Historical Interest. The CRHR may also include various other types of historical resources that meet the criteria for eligibility, including the following:

- Individual historic resources
- Resources that contribute to a historic district
- Resources identified as significant in historic resource surveys

- Resources with a significance rating of Category 3 through Category 5 in the State Inventory (Categories 3 and 4 refer to potential eligibility for the NRHP; Category 5 indicates a property with local significance)

The CRHR follows the lead of the NRHP in using the 50-year threshold. A resource is usually considered for its historical significance after it reaches the age of 50 years. This threshold is not absolute, but was selected as a reasonable span of time after which a professional evaluation of historical value/importance can be made.

5.2 Potential Effect on Historical Resources

No archaeological resources of any kind are located within the project site. No historical resources are present.

5.3 Potential for Buried Archaeological Resources

The potential of an area to contain buried resources can often be assessed by an examination of an area's topography, soil types, and proximity to water. Buried sites are found in many contexts, especially alluvial fans and stream terraces. Buried sites are more likely in certain locations near water courses where deposition is deep or where previous studies have shown there is a higher density of sites or where there is ongoing deposition. All of these conditions were taken into account to assess the sensitivity for sub-surface archaeological deposits at the project site.

The project area is completely developed and was heavily disturbed during the original plant construction in 1995. Given the extensive disturbance to the study area from this commercial development, combined with the negative results of both surface pedestrian survey and subsurface testing across the site for the original license, it is anticipated that the project has very low potential to impact intact buried cultural resources.

5.4 Management Considerations

No known archaeological resources are found within the project site and there is a low probability that subsurface construction activities could encounter buried archaeological remains.

If cultural resources or materials are discovered during ground-disturbing activities, the work near the discovery should cease, and the area should be protected until the find can be evaluated by a qualified archaeologist.

If human remains are discovered, the County Coroner must be notified within 48 hours, and there should be no further disturbance to the site where the remains were found until the process as described in PRC Section 5097.98 has been completed.

SECTION 6

References

JRP Historical Consulting. 2014. *SMUD P&G Cogeneration Plant Boiler Project, Historic Resources Inventory and Evaluation Report, October 2014*. Technical report prepared for Sacramento Municipal Utility District. Manuscript on file at JRP Historical Consulting.

Sacramento Cogeneration Authority (SCA). 1993. Procter & Gamble Cogeneration Project, Application for Certification, Volume 2. September.

Confidential Attachment A
CHRIS Literature Search

CONFIDENTIAL ATTACHMENT A

CHRIS Literature Search

The CHRIS literature search data are confidential and not for public distribution. This appendix has been submitted separately under a request for confidentiality.

Appendix C
Historic Resources Inventory and Evaluation Report

Sacramento Cogeneration Authority's Petition for Post-certification License Amendment of the Procter and Gamble Cogeneration Project

Historic Resources Inventory and Evaluation Report

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Prepared for:
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October 2014

Executive Summary

JRP Historical Consulting, LLC (JRP) prepared this Historic Resources Inventory and Evaluation Report (HRIER) for the Sacramento Cogeneration Authority's (SCA) Procter and Gamble Cogeneration Project (PGCP) based on research and fieldwork conducted in October 2014. The purpose of this report is to provide full documentation for the identification and evaluation of historic-era resources within the architectural Project Area of Analysis, in conformance with the California Energy Commission's *Rules of Practice and Procedure* dated April 2007, which provide specific guidance for cultural resources studies pertaining to the built environment in urban and suburban areas. This report addresses only those resources built on or before 1969.

The historic-era resources studied for this report have been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA guidelines using the California Register of Historical Resources (California Register) criteria outlined in Section 5024.1 of the California Public Resources Code. Additionally, JRP has evaluated historic-era resources using National Register of Historic Places (National Register) criteria.

The architectural Project Area of Analysis encompasses 12 parcels that contain built environment resources (i.e., buildings, structures, or objects) not previously evaluated. Only 5 of the 12 parcels include historic-era resources or "survey population" resources (i.e., those constructed in or before 1969 that required formal evaluation using National Register or California Register criteria). None of the five survey population resources appears to meet the criteria for listing in either the National Register or California Register, nor are the parcels considered historical resources under CEQA.

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1 Showing Properties Determined Not Eligible for the National Register as a Result of the Current Study, and Properties Determined Not Historical Resources under CEQA per CEQA Guidelines §15064.5 as they do not meet the California Register Criteria Outlined in PRC §5024.1

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1 Systems Map CCTC
2 Polk Viaduct (Bridge 45A) looking West toward Sacramento, July 28, 1966
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5 Procter & Gamble Plant in 1953
6 Procter & Gamble Sacramento Plant in 1963

Project Description[1]

Background

The Sacramento Cogeneration Authority (SCA) operates two General Electric (GE) LM6000 SPRINT combined-cycle gas turbines, Units #1 and #2, which produce electricity and steam at its Procter & Gamble Cogeneration Project (PGCP) facility located at 5000 83rd Street, Sacramento, California. This steam is used to power a steam turbine for additional electricity production, as well as to supply the adjacent Procter & Gamble (P&G) facility with steam for its production needs. To support its steam production requirements, PGCP also has an existing Auxiliary Boiler 1A. In addition to the two combined-cycle units, the facility also includes a simple cycle gas turbine for peak power production.

SCA's existing steam supply contract with P&G requires it to maintain two separate steam generation sources in service at all times. The purpose of the new auxiliary boiler project (designated as Boiler 1B) is to provide sufficient steam and steam backup capacity for the P&G facility processes such that SCA would not have to run at least one of its combined-cycle turbines at all times. This would allow PGCP to reduce facility-wide emissions since it would be replacing the operation of a 500 million Btu per hour (MMBtu/hr) gas turbine with a 108.7 MMBtu/hr boiler.

Proposed Project

SCA proposes to install a second auxiliary boiler (Boiler 1B) and associated facilities at the PGCP facility to provide more operational flexibility during low electrical demand periods. During such periods, this change would allow SCA to shut down both combined-cycle gas turbines and rely solely on its two auxiliary boilers to generate and supply steam to the adjacent P&G facility for its production needs, when it is not economically beneficial to operate the combustion turbines.

The proposed auxiliary boiler would be natural gas-fired with a maximum rated heat input of approximately 108.7 MMBtu/hr. The installation of the auxiliary boiler would include the following tasks:

- Utility Tie-in
- Site preparation (civil work)
- Boiler foundation construction
- Disassembly and transport of the boiler
- Boiler installation and mechanical/electrical tie-in to existing system
- Construction and installation of appurtenant facilities
- Tie-in to substation

[1] Project Description provided by CH2M HILL

Research & Field Methods

JRP Historical Consulting, LLC (JRP) established the Project Area of Analysis, in consultation with CH2M HILL, for this report. In general, the Project Area of Analysis includes all properties adjacent to the project parcel, and conforms to the CEC's *Rules of Practice and Procedure* dated April 2007, which provides specific guidance for cultural resources studies pertaining to the built environment in urban and suburban areas. Consistent with current cultural resource practices, the Project Area of Analysis for this HRIER encompasses only those parcels in which the project has potential to either directly or indirectly affect historic resources.

While the Secretary of Interior sets guidelines for review of potential National Register of Historic Places-eligible (National Register-eligible) resources at 50 years of age or older, in this report the age limit is extended to include resources constructed in or before 1969 to account for lead time between preparation of the environmental document and actual construction. Only those properties that contain buildings, structures, or objects built in or before 1969 at the time of the current survey were subject to intensive-level study. A map showing the Project Area of Analysis and subject study parcels in included in Appendix A.

JRP conducted background research to assess which resources would be part of the survey population for this HRIER. JRP reviewed current and historic topographic and property maps, Sacramento County assessment records through RealQuest commercial database, historic aerial photographs, and other sources. This helped to determine which buildings, groups of buildings, structures, and objects were built in or before 1969. This group constitutes the survey population for this report.

JRP undertook research on the relevant historic themes (20th century commercial / industrial development and transportation) and property-specific research for individual resources in both archival and published records at the following facilities: California State Library in Sacramento; Shields Library at the University of California, Davis; Sacramento City Building Permits online; Sacramento County Recorder; Sacramento Room of the Sacramento County Public Library; and JRP's in-house library. Please see the bibliography for a complete listing of materials consulted.

JRP reviewed the California Historical Resources Information System (CHRIS), California Historical Landmarks and Point of Historical Interest publications and updates, and the National Register, California Register of Historical Resources (California Register), and local register listings.

JRP conducted fieldwork on October 9 and 16, 2014. Of the 13 parcels within the Project Area of Analysis, five contain buildings and structures constructed in or before 1969 and required formal evaluation. JRP inspected and photographed these properties in the field and evaluated each using National Register and California Register criteria and recorded them on California Department of Parks and Recreation (DPR) 523 forms included as Appendix B. The remaining parcels were vacant or constructed after 1970 and did not require intensive level evaluation.

Historic Context

The following discussion addresses the history of an industrial area located in South Sacramento, once part of Brighton Township. The context focuses on the growth of the area with discussions of the development and operation of the Central California Traction Railroad and the Procter & Gamble Manufacturing Company. This context also reviews property specific histories as part of this cultural resources study.

Early Development

The Gold Rush of 1849 brought hundreds of people west to California. When mining played out people found the Sacramento Valley to be a rich agricultural area due in part to its location at the confluence of the Sacramento and American rivers. Railroads including the Central California Traction helped to develop the area outside of the Central City by bringing more residents to the county, especially after 1910 with installation of electric railway systems serving nearby neighborhoods such as Colonial Heights and Colonial Acres. In the 1920s, Sacramento County, noted by historian Walter G. Reed, "became the chief shipping point for all kinds of fruit."[2] The Fruitridge area of Sacramento had several orchards and vineyards producing fruit ranging between five and 105 acres in the early part of the century. As more industries like Procter & Gamble moved into the area in the early 1950s, the farming area became more industrialized. This area was annexed by the City of Sacramento in 1959.[3]

The area that is part of this study is located in Section 23 of Township 8N, Range 5E. Owen Thomas Davis purchased the southwest quarter of section 23 in 1871. He was originally from Wales, and was naturalized on November 4, 1864. Owen T. Davis is also listed in the Great Register of Voters as Owen Thomas Davies. In 1880, several family members lived on his farm including Owen's wife Ann and his grown son John. John Morgan Davies lived on this land and tended a fruit farm roughly between 1880 and 1924. He lived on the farm with his wife Harriett, two sons, Albert and Earl, and his daughter Annie in 1920. This land was referred to as the Albert Davies and Annie McKenzie Ranch in a *Sacramento Bee* article from 1951, which reported that Procter & Gamble's "purchase of the property was completed … from George W. and Jean Littig Ortz, Hal L. and Louise Ellis and Dr. Harry and Marjorie J. Carlson, the owners."[4] No additional information regarding these individuals living or farming on this land was found in the historical record.

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[2] Walter G. Reed, *History of Sacramento County, California,* (Los Angeles: Historic Record Co., 1923), 36.

[3] Reed, *History of Sacramento County, California,* 946-947; *Sacramento Bee,* "Procter & Gamble Company Selects Sacramento As Location for New Factory," 28 May 1951, p. 8, c. 3; USDA, Sacramento County, California [aerial photograph], 1972, frame A40 06067 172-58; W.A.C Corporation, Northwest California, [aerial photograph], 1984, frame WAC-84C-7-183; 1992, frame WAC-92C-13-152; City of Sacramento, "Annexation History," [map], April 2005.

[4] Cash Entry Patent 041259, Owen F. Davis, issued 15 June 1871, US Bureau of Land Management, General Land Office; Great Register of the County of Sacramento: 1867, No. 2068, Owen Thomas Davies, (accessed via Ancestry.com); Great Register of Voters: 1882, Sacramento California, 33 (accessed via Ancestry.com); US Bureau of the Census, Tenth Census of the United States: 1880, Schedule 1 – Inhabitants in Brighton Township, Sacramento County, California Page 9 US Bureau of the Census, Twelfth Census of the United States: 1900, Schedule No. 1 – Population, Brighton Township, Sacramento County, California, Sheet No. 3; Fourteenth Census of the United States: 1920 – Population, Brighton Township, Sacramento County, California, Sheet No. 16A; *Sacramento Bee,* "Soap Plant Will Be Built Near Signal Depot," 4 June 1951.

In 1924, a county map indicated that R.E. or A.E. Lewis owned the north half of the southeast quarter of Section 23. No additional information was found in the historical record about this owner. John Davies owned the southwest quarter at this time, and the northwest quarter was subdivided into smaller lots. Aerial photography shows the land in this area sparsely developed by 1947, with scattered houses surrounded by several acres of farm and orchard lands.[5]

Central California Traction Company

Central California Traction Company (CCTC) began as a Stockton streetcar line. Howard H. Griffiths expanded the streetcar line into a passenger and freight line running north to Sacramento. Griffiths and ten partners including the Fleishhacker brothers, H.H. Gerns, F.W. Smith, Walter Bartnett, J.D. Brown, John Treadwell, Fred West and D.F. Walker incorporated CCTC on August 7, 1905. Street car service started in Stockton on March 3, 1906. By August 1907, CCTC had service to Lodi. The following year plans were made to build the railroad between Modesto and Sacramento, and work laying rails started in 1909. CCTC completed the extension to Sacramento July 29, 1910, and operation officially began August 29th.[6]

CCTC ran 53 miles on standard gauge track between Stockton and Sacramento and had a short branch line serving Lodi (see Figure 1). The line handled all types of general freight, and provided terminal switching and passenger services. CCTC connected in Sacramento with the Western Pacific, Southern Pacific, and Sacramento Northern railroads. There were interchanges with Southern Pacific in Lodi and Polk (the section evaluated as part of this study).[7] CCTC's streetcar system in Sacramento operated on the main line from Stockton and serviced the communities of Colonial Heights and Colonial Acres by providing commuter service to the central city. In 1943, National City Lines purchased the streetcar system, but CCTC retained rights to the track. The company became a fully diesel-electric operation in 1946. Freight was carried over their belt lines through Sacramento until 1966, when the company switched over to Southern Pacific's right of way.[8]

[5] Drury Butler, *Sacramento California* [map], 1924 (California Room, California State Library); Historic Aerials.Com, Aerial Photography, 1947, (accessed October 15, 2014).
[6] Ralph Lea and Janice Roth, "The Central California Traction Company," in *Lodi Historian,* vol. 15, no. 2 (Spring 2004), 441-448; *Sacramento Union,* "Trolley Line to Lodi," 29 August 1907, 2.
[7] George W. Hilton and John F. Due, *The Electric Interurban Railways in America* (Stanford, CA: Stanford University Press, 1960), 401; *The Ferroequinologist*, No. 270 (August 1974), 2.
[8] William Burg, *Images of Rail: Sacramento's Streetcars,* (San Francisco, CA: Arcadia Publishing, 2006), 89.

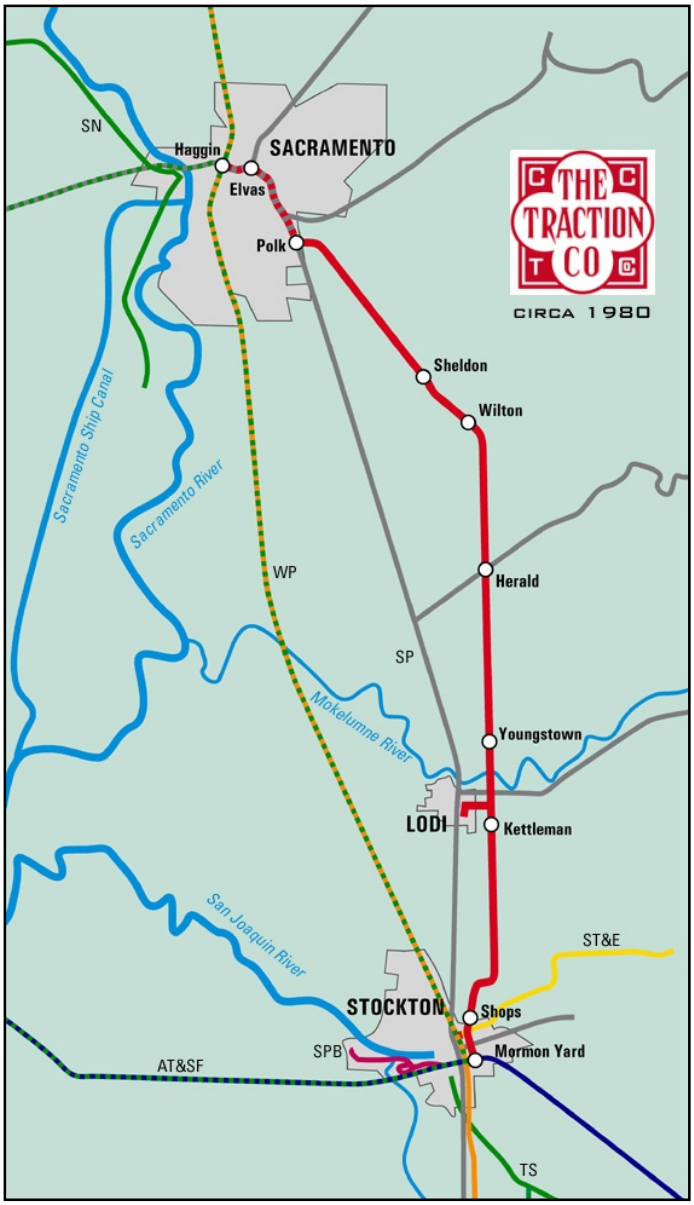

Figure 1. Systems Map CCTC, (CCTC, "About Us - Systems map," CCTC, http://www.cctrailroad.com/map.htm (accessed October 14, 2014)).

Southern Pacific purchased CCTC in 1928. However, concerns over a monopoly caused the Interstate Commerce Commission to order Southern Pacific to allow both the Western Pacific and Santa Fe railroad companies each to purchase a one-third interest.[9] During the depression, revenues from passenger service declined because of the increasing popularity of the automobile and competition with bus lines. Interurban passenger service ended in February 1933, and that June the company dismantled 32 of its passenger waiting stations. Although interurban passenger service ended, CCTC's freight service grew because of the expanding wine and grape industry in California. The railroad provided freight service for Bear Creek Winery, Eastside Winery, and Cherokee Winery (now known as Woodbridge Winery). In addition to

[9] "The Traction Company's Colonial Heights Line," in *The Western Railroader*, Vol. 19, no. 12 (October 1956), 17.

shipping grapes, CCTC handled fruits and vegetables, livestock and other farm products. At this time, passenger service on the Sacramento Colonial Heights local line increased, and instead of selling the streetcar line to PG&E, as was discussed, CCTC upgraded its cars and service. [10]

Like many industries during World War II, CCTC experienced labor shortages and an increased demand for services. Women filled some positions; however, most of the skilled trackmen were borrowed from other railroads to accommodate demand during harvest season. As a result of the increased traffic on the rails, upgrades to the railway were required.[11]

After World War II, Kaiser Sand and Gravel Company wanted to build a loading facility near Harold Station, and approached CCTC for freight service. As plans were underway to accommodate the new facility, William L. White, the railroad's general manager, advised Kaiser to seek freight service elsewhere, because the railroad did not have enough manpower and trains to accommodate their request. White also refused Procter & Gamble's request to build a spur south of Polk station into the proposed plant site stating again that the railroad would not be able to meet the needs of the manufacturer, because of a lack of locomotives and employees. Therefore, the contract for switching at the Procter & Gamble plant went to Southern Pacific, although Procter & Gamble became the largest off-line customer of CCTC through the interchange at Polk with Southern Pacific. CCTC never had any regular service between Lodi and Fruitridge, which stimulated several discussions regarding the abandonment along this 27 mile stretch of track.[12]

CCTC's right of way and track alignment changed between 1948 and 1954. In 1949, house track at milepost 43.1 near the Project Area of Analysis was removed. Other parts of CCTC's line were retired in 1950. Within the Project Area of Analysis, the railroad added spur lines, sidings, and storage track as more industry came to Sacramento following the construction of Procter & Gamble in 1952-53.[13]

In the 1960s, CCTC freight service continued to grow. Libby Fruitridge distribution center increased carloads, and Safeway Stores became a new customer in the Fruitridge area. Safeway Stores was the second-largest on-line industry for the railroad. As historians David Stanley and Jeffery Moreau noted, CCTC had "the capacity to unload 16 carloads of inbound groceries inside [Safeway's] huge warehouse, in addition to three auxiliary outside spur tracks serving its produce and frozen food departments."[14] Furthermore, the railroad continued to supply off-line service to Procter & Gamble with a large volume of traffic over the interchange near Polk, which handled inbound boxcars shipping coconut oil to the plant and outbound cars shipping packaged products to market.[15]

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[10] Lea and Roth, "The Central California Traction Company,"450; David Stanley and Jeffery Moreau, *Central California Traction: California's Last Interurban*, (Berkeley: Signature Press, 2002), 127, 141, 148; Hilton and Due, *The Electric Interurban Railways in America*, 401.
[11] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 167.
[12] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 210-211.
[13] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 216-217; USDA, Sacramento County, California [aerial photograph], 1953, Frame ABC-4K-16; Sacramento County, California [aerial photograph], 1957, Frame ABC-68T-105; Sacramento County, California [aerial photograph], 1964, Frame ABC-3EE-120; Sacramento County, California [aerial photograph], 1972, Frame A40 06067 172-58.
[14] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 262.
[15] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 262.

Figure 2. Polk Viaduct (Bridge 45A) looking West toward Sacramento, July 28, 1966 (1983/001/Bob Handsaker, Sacramento Bee Collection, Center for Sacramento History)

Although the railroad experienced success in its freight service, the Division of Highways and the City of Sacramento worked towards the removal of CCTC street trackage. Officials believed that the rail line would interfere with the expected increase in automobile traffic caused by the proposed highway routing around the central city. Soon after, Southern Pacific (SP) made a deal with CCTC to allow the railroad to use SP track through the city in exchange for access to the old state fairgrounds. This agreement allowed CCTC to abandon its track in the city between milepost 44.64 and 52.10, and at the Polk viaduct (Bridge 45A), which once elevated CCTC track over Southern Pacific's Brighton subdivision main line and Power Inn Road (see Figure 2 and Figure 3) within this report's Project Area of Analysis.[16] In 1966, the *Sacramento Bee* reported, "The Interstate Commerce Commission … approved a plan by four railroad companies to remove rail tracks from several Sacramento Streets. Terms of the decision, announced by the ICC … call for elimination of rails from 21st Avenue, Stockton Boulevard, 2nd Avenue, Alhambra Boulevard and X Street" (see Figure 4).[17] The realignment of CCTC in October 1966 completely altered the railroad's main line through the Fruitridge area, and a section of track evaluated as part of this study (see DPR 523 form in Appendix B).

[16] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 236-238.
[17] *Sacramento Bee,* "Street Rail Tracks Removal Is Okayed," 26 July 1966.

Figure 3. Aerial showing Polk Viaduct (Bridge 45A) at right, ca. 1950s (1977-024-0084, Harry Sweet Collection, Center for Sacramento History).

Central California Traction Company's continued success and growth spurred the opening of the Fruitridge Agency on May 29, 1974. This office was a command center and hub of activity for the Fruitridge area, which housed offices for the General Manager, who at the time was Ken Tinker, Agent Martin A. Melish, and three clerical staff. This facility also provided a locker room for train crews and enginemen, and served clients including Procter & Gamble, Safeway Stores, United Grocers, Libby, McNeil & Libby, and other small local industries. The *Sacramento Bee* reported that the new office was a symbol of Fruitridge area's growing importance.[18]

[18] *Sacramento Bee,* "Mini-Railroad Expands," 26 May 1974, C9; Stanley and Moreau, *Central California Traction: California's Last Interurban*, 287.

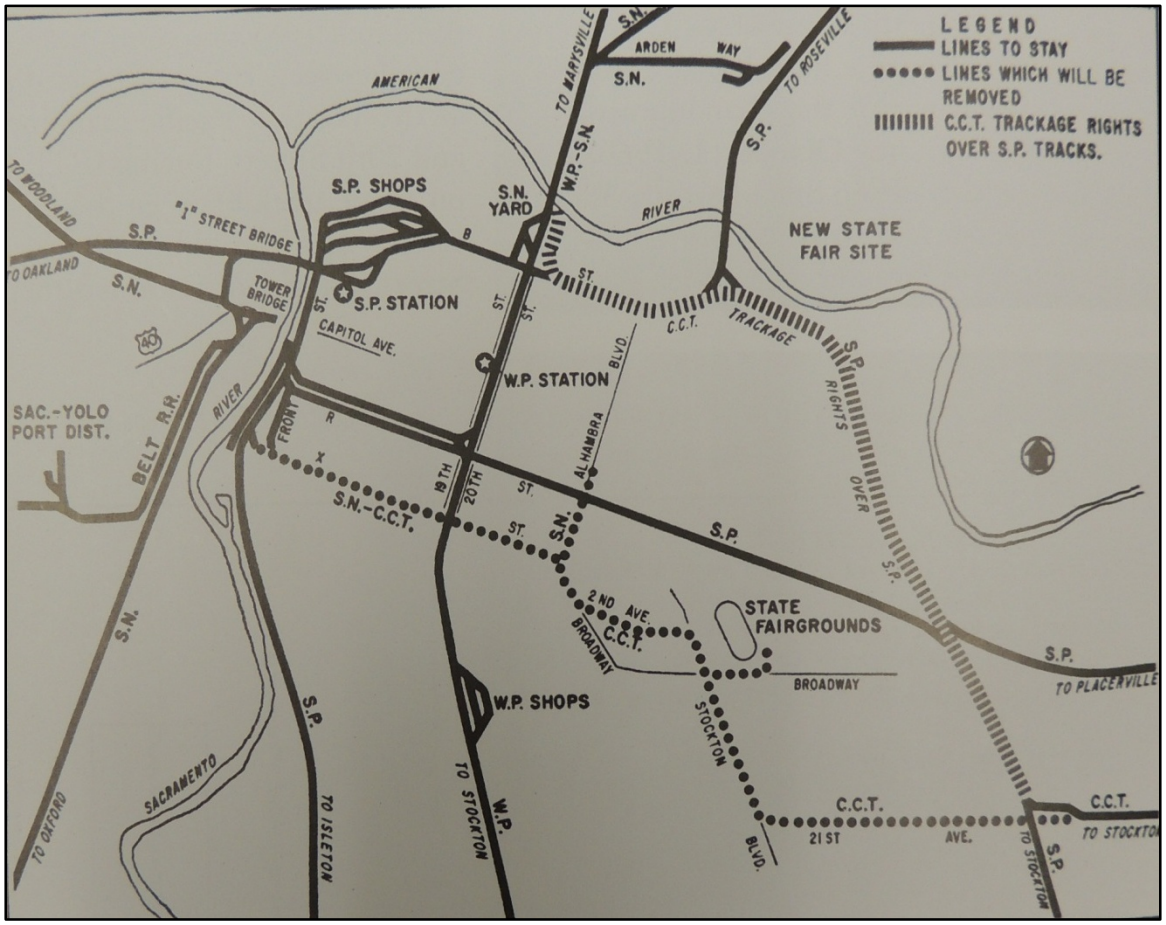

Figure 4. Map showing CCTC track changes in Sacramento, (*Sacramento Bee,* "Removal Is Okayed," 26 July 1966).

During the 1980s, CCTC faced an uncertain future. Freight traffic from Procter & Gamble, Pacific Coast Producers cannery, and Hunt-Wesson Foods only required thrice-weekly service between Stockton and Sacramento. In 1982, Union Pacific acquired two-thirds interest in CCTC when it purchased both the Southern Pacific and Western Pacific railroads. Additionally, the General Manager's position was abolished with the retirement of Ken Tinker in 1985. Business continued to decline into the 1990s, and thirty miles of the main line between Sacramento and Lodi (milepost 15.1 and 41.9) were removed from service on June 12, 1998. However, the track was kept for potential future service demands. CCTC lives on today as the last interurban railroad still operating in California, and currently provides service to the Port of Stockton.[19]

[19] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 329; Lea and Roth, "The Central California Traction Company," 452; Central California Traction Company, "Welcome to Central California Traction Company," CCTC, http://www.cctrailroad.com/index.html (accessed October 14, 2014); John Gruber, "Central California Traction: Through Service Ends," in *RailNews,* Issue 416 (July 1998), 72.

Procter & Gamble

Procter & Gamble started with William Procter and James Gamble, brothers-in-law, forming a partnership in 1837. They started a soap and candle business in Cincinnati, Ohio. Through research and innovation in candle and soap products, the company expanded and by 1848 employed 80 people. Candle production peaked in 1867, then steadily declined, and ceased in 1920. The company developed new soap products, including brands Ivory Soap in 1879 and Lenox Soap in 1884. The company continued steady growth and incorporated in 1890. Procter & Gamble was last managed by a family member in 1930, when William Cooper Procter, the grandson of the founder, retired.[20]

In the 1930s, Procter & Gamble produced and marketed Dreft, the first household synthetic detergent with a light-duty washing capability. Research for a heavy-duty detergent referred to as "Product X" continued for the next decade under the direction of the lead researcher David Byerly. In 1945, he found a working formula, and the company marketed its new detergent, called Tide, the next year. By 1949, Tide laundry detergent was a leader in the United States market, and allowed Procter & Gamble to expand its facilities and products.[21]

Procter & Gamble expanded to California in 1930, and had offices in Long Beach and San Francisco. The company built a manufacturing facility in Long Beach in 1931, and a second in Sacramento in 1952. The company built its Sacramento facility on a 152 acre complex to manufacture and supply synthetic detergents to the Pacific Northwest (see Figure 5).[22] In 1951, Procter & Gamble president Neil H. McElroy reported in the *Sacramento Bee* that "we decided to erect a plant in Sacramento because the city is ideally located in relation to growing markets in Northern California and the upper Pacific Coast."[23] J. Gibson Pleasants, vice president of manufacturing, added that "we could handle 40 per cent of our Western business more cheaply from Sacramento than any other point on the coast."[24] The plant's only product was Tide when it began operation January 6, 1953, and the new complex employed 100 people.[25] Although plans for an expanded facility to produce the full line of Procter & Gamble products was not a part of the plant's initial development, the Sacramento site was conceived to do so once demand was there.[26]

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[20] Procter & Gamble, "Origin Story," Procter & Gamble, http://www.pg.com/Heritage/origin-story.php (accessed October 7, 2014).

[21] Procter & Gamble, "Growth," Procter & Gamble, http://www.pg.com/Heritage/growth.php (accessed October 7, 2014); Procter & Gamble, "Technology," Procter & Gamble, http://www.pg.com/Heritage/technology.php (accessed October 7, 2014).

[22] "Procter & Gamble Manufacturing Company," Sacramento Room, Sacramento Public Library, Photograph 1774; *Moonbeams,* back cover, (May 1953), Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library).

[23] *Sacramento Bee,* "Procter & Gamble Company Selects Sacramento As Location for New Factory," 28 May 1951, p. 8, c. 3.

[24] *Sacramento Bee,* "Soap Firm Will Start Plant in 2 Weeks," 8 August 1951.

[25] *Moonbeams,* "A Formula For Moving Forward," (February 1962), 3-5, Pamphlet Files – Procter & Gamble, Sacramento Room; *Sacramento Bee,* "One Time Ranch Is Site of Major Industrial Plant," 1 June 1955, B-10.

[26] *Sacramento Bee,* "P&G Hopes to Open Factory In January," 20 August 1952, front page.

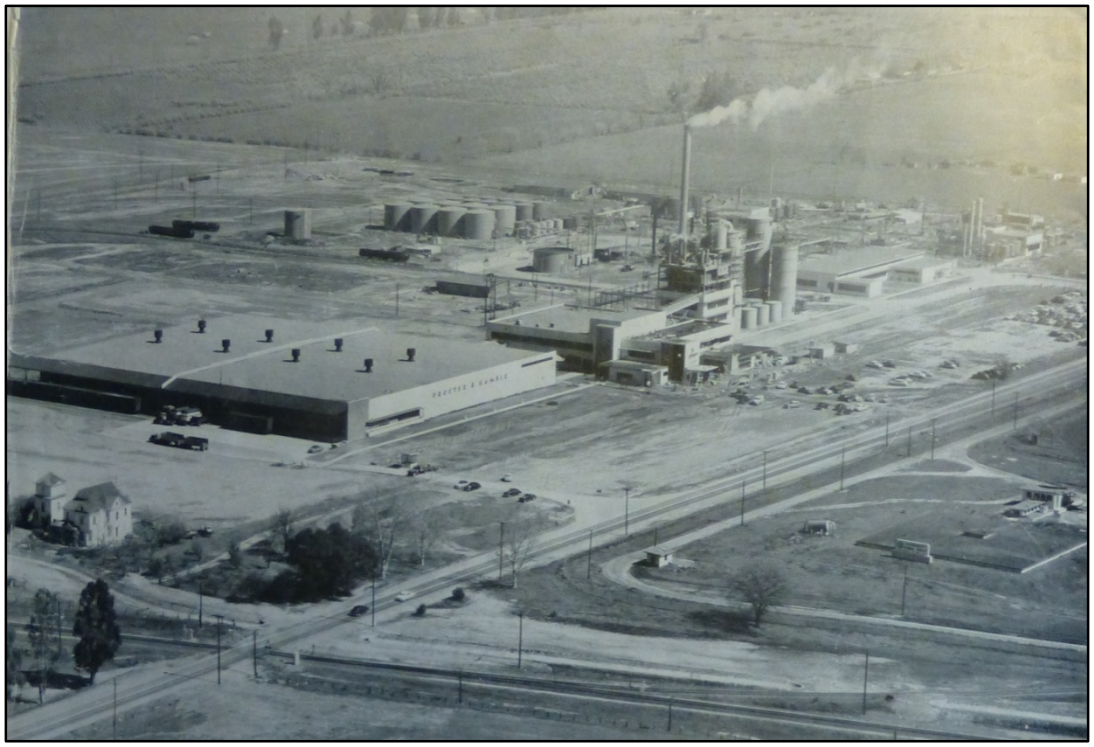

Figure 5. Procter & Gamble Plant in 1953 (*Moonbeams,* back cover, Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library).

The plant continued a steady growth pattern over the next decade. In 1957, Procter & Gamble introduced Comet, a cleaning product that was favorably received. Demand for Comet created a need for additional facilities, and the Sacramento plant was expanded in 1959. Producing Comet required diversification of the plant's manufacturing capabilities. In 1960, the company added a food products plant for Duncan Hines baking mixes. By 1963, the Sacramento plant had facilities for preparing baking mix, shipping, packing, administrative operations, detergent processing, mechanics, and raw material processing (see Figure 6). The plant employed 500 people, and manufactured Tide, Cheer, Dreft, Oxydol, Dash, Comet, Salvo, and Duncan Hines baking mixes at this time.[27]

[27] *Moonbeams,* "A Formula For Moving Forward," (February 1962), 3-5, Pamphlet Files – Procter & Gamble, Sacramento Room; Procter & Gamble, *Ten Years in Sacramento 1953-1963*, 3, Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library.

Figure 6. Procter & Gamble Sacramento Plant in 1963 (Procter & Gamble, *Ten Years in Sacramento,* 7, Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library).

Procter & Gamble manufactured well-known and widely used household products. The US Government awarded Procter & Gamble the National Medal of Technology in 1995, which recognized the company's creation, development, and application of advanced technologies to consumer products that improved consumers' quality of life.[28]

The Sacramento plant's success peaked in the 1960s, and the work force stabilized at about 400 employees. Archivist and local historian Patricia Johnson noted, "After being in operation 30 years, the Procter & Gamble Company upgraded and expanded their production …" In 1982, the company installed a new 112-foot-tall distillation tower, and "allowed the company to increase its production of the alcohol used in the manufacture of detergents and other products."[29] In 1995, employment at the plant was down to 125. By 1998, the plant did not occupy the 152 acres it initially developed in 1952. The company reduced its plant to the area around the tank field and mechanical department building shown in Figure 6. Procter & Gamble no longer uses this plant to manufacture and package products for market; rather, the facility refines and processes chemicals for use elsewhere.[30]

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[28] Procter & Gamble, "Technology," Procter & Gamble, http://www.pg.com/Heritage/technology.php (accessed October 7, 2014).

[29] *Patricia J. Johnson,* "Business and Industry in the District," in *Images of America: Sacramento's Elmhurst, Tahoe Park, and Colonial Heights* (San Francisco: Arcadia Publishing, 2008), 75.

[30] *Sacramento Area Manufactures & Producers Directories/Guides*, 1978, 1985, 1990, 1995, Sacramento Room, Sacramento Public Library; Brett Reisinger interview by Leslie Trew, October 16, 2014 at Procter & Gamble Sacramento Plant.

Description of Cultural Resources

The five parcels requiring study as part of this HRIER are located within an area first developed as farm land that was industrialized after 1950. Two of the parcels are owned by the Central California Traction Company (CCTC), and have railroad related resources (see Photograph 3), which are recorded on one DPR 523 form (see Appendix B). There were no railroad related buildings on these parcels. Additionally, the railroad suffered a reduction in integrity because of the removal of the Polk Viaduct (Bridge 45A) at the western most end of the Project Area of Analysis (Point 1 on the DPR form), and the addition of new railroad sidings and spurs across the length of both parcels. The remaining three parcels in the Project Area of Analysis contain historic-era buildings dating between the late 1940s and early 1960s. In general, most of the buildings are utilitarian storage type buildings dated after 1969. However, one property has a residence converted into an office (see Photograph 1) built ca. 1947. The box manufacturing plant has a large building utilizing tilt-up concrete construction methods and was built between 1957 and 1960 (see Photograph 2). The Procter & Gamble plant has 28 buildings, a tank field, and processing and refining equipment. Of the 28 buildings only nine were built in or before 1969. The buildings on this plant are primarily utilitarian, although some feature minor International Style characteristics (see the guard station in the foreground of Photograph 4), but most have been modified.

Photograph 1. 8299 21st Avenue (061-0131-003)

Photograph 2. 8333 24th Avenue (061-0164-010)

Photograph 3. CCTC Railroad (061-0010-009)

Photograph 4. 8201 Fruitridge Road (061-0010-033)

Findings and Conclusions

JRP prepared this HRIER to assist SCA with its petition to amend its California Energy Commission license for the PGCP. All properties with historic-era resources (those built in or before 1969) were evaluated using criteria outlined in Section 5024.1 of the California Public Resources Code. JRP evaluated five historic-era properties for this report, and none of the properties appear to be eligible for listing in the National Register or California Register.

CH2M HILL requested a record search from the North Central Information Center for the project area and a one-mile radius. The results were received October 14, 2014. No resources were found within the project area. However, 13 resources were found within a one mile radius, but none were in the Project Area of Analysis. No properties in the Project Area of Analysis were found listed in the National Register or California Register, nor were any properties determined eligible for the National Register or California Register as a result of this study or previous studies.

Table 2. Showing Properties Determined Not Eligible for the National Register as a Result of the Current Study, and Properties Determined Not Historical Resources under CEQA per CEQA Guidelines §15064.5 as they do not meet the California Register Criteria Outlined in PRC §5024.1

Address/Location	APN	Year Built	OHP Status Code
8201 Fruitridge Road, Sacramento, CA	061-0010-033	1952	6Z
8333 24th Avenue, Sacramento, CA	061-0164-010	ca. 1957-1960	6Z
8299 21st Avenue, Sacramento, CA	061-0131-003	ca. 1947	6Z
21st Avenue, Sacramento, CA	061-0010-009	1910	6Z
21st Avenue, Sacramento, CA	061-0164-008	1910	6Z

Bibliography

Ancestry.Com

Great Register of the County of Sacramento: 1867, No. 2068, Owen Thomas Davies.

Great Register of Voters: 1882, Sacramento California, 33.

Burg, William. *Images of Rail: Sacramento's Streetcars.* San Francisco, CA: Arcadia Publishing, 2006.

Butler, Drury. *Sacramento California* [map]. 1924. California Room, California State Library.

Center for Sacramento History

Historic Aerial. 1977-024-0084, Harry Sweet Collection. Center for Sacramento History.

Historic Photograph. 1983/001/Bob Handsaker. Sacramento Bee Collection, Center for Sacramento History.

Central California Traction Company. "Welcome to Central California Traction Company." CCTC, http://www.cctrailroad.com/index.html (accessed October 14, 2014).

City of Sacramento. "Annexation History." [map]. April 2005.

The Ferroequinologist. No. 270 (August 1974), 2.

Gruber, John. "Central California Traction: Through Service Ends," in *RailNews.* Issue 416 (July 1998), 72.

Hilton, George W. and John F. Due. *The Electric Interurban Railways in America.* Stanford, CA: Stanford University Press, 1960.

HistoricAerials.com. Sacramento County, California [aerial photograph]. 1947. Accessed October 15, 2014.

Johnson, Patricia J. "Business and Industry in the District," in *Images of America: Sacramento's Elmhurst, Tahoe Park, and Colonial Heights.* San Francisco: Arcadia Publishing, 2008.

Lea, Ralph and Janice Roth. "The Central California Traction Company" in *Lodi Historian. V*ol. 15, no. 2 (Spring 2004).

Moonbeams

"A Formula For Moving Forward." (February 1962), 3-5. Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library.

[Photograph] back cover, (May 1953). Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library.

Procter & Gamble

"Growth," Procter & Gamble, http://www.pg.com/Heritage/growth.php (accessed October 7, 2014); Procter & Gamble, "Technology," Procter & Gamble, http://www.pg.com/Heritage/technology.php (accessed October 7, 2014).

"Origin Story," Procter & Gamble, http://www.pg.com/Heritage/origin-story.php (accessed October 7, 2014).

"Technology," Procter & Gamble, http://www.pg.com/Heritage/technology.php (accessed October 7, 2014).

Ten Years in Sacramento 1953-1963, 3, Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library.

Reed, Walter G. *History of Sacramento County, California.* Los Angeles: Historic Record Co., 1923.

Reisinger, Brett. Interview by Leslie Trew, October 16, 2014 at Procter & Gamble Sacramento Plant.

Sacramento Area Manufactures & Producers Directories/Guides. For the years 1978, 1985, 1990, and 1995. Sacramento Room, Sacramento Public Library.

Sacramento Bee

"Mini-Railroad Expands." 26 May 1974.
"One Time Ranch Is Site of Major Industrial Plant." 1 June 1955.
"P&G Hopes to Open Factory In January." 20 August 1952.
"Procter & Gamble Company Selects Sacramento As Location for New Factory." 28 May 1951.
"Soap Plant Will Be Built Near Signal Depot." 4 June 1951.
"Soap Firm Will Start Plant in 2 Weeks." 8 August 1951.
"Street Rail Tracks Removal Is Okayed." 26 July 1966.

Sacramento Room Photograph Collection. "Procter & Gamble Manufacturing Company." Photograph 1774. Sacramento Room, Sacramento Public Library.

Sacramento Union. "Trolley Line to Lodi." 29 August 1907.

Stanley, David G. and Jeffrey J. Moreau. *Central California Traction: California's Last Interurban*. Berkeley: Signature Press, 2002.

United States Bureau of the Census

Tenth Census of the United States: 1880. Schedule 1 – Inhabitants in Brighton Township, Sacramento County, California Page 9.
Twelfth Census of the United States: 1900. Schedule No. 1 – Population, Brighton Township, Sacramento County, California, Sheet No. 3.
Fourteenth Census of the United States: 1920. Population, Brighton Township, Sacramento County, California, Sheet No. 16A.

United States Bureau of Land Management. Cash Entry Patent 041259. Owen F. Davis. issued 15 June 1871. US Bureau of Land Management, General Land Office.

United States Department of Agriculture (USDA)

Sacramento County, California [aerial photograph]. 1953. Frame ABC-4K-16.
Sacramento County, California [aerial photograph]. 1957. Frame ABC-68T-105.
Sacramento County, California [aerial photograph]. 1964. Frame ABC-3EE-120.
Sacramento County, California [aerial photograph]. 1972. Frame A40 06067 172-58.

W.A.C Corporation

Northwest California, [aerial photograph]. 1984. Frame WAC-84C-7-183.
Northwest California, [aerial photograph]. 1992. Frame WAC-92C-13-152.

The Western Railroader. "The Traction Company's Colonial Heights Line." Vol. 19, no. 12 (October 1956), 17.

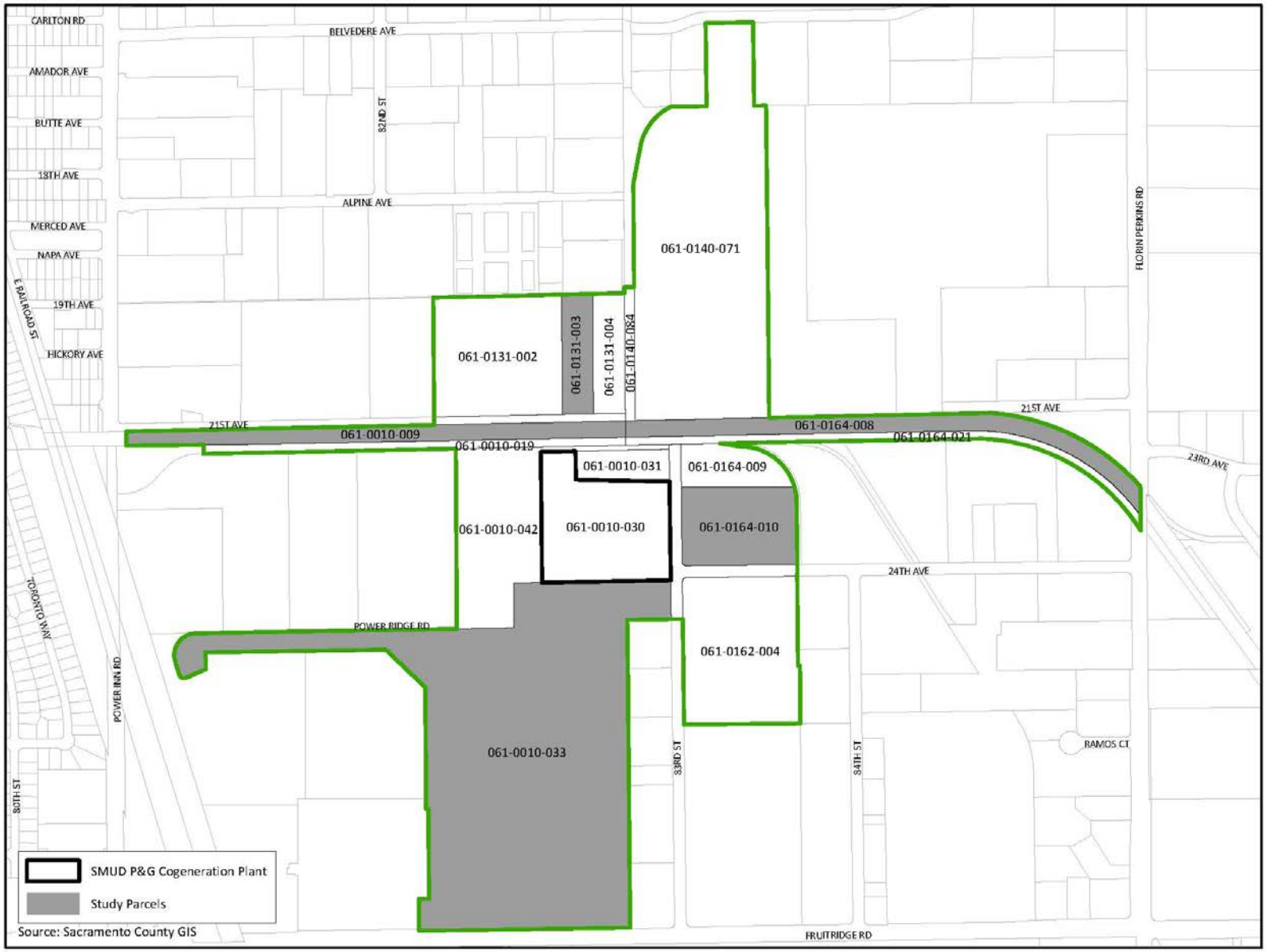
Preparers' Qualifications

This project was conducted under the general direction of Rand Herbert (MAT in History, University of California, Davis), a principal at JRP with more than 30 years of experience conducting these types of studies. Based on his level of experience and education, Mr. Herbert qualifies as a historian/architectural historian under the Secretary of the Interior's Professional Qualification Standards, as defined in 36 CFR Part 61. Mr. Herbert reviewed and edited the report.

JRP Staff Historian Leslie Trew (MA, Public History, California State University, Sacramento) was the lead historian for the project. Ms. Trew conducted fieldwork and research and was the primary author of this report, including the DPR 523 forms. Ms. Trew has three years of experience and qualifies as a historian/architectural historian under the Secretary of the Interior's Professional Qualification Standards, as defined in 36 CFR Part 61.

Research Assistant Garret Root (M.A., Public History, California State University, Sacramento) assisted in fieldwork, research, and preparation of DPR 523 forms. Mr. Root has four years of experience and qualifies as a historian and architectural historian under the Secretary of the Interior's Professional Qualification Standards (as defined in 36 CFR Part 61).

Appendix A: Maps



Map 1. Architectural Project Area of Analysis

Appendix B: DPR 523 Forms

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

 *Resource Name or # 061-0010-033

P1. Other Identifier: Procter and Gamble Sacramento Processing Plant

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County** Sacramento
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5′ Quad** Sacramento East 1992 **T** 8N ; **R** 5E ; SW ¼ **of Sec** 23 ; MD **B.M.**

c. Address 8201 Fruitridge Road City Sacramento Zip 95826

d. UTM: (give more than one for large and/or linear resources) Zone _____; _____mE/ _____mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
Assessor Parcel Number (APN): 061-0010-033

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

Procter & Gamble's (P&G) Sacramento Plant is located along Fruitridge Road at the northwest corner of 24th Avenue in an industrial area. This 45-acre parcel consists of 28 buildings, a tank farm and refining/processing equipment (see Site Map). The property is accessed by secure gates along Fruitridge and 83rd Street/Power Ridge Road. Photographs were taken with the cooperation of P&G staff and from the public right of way. The tank farm and processing plant consist of large circular tanks, tall refining towers, catwalks, platforms, and connecting metal pipes supported by steel structures (see Photograph 1). (See Continuation Sheet).

***P3b. Resource Attributes:** (List attributes and codes) HP8 (Industrial Complex)

***P4. Resources Present:** ☒Building ☒ Structure ☐ Object ☐ Site ☒ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo:
Photograph 1. Processing area, camera facing northwest, October 9, 2014.

***P6. Date Constructed/Age and Sources:**
☒ Historic ☐ Prehistoric ☐ Both
1952-2014 (P&G, *Ten Years in Sacramento;* USDA Aerial Photos 1953-1972; WAC Corp Aerial Photos 1984, 1972)

***P7. Owner and Address:**
Procter & Gamble Manufacturing Company
P.O. Box 599
Cincinnati, OH 45201-0599

***P8. Recorded by:**
Leslie Trew and Garret Root
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** Oct. 9 &16, 2014

***P10. Survey Type:** Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "SMUD P&G Cogeneration Plant Boiler Project Historic Resources Inventory and Evaluation Report," October 2014

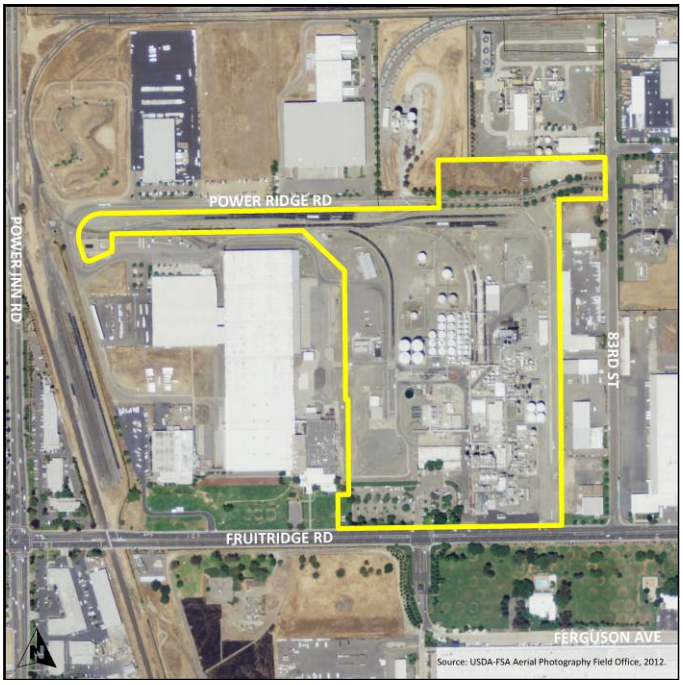
***Attachments:** ☐ None ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list) _____

B1. Historic Name: Albert Davies & Annie McKenzie Ranch
B2. Common Name: Procter and Gamble Sacramento Plant
B3. Original Use: Farm B4. Present Use: Industrial
***B5. Architectural Style:** Industrial
***B6. Construction History:** Procter & Gamble plant constructed in 1952; new buildings and structures were constructed ca. 1964 (USDA Aerial Photo), 1982, 1985, 1986, 1988, 1998, 2005 (City of Sacramento, building permits online); additions to existing structures were done in 1982, 1983, 1984, 1985, 1989, 1990, 1991, 1992 (City of Sacramento, Building Permits online); demolition of entire structures in 1995(City of Sacramento, Building Permits online).
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** n/a **Original Location:** n/a
***B8. Related Features:** n/a
B9. Architect: unknown b. Builder: unknown
***B10. Significance: Theme** n/a **Area** n/a
Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The industrial property recorded on this form does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR), nor is it an historical resource for the purposes of the California Environmental Quality Act (CEQA). This property has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code.

Historic Context

The Gold Rush of 1849 brought hundreds of people west to California. When mining played out people found the Sacramento Valley to be a rich agricultural area due in part to its location at the confluence of the Sacramento and American rivers. Railroads including the Central California Traction helped to develop the area outside of the Central City by bringing more residents to the county, especially after 1910 with installation of electric railway systems serving nearby neighborhoods such as Colonial Heights and Colonial Acres. (See Continuation Sheet.)



B11. Additional Resource Attributes: HP46 (Walls/Gates/Fences)

***B12. References:**

USDA [Aerial Photography] 1953, 1957, 1964, 1972; WAC Corp [Aerial Photography] 1984, 1992; "Property Detail" for 061-0010-033, accessed via RealQuest database; "Procter & Gamble Manufacturing Company," Sacramento Room, Sacramento Public Library, Photograph 1774; *Moonbeams,* back cover, (May 1953), Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library); Procter & Gamble, "Origin Story," Procter & Gamble, http://www.pg.com/Heritage/origin-story.php (accessed October 7, 2014). For additional references, see footnotes.

B13. Remarks:

***B14. Evaluator:** Leslie Trew

***Date of Evaluation:** October 2014
(This space reserved for official comments.)

P3a. Description (continued):

The processing and refining equipment sit on concrete pads surrounded by tall concrete curbs that act as a safety precaution to contain chemical spills. The facility has asphalt covered roads, concrete sidewalks, and gravel covered areas. There are railroad spurs coming off Southern Pacific's line into the factory's north side around the tank farm (see Site Map).

A complex of four modular security buildings, built ca. 1998, is located at Gate E (see Photograph 2). They have rectangular footprints and raised foundations. They have gently sloping roofs and are clad in T-111 siding. Wood decks provide access to personnel doors, and fenestration consists of modern 2-part sliding windows.

An unnumbered security building, built ca. 2006, is located south of Building 40 (see Photograph 21). It has a square footprint, and flat roof with wide overhanging eaves. There is a personnel door on the east side and an aluminum-framed sliding window on the south side. The building is clad in T-111 siding.

Building X9666, built by 2006, is a modular security building at Gate B on Fruitridge (see Photograph 3). It has a square footprint, and sits on metal piers. The building has a very low pitched gable roof. Concrete steps lead to a personnel door on the east side. There are 2-part sliding windows with aluminum frames on the south and west sides. The building is clad in T-111 siding.

Building 31, built by 1972, is an overflow storeroom with a rectangular footprint on a concrete foundation (see Photograph 4). It has a front gable roof, and the entire building is clad in corrugated metal. There are several personnel doors on the buildings west side, and a roll-up door on the south side.

Buildings 31A, built by 1992, are two rectangular buildings set side by side on a concrete foundation (see Photograph 4). They have rectangular footprints. The north building has a low pitched gable roof, while the southern building has a more prominent gable roof. Both are clad in corrugated metal siding. The north building has two roll-up vehicle doors.

Building 35, built by 1984, is the medium voltage switchgear building (see Photograph 5). It is formed by concrete blocks, with a square footprint and flat roof. The concrete block protrudes at regular intervals along the exterior forming engaged columns. On the south side are two large vents and a concrete ramp leading up to a double metal personnel door. There are single personnel doors on the east and west sides.

Building 37, built by 1992, is a storage facility with a rectangular footprint (see Photograph 6). It has a low pitched gable roof, and is clad in metal seam siding. There are two oversized roll-up vehicle doors on the buildings west side, and personnel doors on the south and west sides.

Building 40, built in 1952, is an engineering and reception building with a U-shaped footprint (see Photograph 7 and Photograph 21). The portions forming the U on the south side are single story, while the main section of the building is one and a half stories tall. The building is concrete with scored exterior resembling panels. There is decorative brick work on the southeast corner. The roof is flat with metal sheeting on the edge and has a slight overhang on the north side. The windows are two-part fixed pane. There are several metal personnel doors with fixed pane windows on the north side. The main entrance is on the south side facing Fruitridge Road, and has a curved wall with aluminum framed fixed pane windows and a double door entrance with aluminum casing and full length glass. There is a second double door entrance on the southeast corner covered by a metal awning. There are ribbons of 2 over 2 windows painted white below the building roof line on the north, south, and east sides.

Building 41, built in 1952, is a single-story store room with a rectangular footprint and flat roof (see Photograph 8). On the south side is a roll-up door and personnel door sheltered by a flat roof supported by a concrete block wall.

Building 41A, built by 1992, is a story and a half tall store room with a rectangular footprint and flat roof (see Photograph 8). On the south side, there is a personnel door sheltered by a flat roof supported by a concrete block wall, and a fixed pane window.

Building 43, built in 1952, is the fire pump house (see Photograph 9). It has an L-shaped footprint and a low pitched gabled roof with narrow eaves. The building is concrete block and has two personnel doors with 2 over 3 light windows on the south side, and two more personnel doors on the north side. There are two windows with 2 over 3 light fixed panes and lug sills on the west side. Large piping enters this building from underground.

Building 45, built by 1964, is the cooling tower MCC (Master Control Center) (see Photograph 10). It is a single-story building with an L-shaped footprint directly northeast of Building 41. It is a concrete block building on a concrete foundation. The roof is flat with railings. There are personnel doors sheltered by a metal roof supported by posts on the east side.

Building 50, built in 1952, is the gate house located along Fruitridge at Gate C (see Photograph 11). The building has a rectangular footprint on a concrete foundation, and a sloping shed roof supported on the east end by two brick walls with decorated openings. There is a covered breezeway on the east with three square shaped horizontal supports above on the north and south sides. The building has multi-pane windows on all sides, and two personnel doors on the east and west sides.

Building 51, built by 1984, is the HFA Control room/lab (see Photograph 13). It is a single-story building with a rectangular footprint and flat roof. There are several personnel doors on the buildings west side covered by cantilevered flat roofs. The fenestration consists of fixed pane windows.

Building 51A, built in 1952, is the HFA Filter and Centrifuge building (see Photograph 12). It is a poured concrete building with scored exterior, and a flat roof. There are metal roll-up doors on the buildings west side. It is surrounded by processing equipment, and could not be fully photographed.

Building 51E, built by 1998, is the mechanical shop (see Photograph 13). It is a tall single story building connected to the north side of Building 51. The roof is flat with a moderate overhang and wide front. It has fixed pane windows, oversized roll-up doors, and metal personnel doors with single pane windows. One door is sheltered by a braced flat canopy.

Building 53, built in 1952, is the refinery MCC (see Photograph 14). It has a square footprint on a concrete foundation and flat roof. The building is scored concrete on the exterior. On the south side are a personnel door and a tall multi-paned window. On the west side are two multi-paned windows. A metal catwalk runs around the building's southwest corner.

Building 53A, built by 1964, is the drum filling facility (see Photograph 15). It is a small concrete block building with a rectangular footprint and flat roof.

Building 54, built by 1984, is the tank farm sample storage (see Photograph 16). It has a rectangular footprint on a concrete foundation. The building is concrete block with a flat roof. There is a personnel door on the west side. There are two windows on the north side that are two-part single hung with slip sills. On the northwest side, there is a ladder leading to the roof with a metal cage at the top.

Building 54A, built by 1984, is the fabrication building. It has a rectangular footprint on a concrete foundation, and a low gable roof. There is a metal awning extending from the building's north side supported by metal posts. On the west side are two oversized roll-up doors and a personnel door. On the south side is a personnel door and covered patio. This building is next to a concrete lined canal that runs along the property's east and south boundaries. This canal is another precaution for containing chemical spills (see Photograph 17).

Building 55, built by 1964, is a warehouse with a rectangular footprint on a raised concrete foundation (see Photograph 18). It has a front gable roof with large vents protruding from the top. The building is clad in corrugated metal. On the south side, there is a concrete ramp leading to a vehicle sized opening and an aluminum framed 2-part window.

Building 57, built by 1984, is the logistics/computer room (see Photograph 19). It is a concrete block building with an irregular footprint on a concrete foundation. The roof is flat and has a slight parapet. On the south side is a personnel door covered by a flat roof extending to a concrete block wall and a ladder leading to the roof. There is a covered patio directly south of the block wall. Fenestration consists of fixed pane windows with slip sills. There are personnel doors covered by braced flat roofs on the buildings east side and facing south in the alcove. On the north side, there are personnel doors covered by a shed roof supported by metal posts.

Building 58, built by 1984, is the tank farm office (see Photograph 15). It is a concrete block building with a rectangular footprint and concrete foundation. The roof is flat. The fenestration consists of groups of fixed pane windows. There are two personnel doors sheltered by braced awnings on the north and west sides.

Building 59, built ca. 1998, is the electric equipment building (see Photograph 20). It has a square footprint and flat roof. The building is concrete block on a concrete foundation. There is a metal personnel door on the west side. It is surrounded by filtration and HFA equipment.

Building 60, built between 1985 and 1992, marked on the site map was not photographed. It is surrounded by refining equipment.

B10. Significance (continued):

In the 1920s, Sacramento County, noted by historian Walter G. Reed, "became the chief shipping point for all kinds of fruit."[1] The Fruitridge area of Sacramento had several orchards and vineyards producing fruit ranging between five and 105 acres in the early part of the century. As more industries like Procter & Gamble moved into the area in the early 1950s, the farming area became more industrialized. This area was annexed by the City of Sacramento in 1959. [2]

The property recorded on this form is located in Section 23 of Township 8N, Range 5E. Owen Thomas Davis purchased the southwest quarter of section 23 in 1871. He was originally from Wales, and was naturalized on November 4, 1864. Owen T. Davis is also listed in the Great Register of Voters as Owen Thomas Davies. In 1880, several family members lived on his farm including Owen's wife Ann and his grown son John. John Morgan Davies lived on this land and tended a fruit farm roughly between 1880 and 1924. He lived on the farm with his wife Harriett, two sons, Albert and Earl, and his daughter Annie in 1920. This land was referred to as the Albert Davies and Annie McKenzie Ranch in a *Sacramento Bee* article from 1951, which reported that Procter & Gamble's "purchase of the property was completed … from George W. and Jean Littig Ortz, Hal L. and Louise Ellis and Dr. Harry and Marjorie J. Carlson, the owners." [3] No additional information regarding these individuals living or farming on this land was found in the historical record.

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[1] Walter G. Reed, *History of Sacramento County, California,* (Los Angeles: Historic Record Co., 1923), 36.

[2] Reed, *History of Sacramento County, California,* 946-947; *Sacramento Bee,* "Procter & Gamble Company Selects Sacramento As Location for New Factory," 28 May 1951, p. 8, c. 3; USDA, Sacramento County, California [aerial photograph], 1972, frame A40 06067 172-58; W.A.C Corporation, Northwest California, [aerial photograph], 1984, frame WAC-84C-7-183; 1992, frame WAC-92C-13-152; City of Sacramento, "Annexation History," [map], April 2005.

[3] Cash Entry Patent 041259, Owen F. Davis, issued 15 June 1871, US Bureau of Land Management, General Land Office; Great Register of the County of Sacramento: 1867, No. 2068, Owen Thomas Davies; Great Register of Voters: 1882, Sacramento California, 33; US Bureau of the Census, Tenth Census of the United States: 1880, Schedule 1 – Inhabitants in Brighton Township, Sacramento County, California Page 9; US Bureau of the Census, Twelfth Census of the United States: 1900, Schedule No. 1 – Population, Brighton Township, Sacramento County, California, Sheet No. 3; Fourteenth Census of the United States: 1920 – Population, Brighton Township, Sacramento County, California, Sheet No. 16A; *Sacramento Bee,* "Soap Plant Will Be Built Near Signal Depot," 4 June 1951.

In 1924, a county map indicated that R.E. or A.E. Lewis owned the north half of the southeast quarter of Section 23. No additional information was found in the historical record about this owner. John Davies owned the southwest quarter at this time, and the northwest quarter was subdivided into smaller lots. Aerial photography shows the land in this area sparsely developed by 1947, with scattered houses surrounded by several acres of farm and orchard lands.[4]

Procter & Gamble

Procter & Gamble started with William Procter and James Gamble, brothers-in-law, forming a partnership in 1837. They started a soap and candle business in Cincinnati, Ohio. Through research and innovation in candle and soap products, the company expanded and by 1848 employed 80 people. Candle production peaked in 1867, then steadily declined, and ceased in 1920. The company developed new soap products, including brands Ivory Soap in 1879 and Lenox Soap in 1884. The company continued steady growth and incorporated in 1890. Procter & Gamble was last managed by a family member in 1930, when William Cooper Procter, the grandson of the founder, retired.[5]

In the 1930s, Procter & Gamble produced and marketed Dreft, the first household synthetic detergent with a light-duty washing capability. Research for a heavy-duty detergent referred to as "Product X" continued for the next decade under the direction of the lead researcher David Byerly. In 1945, he found a working formula, and the company marketed its new detergent, called Tide, the next year. By 1949, Tide laundry detergent was a leader in the United States market, and allowed Procter & Gamble to expand its facilities and products.[6]

Procter & Gamble expanded to California in 1930, and had offices in Long Beach and San Francisco. The company built a manufacturing facility in Long Beach in 1931, and a second in Sacramento in 1952. The company built its Sacramento facility on a 152 acre complex to manufacture and supply synthetic detergents to the Pacific Northwest (see Figure 1).[7] In 1951, Procter & Gamble president Neil H. McElroy reported in the *Sacramento Bee* that "we decided to erect a plant in Sacramento because the city is ideally located in relation to growing markets in Northern California and the upper Pacific Coast."[8] J. Gibson Pleasants, vice president of manufacturing, added that "we could handle 40 per cent of our Western business more cheaply from Sacramento than any other point on the coast."[9] The plant's only product was Tide when it began operation January 6, 1953, and the new complex employed 100 people.[10] Although plans for an expanded facility to produce the full line of Procter & Gamble products was not a part of the plant's initial development, the Sacramento site was conceived to do so once demand was there.[11]

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[4] Drury Butler, *Sacramento California* [map], 1924 (California Room, California State Library); Aerial Photography, 1947, HistoricAerials.com, accessed October 15, 2014.
[5] Procter & Gamble, "Origin Story," Procter & Gamble, http://www.pg.com/Heritage/origin-story.php (accessed October 7, 2014).
[6] Procter & Gamble, "Growth," Procter & Gamble, http://www.pg.com/Heritage/growth.php (accessed October 7, 2014); Procter & Gamble, "Technology," Procter & Gamble, http://www.pg.com/Heritage/technology.php (accessed October 7, 2014).
[7] "Procter & Gamble Manufacturing Company," Sacramento Room, Sacramento Public Library, Photograph 1774; *Moonbeams,* back cover, (May 1953), Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library).
[8] *Sacramento Bee,* "Procter & Gamble Company Selects Sacramento As Location for New Factory," 28 May 1951, p. 8, c. 3.
[9] *Sacramento Bee,* "Soap Firm Will Start Plant in 2 Weeks," 8 August 1951.
[10] *Moonbeams,* "A Formula For Moving Forward," (February 1962), 3-5, Pamphlet Files – Procter & Gamble, Sacramento Room; *Sacramento Bee,* "One Time Ranch Is Site of Major Industrial Plant," 1 June 1955, B-10.
[11] *Sacramento Bee,* "P&G Hopes to Open Factory In January," 20 August 1952, front page.

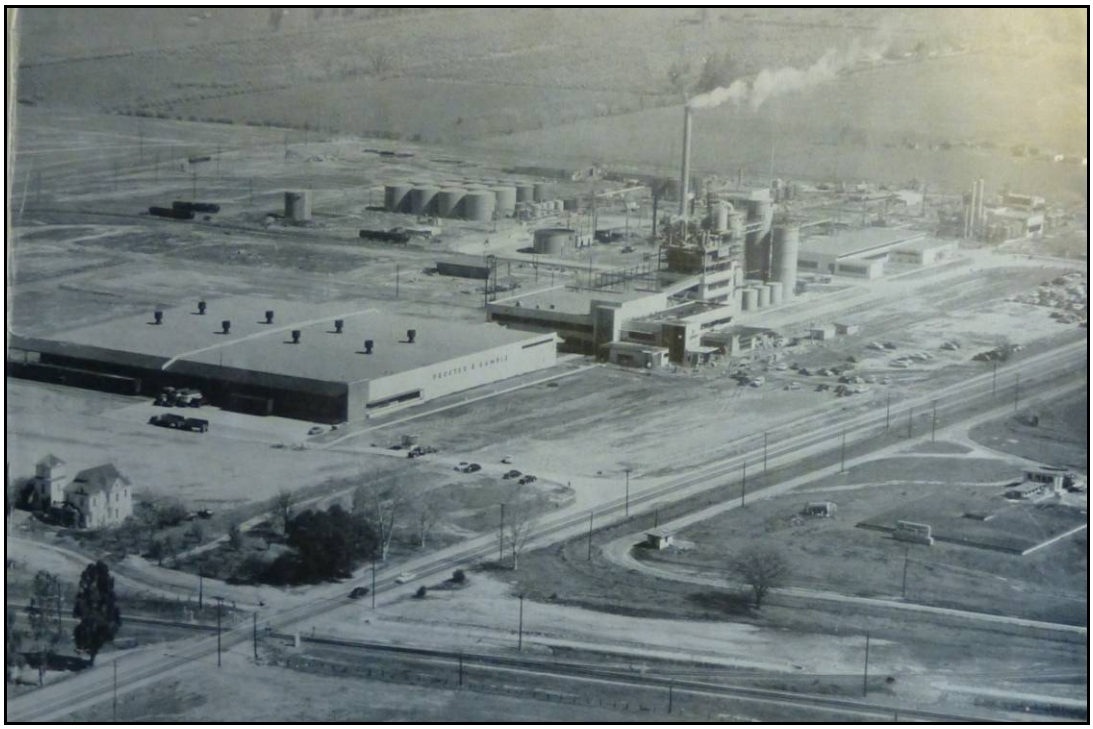


Figure 1. Procter & Gamble Plant in 1953 (*Moonbeams,* back cover, Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library).

The plant continued a steady growth pattern over the next decade. In 1957, Procter & Gamble introduced Comet, a cleaning product that was favorably received. Demand for Comet created a need for additional facilities, and the Sacramento plant was expanded in 1959. Producing Comet required diversification of the plant's manufacturing capabilities. In 1960, the company added a food products plant for Duncan Hines baking mixes. By 1963, the Sacramento plant had facilities for preparing baking mix, shipping, packing, administrative operations, detergent processing, mechanics, and raw material processing (see Figure 2). The plant employed 500 people, and manufactured Tide, Cheer, Dreft, Oxydol, Dash, Comet, Salvo, and Duncan Hines baking mixes at this time.[12]

[12] *Moonbeams,* "A Formula For Moving Forward," (February 1962), 3-5, Pamphlet Files – Procter & Gamble, Sacramento Room; Procter & Gamble, *Ten Years in Sacramento 1953-1963*, 3, Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library.

Figure 2. Procter & Gamble Sacramento Plant in 1963 (P&G, *Ten Years in Sacramento,* 7, Pamphlet Files – Procter & Gamble, Sacramento Room, Sacramento Public Library).

Procter & Gamble manufactured well-known and widely used household products. The US Government awarded Procter & Gamble the National Medal of Technology in 1995, which recognized the company's creation, development, and application of advanced technologies to consumer products that improved consumers' quality of life.[13]

The Sacramento plant's success peaked in the 1960s, and the work force stabilized at about 400 employees. Archivist and local historian Patricia Johnson noted, "After being in operation 30 years, the Procter & Gamble Company upgraded and expanded their production …" In 1982, the company installed a new 112-foot-tall distillation tower, and "allowed the company to increase its production of the alcohol used in the manufacture of detergents and other products."[14] In 1995, employment at the plant was down to 125. By 1998, the plant did not occupy the 152 acres it initially developed in 1952. The company reduced its plant to the area around the tank field and mechanical department building shown in Figure 2. Procter & Gamble no longer uses this plant to manufacture and package products for market; rather, the facility refines and processes chemicals for use elsewhere.[15]

[13] Procter & Gamble, "Technology," Procter & Gamble, http://www.pg.com/Heritage/technology.php (accessed October 7, 2014).
[14] *Patricia J. Johnson,* "Business and Industry in the District," in *Images of America: Sacramento's Elmhurst, Tahoe Park, and Colonial Heights* (San Francisco: Arcadia Publishing, 2008), 75.
[15] *Sacramento Area Manufactures & Producers Directories/Guides*, 1978, 1985, 1990, 1995, Sacramento Room, Sacramento Public Library; Leslie Trew Interview with Brett Reisinger, October 16, 2014 at Procter & Gamble Sacramento Plant.

Evaluation

The Procter & Gamble complex consists of the parcel recorded on this form and two parcels directly west. The original boundary was the east boundary of parcel 061-0010-033, to the south Fruitridge Road, to the north Power Ridge Road, and to the west the Southern Pacific railroad, the land that encompasses the original boundaries of the Sacramento plant as it was developed in 1952.

Procter & Gamble's Sacramento Plant has down-sized its property and building stock significantly, and as such does not retain integrity of design, materials, workmanship, feeling, and association to a potential period of significance, which in this instance would be between 1952 and 1953, when the plant was developed. The plant was originally conceived to support the northwest market for Tide and other Procter & Gamble products. The facilities directly involved in the production of Tide (see No. 5 in Figure 2 and Site Map) have been completely demolished. As an active plant, Procter & Gamble has remodeled, updated, and added new buildings and processing and refining equipment to directly or indirectly support its chemical processing efforts. For these reasons, the plant has diminished integrity of materials, workmanship, and design. Additionally, the plant is now 1/3 its original size, because Procter & Gamble disposed of its land directly west along the Southern Pacific railroad, which directly affects the property's integrity of feeling and design. Despite Procter & Gamble still operating the chemical refining and processing plant, it no longer produces or packages products for market, and therefore does not retain integrity of association as a soap manufacturer. Since P&G developed the land in 1952/53, the area has been in-filled with unrelated industrial facilities, which has diminished the plant's integrity of setting. As such, the Sacramento Plant is not eligible for listing in either the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR) individually or as a contributor to a district. For individual buildings, see Table 1.

It does not appear that the Sacramento Plant or any associated individual made demonstrably important contributions to history at the local, state, or national level. Although Procter & Gamble have played a significant role in the creation of revolutionary products that have promoted good health and cleanliness among consumers, the Sacramento Plant did not play a significant role in the development of new products, nor was it the sole or most important location of the company's production. This facility was constructed and operated in response to a growing market for Tide and other products, and subsequent facilities were added to support the growing markets for other proven Procter & Gamble products. Put simply, it was one of many Procter & Gamble production sites of its time. Therefore, this property does not meet the standard for listing under NRHP Criterion A or CRHR Criterion 1.

Under NRHP Criterion B/CRHR Criterion 2, Procter & Gamble Sacramento Plant does not have important and direct association with persons who made significant contributions at the local, state, or national level. Research did not reveal that any such individuals were involved with the design, building, or operation of the Sacramento Plant.

The buildings on this property are primarily utilitarian modern factory buildings. Only Building 40, 41, and 50 have any aspects of a distinctive architectural style, in this case Modernistic/International style characteristics including horizontality, and the use of glass and concrete. Modernism was popular across the country in the latter half of the twentieth century. As a broad architectural movement that evolved quickly during the middle of the twentieth century, Modernism is best described as a philosophy of design and discourse regarding concepts and ideals in construction and an aesthetic that emphasized purity of form and function. Overall, the movement's philosophy is based upon creating a new form of architecture informed by the needs of changing society and technological advancements, along with the observed obsolescence of architectural tradition. At the time, it was felt that these achievements rendered former architectural vocabulary obsolete. Physically, the resultant architecture focused upon functionality over adornment, avoidance of historical conventions, blending of indoor and outdoor spaces, and adaptation of new construction techniques and materials, combined in various ways to affect and strive for an aesthetic ideal and appeal.[16]

[16] Alan Colquhoun, *Modern Architecture* (Oxford University Press: New York, 2002), 9-11, 142-146; Mark Gelernter, *A History of American Architecture* (Hanover, NH: University Press of New England, 1999), 238, 267-268, 255; Robert T. Packard, *Encyclopedia of American Architecture* (New York: McGraw-Hill, 1995), 281-282; Vincent Scully, *American Architecture and Urbanism* (New York:

Buildings in the International Style were intended to not only be functional and efficient, but also representative of the essence of their material, stressing simplicity, clean graceful lines, and the expressiveness of the modern era. The better examples of the style are highly ordered and have refined details of structure and form. Procter & Gamble's original plant buildings are more typical Modern/International Style buildings in its original iteration in 1952-53. International style was used for most major institutions between the end of World War II and the close of the 1950s. The buildings at Procter & Gamble are standard for the style.[17]

As a manufacturing plant, the few buildings in the complex of buildings dating before the 1960s are a product of the modern movement. The facility has been remodeled, updated, and generally added to since its conception in 1952-53. However, there is nothing about the design of Procter & Gamble's plant as a whole or with individual buildings that could be considered to embody distinctive characteristics of a type, period, or method of construction. Neither the plant nor any of its individual buildings were recognized within the architectural press at the time of construction. Additionally, there is no evidence that there were any architectural innovations made during construction that would warrant eligibility under these criteria. Architect information was not identified in the historical record. Therefore, these buildings do not meet the eligibility standards for listing under NRHP Criterion C or CRHR Criterion 3. Furthermore, under NRHP Criterion D or CRHR Criterion 4, this property is not a significant or likely source of important information about historic construction materials or technologies.

Table 1. Evaluations Table for Individual Extant Buildings, Procter & Gamble Sacramento Plant

Building No.	Built Date	Style	Integrity	Eligibility
Security (4 Bldgs. at Gate E)	ca. 1998	Modular		N/A
Security (1 Bldg near Building 40)	ca. 2006	Modular		N/A
X9666	ca. 2006	Modular		N/A
31	ca. 1972	Utilitarian		N/A
31A	ca. 1992	Utilitarian		N/A
35	ca. 1984	Utilitarian		N/A
37	ca. 1992	Utilitarian		N/A
40	1952	International	No	Not Eligible
41	1952	Utilitarian/International	No	Not Eligible
41A	ca. 1992	Utilitarian		N/A
43	1952	Utilitarian	Yes	Not Eligible
45	ca. 1964	Utilitarian	Yes	Not Eligible
50	1952	International	Yes	Not Eligible

Henry Holt & Company, 1988), 185-186; Jurgen Tietz, *The Story of Architecture of the 20th Century* (Cologne: 1999, English edition), 39, 57.

[17] Alan Colquhoun, *Modern Architecture,* 9-11, 142-146; Mark Gelernter, *A History of American Architecture*, 238, 267-268, 255; Robert T. Packard, *Encyclopedia of American Architecture,* 281-282; Vincent Scully, *American Architecture and Urbanism,* 185-186; Jurgen Tietz, *The Story of Architecture of the 20th Century,* 39, 57.

51	ca. 1984	Utilitarian/International		N/A
51A	1952	Utilitarian	No	Not Eligible
51E	ca. 1998	Utilitarian/International		N/A
53	1952	Utilitarian	Yes	Not Eligible
53A	ca. 1964	Utilitarian	Yes	Not Eligible
54	ca. 1984	Utilitarian		N/A
54A	ca. 1984	Utilitarian		N/A
55	ca. 1964	Utilitarian	Yes	Not Eligible
57	ca. 1984	Utilitarian/International		N/A
58	ca. 1984	Utilitarian/International		N/A
59	ca. 1998	Utilitarian		N/A
60	ca. 1992	Utilitarian		N/A

Pb5. Photographs (continued):

Photograph 2. Security complex at Gate E, camera facing southeast, October 16, 2014.

Photograph 3. Building X9666 and Building 40 in background, camera facing north, October 9, 2014.

Pb5. Photographs (continued):

Photograph 4. Building 31 and Building 31A (Storerooms), camera facing southwest, October 16, 2014.

Photograph 5. Building 35 (Medium Voltage Switcher Bldg), camera facing northwest, October 16, 2014.

Pb5. Photographs (continued):

Photograph 6. Building 37 (Storage), camera facing north, October 16, 2014.

Photograph 7. Building 40 (Engineering and Reception), camera facing southeast, October 16, 2014.

Pb5. Photographs (continued):

Photograph 8. Building 41A and Building 41 (Storerooms), camera facing northwest, October 16, 2014.

Photograph 9. Building 43 (Fire Pump House), camera facing northeast, October 16, 2014.

Pb5. Photographs (continued):

Photograph 10. Building 41A (Storeroom) and Building 45 (Cooling Tower MCC), camera facing south, October 16, 2014.

Photograph 11. Building 50 ("C" Gate House), camera facing southeast, October 16, 2014.

Pb5. Photographs (continued):

Photograph 12. Building 51A (HFA Filter & Centrifuge Bldg.), camera facing northeast, October 16, 2014.

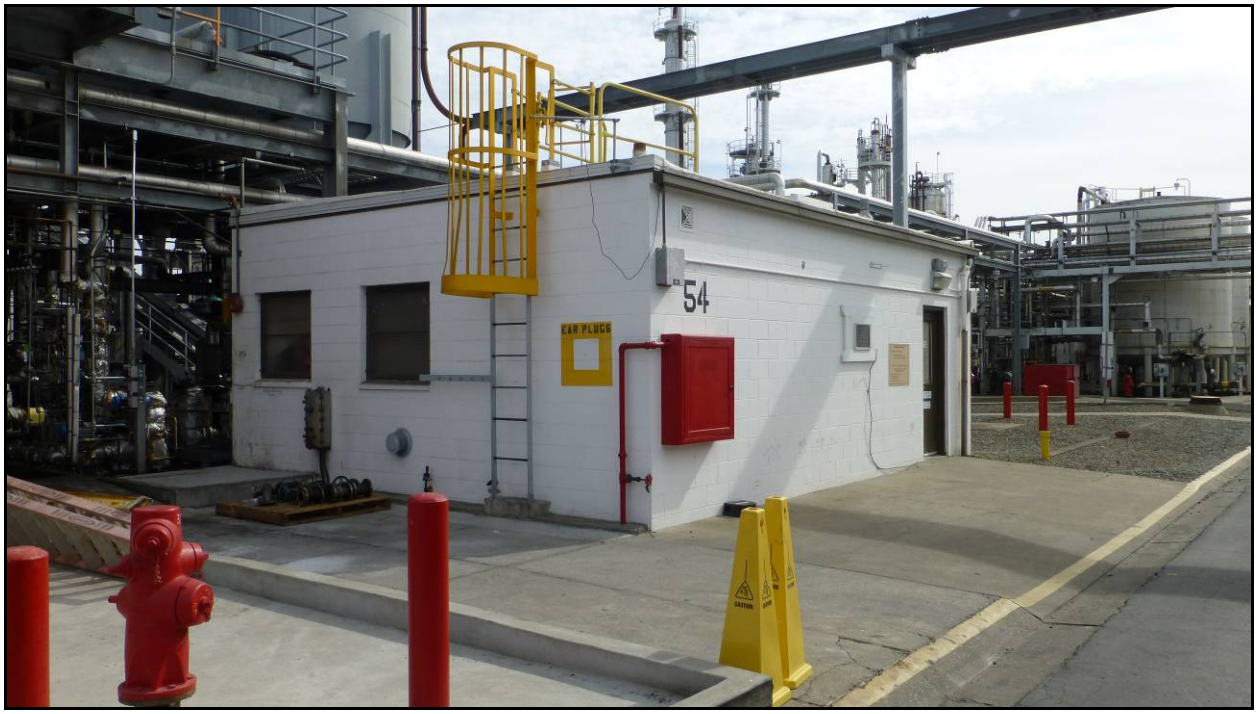
Photograph 13. Building 51E (Mechanical Shop/E&1 Shop) and Building 51 (HFA Control Room/Lab) extending behind 51E on right, camera facing southeast, October 16, 2014.

Pb5. Photographs (continued):

Photograph 14. Building 53 (Refinery MCC), camera facing northeast, October 16, 2014.

Photograph 15. Building 58 (Tank Farm Office) and Building 53A (Drum Filling) on left, camera facing east, October 16, 2014.

Pb5. Photographs (continued):



Photograph 16. Building 54 (Tank Farm Sample Storage), camera facing southeast, October 16, 2014.

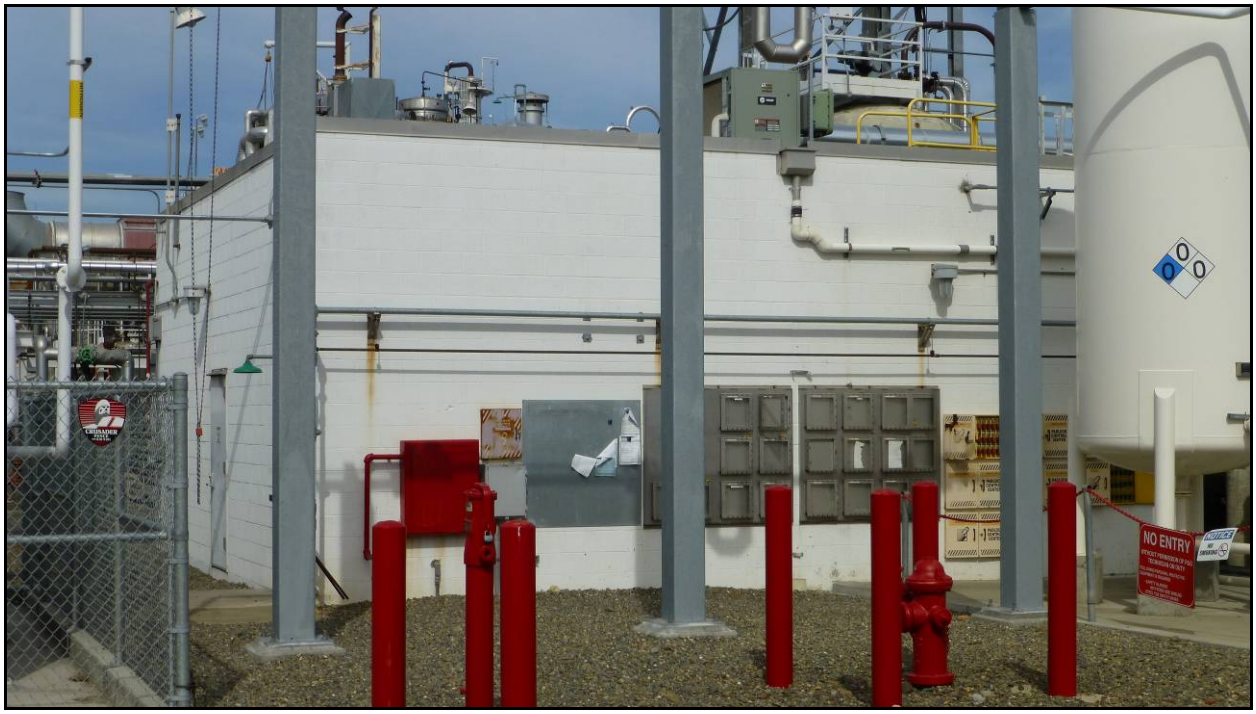
Photograph 17. Building 54A (Fabrication Building) and concrete canal, camera facing northwest, October 16, 2014.

Pb5. Photographs (continued):

Photograph 18. Building 55 (Warehouse), camera facing northwest, October 16, 2014.

Photograph 19. Building 57 (Logistics/Computer Room), camera facing northwest, October 16, 2014.

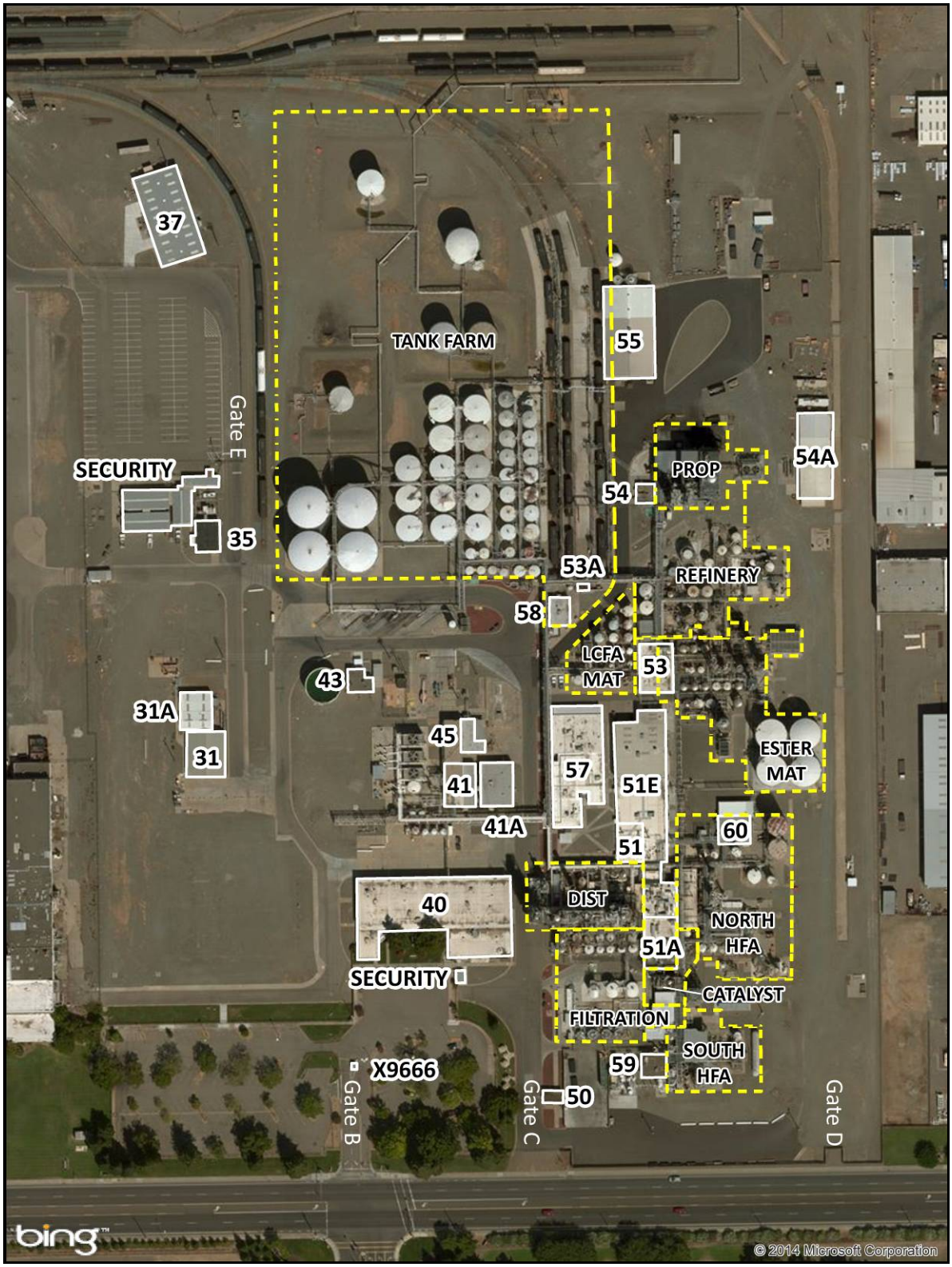
Pb5. Photographs (continued):



Photograph 20. Building 59 (Electrical Equipment Bldg), camera facing north, October 16, 2014.

Photograph 21. Unnumbered Security Bldg and Building 40 (Engineering/Reception), camera facing northwest, October 16, 2014.

Site Map:


37
TANK FARM
55
Gate E
SECURITY
35
PROP
54
54A
53A
REFINERY
58
LCFA
MAT
53
43
31A
31
45
41
41A
57
51E
ESTER
MAT
60
51
DIST
40
NORTH
HFA
51A
SECURITY
CATALYST
FILTRATION
SOUTH
HFA
59
X9666
Gate B
Gate C
50
Gate D
bing
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State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

 *Resource Name or # 061-0131-003

P1. Other Identifier:
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County** Sacramento
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5′ Quad** Sacramento East 1992 **T** 8N ; **R** 5E ; NW ¼ **of Sec** 23 ; MD **B.M.**
c. Address 8299 21st Avenue City Sacramento Zip 95826
d. UTM: (give more than one for large and/or linear resources) Zone _____; _____mE/ _____mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

Assessor Parcel Number (APN): 061-0131-003

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The property recorded on this form is located on the north side of 21st Avenue in an industrial area. This 2.26-acre parcel consists of seven buildings that have been designated Buildings 1 through 7 for the purposes of this form (see Site Map). The property is accessed by an asphalt driveway. Buildings 1 to 4 are located west of a large central parking lot. Building 5 is to the north, and Buildings 6 and 7 are to the east (see Photograph 1).

Building 1, built ca. 1947, is a single story house converted into an office. It has a square footprint and a concrete foundation. The building is clad in stucco, and has a moderately pitched cross-gabled roof covered with composition shingles. (See Continuation Sheet).

***P3b. Resource Attributes:** (List attributes and codes) HP8 (Industrial Building)
***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo:
Photograph 1. Driveway and office, camera facing north, October 9, 2014.

***P6. Date Constructed/Age and Sources:**
☒ Historic ☐ Prehistoric ☐ Both
Ca. 1947 (HistoricAerials.com)

***P7. Owner and Address:**
Joseph Breault Properties, LLC
4724 Winding Way
Sacramento, CA 95841

***P8. Recorded by:**
Leslie Trew and Garret Root
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** October 9, 2014

***P10. Survey Type:** Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "SMUD P&G Cogeneration Plant Boiler Project Historic Resources Inventory and Evaluation Report," October 2014.

***Attachments:** ☐ None ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list) _____

B1. Historic Name: _____
B2. Common Name: A & B Asphalt Sealing
B3. Original Use: Residence B4. Present Use: Industrial
***B5. Architectural Style:** Minimal Traditional; vernacular and utilitarian support buildings
***B6. Construction History:** Building 1 constructed ca. 1947 (USDA [Aerial Photograph], 1947), 547 sq. ft. addition to existing office building (City of Sacramento, Building Permits Online); Building 2 built in 2004; Building 3 built ca. 1998; Building 4 built ca. 1984; Building 5 built in 2014 following 2013 fire that destroyed a previous building at the same location; Building 6 built ca. 1998; Building 7, 2014 (WAC Corp [Aerial Photograph], 1984, 1992; Google Earth; HistoricAerials.Com).
***B7. Moved?** ☒ No ☐ Yes ☐ Unknown **Date:** n/a **Original Location:** n/a
***B8. Related Features:** n/a
B9. Architect: unknown b. Builder: unknown
***B10. Significance: Theme** n/a **Area** n/a
Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The industrial property recorded on this form does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR), nor is it an historical resource for the purposes of the California Environmental Quality Act (CEQA). This property has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code.

Historic Context

The Gold Rush of 1849 brought hundreds of people west to California. When mining played out people found the Sacramento Valley to be a rich agricultural area due in part to its location at the confluence of the Sacramento and American rivers. Railroads including the Central California Traction Company located immediately south of the property recorded on this form helped to develop the area outside of the Central City by bringing more residents to the county, especially after 1910 with installation of electric railway systems serving nearby neighborhoods such as Colonial Heights and Colonial Acres. (See Continuation Sheet.)

B11. Additional Resource Attributes: HP 46 (Walls/Gates/Fences)

***B12. References:**

Walter G. Reed, *History of Sacramento County, California,* Los Angeles: Historic Record Co., 1923; *Sacramento Bee,* "Procter & Gamble Company Selects Sacramento As Location for New Factory," 28 May 1951, p. 8, c. 3; USDA, Sacramento County, California [aerial photograph], 1972, frame A40 06067 172-58; W.A.C Corporation, Northwest California, [aerial photograph], 1984, frame WAC-84C-7-183; 1992, frame WAC-92C-13-152. For additional references, see footnotes.

B13. Remarks:

***B14. Evaluator:** Leslie Trew

***Date of Evaluation:** October 2014
(This space reserved for official comments.)

P3a. Description (continued):

Building 1, built ca. 1947, has a wrap-around porch on the north, west and south sides covered by a shed roof clad in tarpaper and supported by wood beams. The porch has a wooden balustrade and is accessed by wooden stairs on the south side. Wood lattice surrounds the house below the wood porch decking (see Photograph 2). Fenestration appeared to be replacement horizontal sliding windows with aluminum frames and faux muntins. All windows are covered by tightly woven screens (see Photograph 3). Access into the building is through a modern metal, multi-panel and two-light door on the south side and through two metal sliding glass doors on the west side.

Building 2, built ca. 2004, is a prefabricated, rectangular RV storage shed. It has a gable roof with metal framing and is clad in metal seam siding. It is open to the east (see Photograph 4).

Building 3, built ca. 1998, and Building 4, built ca. 1984, are sheds with rectangular footprints. They have poured concrete foundations, and shed roofs sloping east to west covered in tarpaper. The buildings have wood frames clad in corrugated metal siding. They are open to the east, and have metal posts dividing the sheds into multiple bays (see Photograph 5 and 6).

Building 5, built in 2014, is a prefabricated storage building with a square footprint on a poured concrete foundation. It has a low sloping front gabled roof, and is clad in metal seam siding. The building has roll-up metal vehicle doors and solid metal personnel doors (see Photograph 7).

Building 6, built ca. 1998, and Building 7, built in 2014, are modern storage sheds with rectangular footprints on poured concrete foundations. The buildings have shed roofs that slope from west to east covered in tarpaper. They have wood frames and are clad in corrugated metal siding. Both buildings open on the west side (see Photograph 8).

B10. Significance (continued):

In the 1920s, Sacramento County, noted by historian Walter G. Reed, "became the chief shipping point for all kinds of fruit."[1] The Fruitridge area of Sacramento had several orchards and vineyards producing fruit. There were several orchards along Fruitridge Road ranging between five and 105 acres in the early part of the century.[2] As more industries like Procter & Gamble moved into the area in the early 1950s, the farming area became more industrialized. This area was annexed by the City of Sacramento in 1959. [3]

The property recorded on this form is located in Section 23 of Township 8N, Range 5E. Aerial photography shows the land in this area sparsely developed by 1947 with scattered houses surrounded by several acres of farm and orchard lands.[4] The property recorded on this form was developed circa 1947 with the construction of a house (Building 1). In 1924, this property was part of a subdivision of land in Section 23 of Township 8N Range 5E. Research did not reveal information pertaining to the properties ownership or occupants until 1970. Earl Breault, proprietir of A & B Asphalt Sealing Company, purchased the property at this time and turned it into the base of operation for his business. Since Breault's purchase several shop and storage buildings have been added to the property. Building 3 and Building 6 appear to have been constructed around 1998; Building 2 in 2004; and Building 7 in 2014. Building 5, construced in 2014, replaced a building with a similar footprint that burned in 2013.[5]

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[1] Walter G. Reed, *History of Sacramento County, California,* (Los Angeles: Historic Record Co., 1923), 36.
[2] Reed, *History of Sacramento County, California,* 946-947.
[3] *Sacramento Bee,* "Procter & Gamble Company Selects Sacramento As Location for New Factory," 28 May 1951, p. 8, c. 3; USDA, Sacramento County, California [aerial photograph], 1972, frame A40 06067 172-58; W.A.C Corporation, Northwest California, [aerial photograph], 1984, frame WAC-84C-7-183; 1992, frame WAC-92C-13-152; City of Sacramento, "Annexation History," [map], April 2005.
[4] Drury Butler, *Sacramento California* [map], 1924 (California Room, California State Library); Aerial Photography, 1947, HistoricAerials.com, accessed October 15, 2014.
[5] Sacramento City Planning Commission, *BLT Mass Transfer Station/Large Volume Material Recovery Facility*, August 13, 1998; Drury Butler, *Map of the County of Sacramento California*, Drury Butler County Surveyor,1924; USDA, Sacramento County, California [aerial

Evaluation

This property, originally developed as a single-family farm during the late 1940s and then converted to an industrial property in 1970, is not important within the context of farming or industrial development in Sacramento County. It does not have important associations with significant historic events, patterns, or trends of development, and does not meet the standard for listing under NRHP Criterion A or CRHR Criterion 1.

It does not appear that any member of the Breault family or A&B Asphalt, or any other individual directly associated with this property, made demonstrably important contributions to history at the local, state, or national level. Therefore, this property is not significant for its association with the lives of persons important to history, and does not meet the standards for NRHP Criterion B or CRHR Criterion 2.

The buildings on this property are primarily utilitarian modern storage buildings. Building 1, first developed as a residence in the 1940s, has Minimal Traditional characteristics including the moderately pitched cross gable roof with slight eaves and minimal ornamentation. It has been heavily altered with new windows, doors, and covered wrap-around porch. Minimal Traditional architecture was popular after the depression and into the 1950s, and represented a compromise of architectural styles from the past.[6] This house does not represent the style well. Therefore, this property does not embody distinctive characteristics of a type, period, or method of construction, nor is it the work of a master. Therefore, this property does not meet the standard for listing under NRHP Criterion C or CRHR Criterion 3. Under NRHP Criterion D or CRHR Criterion 4, this property is not a significant or likely source of important information about historic construction materials or technologies.

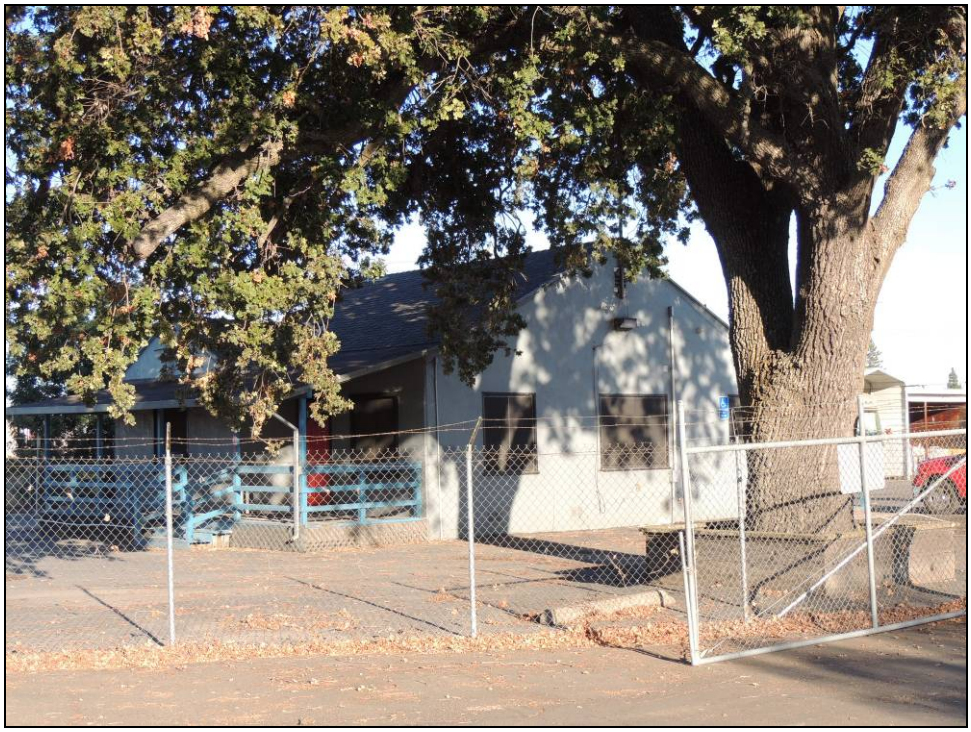
As discussed in the previous paragraph, Building 1 is heavily altered to accommodate the administrative needs of an asphalt company. As such, this former residence does not have integrity of design, materials, workmanship, feeling, or association. This former residence does have integrity of location, but does not have integrity of setting. The setting has changed significantly since the property was first developed on farm land, because it is now part of and surrounded by an industrial neighborhood. The remaining buildings are less than 50 years old, and do not meet the requirements under Criteria Consideration G for properties that have achieved significance within the last fifty years. This property is not eligible for either the National Register of California Register, nor is it an historical resource for the purposes of CEQA.

photograph], 1964, frame ABC-3EE-120; 1972, frame A40 06067 172-58; W.A.C Corporation, Northwest California, [aerial photograph], 1984, frame WAC-84C-7-183; 1992, frame WAC-92C-13-152.

[6] Virginia and Lee McAlester, *A Field Guide to American Houses,* (New York: Alfred A. Knopf, 2005), 478.

Pb5. Photographs (continued):

Photograph 2. West and south sides of Building 1, camera facing northeast, October 9, 2014.



Photograph 3. South and east sides Building 1, camera facing northwest, October 9, 2014.

Pb5. Photographs (continued):

Photograph 4. Building 2 showing south and east sides, camera facing northwest, October 9, 2014.

Photograph 5. Building 3 (left) and 4 (right) showing the eastern side, camera facing northwest, October 9, 2014.

Pb5. Photographs (continued):

Photograph 6. From right to left Building 2, 3, and 4 showing western side, camera facing northeast, October 9, 2014.

Photograph 7. Building 5 showing south and east walls, camera facing north, October 9, 2014.

Pb5. Photographs (continued):

Photograph 8. Building 7 in the foreground and Building 8 in the background, camera facing north, October 9, 2014.

Site Map:

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

 *Resource Name or # 061-0164-010

P1. Other Identifier: Capital Corrugated and Carton

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County** Sacramento
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5′ Quad** Sacramento East 1992 **T** 8N; **R** 5E; SE ¼ **of Sec** 23; MD **B.M.**

c. Address 8333 24th Avenue City Sacramento Zip 95826

d. UTM: (give more than one for large and/or linear resources) Zone _____; _____mE/ _____mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
Assessor Parcel Number (APN): 061-0164-010

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The property recorded on this form is located on the northeast corner of 24th Avenue and 83rd Street in an industrial area. This 5.38-acre parcel consists of 3 buildings that have been designated Buildings 1 through 3 for the purposes of this form. The property is accessed by asphalt driveways along 24th Avenue and 83rd Street. Building 1 occupies most of the parcel (see Photograph 1 and Site Map). Building 2 is located on the southeast corner of the property and Building 3 on the northwest corner (see Site Map). (See Continuation Sheet).

***P3b. Resource Attributes:** (List attributes and codes) HP8. Industrial Building

***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo:
Photograph 1. Showing southwest corner of Building 1, camera facing northeast.

***P6. Date Constructed/Age and Sources:**
☒ Historic ☐ Prehistoric ☐ Both
Ca. 1960-1964 (10/28/60 Aerial: Procter & Gamble & united Grocers, Sacramento Bee Collection, Center for Sacramento History; USDA [aerial photograph] 1964 frame ABC-3EE-130)

***P7. Owner and Address:**
A & W Investments LLC
8333 24th Avenue
Sacramento, CA 95826

***P8. Recorded by:**
Leslie Trew and Garret Root
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** October 9, 2014

***P10. Survey Type:** Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "SMUD P&G Cogeneration Plant Boiler Project Historic Resources Inventory and Evaluation Report," October 2014

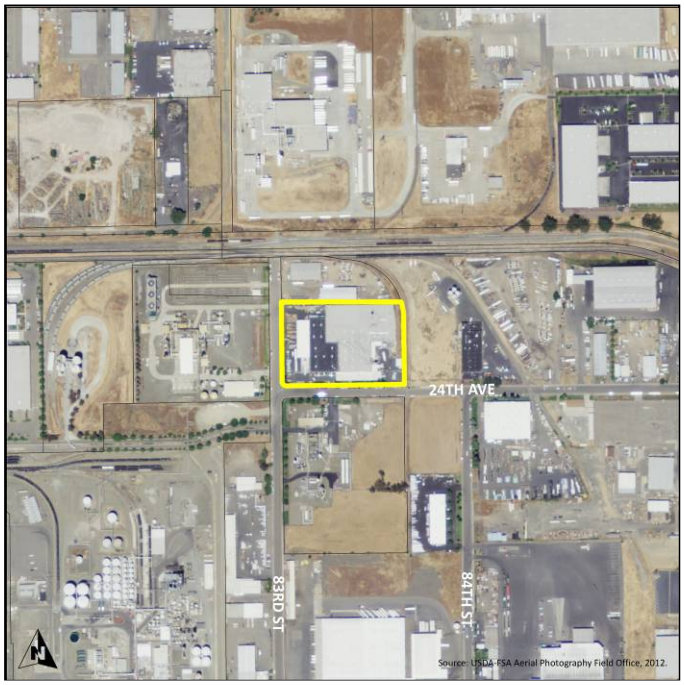
***Attachments:** ☐ None ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list) _____

B1. Historic Name: _____
B2. Common Name: Capital Corrugated and Carton
B3. Original Use: Farm B4. Present Use: Industrial
***B5. Architectural Style:** Utilitarian/Modern
***B6. Construction History:** Building 1 constructed ca. 1960 and 1964 (10/28/60 Aerial: Procter & Gamble & United Grocers, Sacramento Bee Collection, Center for Sacramento History; USDA [aerial photograph] 1964 frame ABC-3EE-130); an extensive L-shaped addition was done between 1964 and 1972 (USDA, Sacramento County, [aerial photograph] frame ABC-3EE-130; USDA, Sacramento County, [aerial photograph] 1972 frame 172-58); awning added between 1972 and 1984 (WAC, Sacramento County [aerial photograph] 1984 frame 84C 7-183). Addition in 1983 (Sacramento Building Permits online); Building 2 built 2010 (Google Earth); Building 3 after 1992 (WAC, Sacramento County [aerial photograph] 1992, frame 13-152).
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** n/a **Original Location:** n/a
***B8. Related Features:** n/a
B9. Architect: unknown b. Builder: unknown
***B10. Significance: Theme** n/a **Area** n/a
Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The industrial property evaluated on this form does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR), and it does not appear to be a historical resource for the purposes of CEQA. This property has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code.

Historic Context

The Gold Rush of 1849 brought hundreds of people west to California. When mining played out people found the Sacramento Valley to be a rich agricultural area due in part to its location at the confluence of the Sacramento and American rivers. Railroads including the Central California Traction helped to develop the area outside of the Central City by bringing more residents to the county, especially after 1910 with installation of electric railway systems serving nearby neighborhoods such as Colonial Heights and Colonial Acres. (See Continuation Sheet.)



B11. Additional Resource Attributes: _____

***B12. References:**
California Office of Historic Preservation (OHP), *California Historical Research Information System (CHRIS);* Walter G. Reed. *History of Sacramento County, California.* Los Angeles: Historic Record Co., 1923; Drury Butler, *Map of the County of Sacramento California,* Drury Butler County Surveyor,1924; USDA, Sacramento County, California [aerial photograph], 1964, frame ABC-3EE-120; 1972, frame A40 06067 172-58; W.A.C Corporation, Northwest California, [aerial photograph], 1984, frame WAC-84C-7-183; 1992, frame WAC-92C-13-152; For additional references, see footnotes.

B13. Remarks:

***B14. Evaluator:** Leslie Trew

***Date of Evaluation:** October 2014
(This space reserved for official comments.)

P3a. Description (continued):

Building 1, built between 1960 and 1964, is a tall single-story industrial building with an irregular footprint on a concrete foundation. It was built using tilt-up concrete construction methods. The building has a flat roof and a low parapet with drainage openings and metal downspouts. Multiple metal pipes extend from various points of the building's roof and connect to a large sawdust blower mounted on the southeast corner of the roof. A second sawdust blower is mounted northeast of the larger blower, and is also connected by numerous metal pipes (see Photograph 2 and Photograph 5). On the west side, there is a large wood-frame awning, supported by six wooden posts with metal cross bracing. The awning extends from the building just below the roofline and slopes west (see Photograph 3). Extending from the southern wall is a single-story office with a flat concrete roof featuring a deep overhang on the south side. The office is clad with stacked brick painted white (see Photograph 4). The windows are aluminum framed with fixed panes in groupings of three and have colored panels below. The west facing windows are three over three and are sheltered beneath cloth awnings (see Photograph 5). On the east side is a concrete porch with a metal frame and post supported awning that slopes from west to east. There are aluminum framed doors with fixed glass panes on the south side office, and solid metal personnel doors and roll-up metal doors on the east and west sides.

Building 2, built in 2010, is a prefabricated storage building with a square footprint. It has a front gabled roof, and is clad in metal seam siding. The building opens on the north side (see Photograph 6).

Building 3, built ca. 1992, is a single story shed with a rectangular footprint on a poured concrete foundation. It has a medium-pitch, front gabled roof with narrow eaves covered with composition shingles. The building is clad in vertical groove siding. On the south side, there is a top hung sliding door (see Photograph 7).

B10. Significance (continued):

Historic Context

In the 1920s, Sacramento County, noted by historian Walter G. Reed, "became the chief shipping point for all kinds of fruit."[1] The Fruitridge area of Sacramento had several orchards and vineyards producing fruit ranging between five and 105 acres in the early part of the century. As more industries like Procter & Gamble moved into the area in the early 1950s, the farming area became more industrialized. This area was annexed by the City of Sacramento in 1959.[2]

In 1924, the property was owned by R.E. or A. E. Lewis. However, research did not reveal when Lewis sold the property or whether he developed it. This property remained agricultural until the construction of the box manufacturing building between 1960 and 1964. Between 1964 and 1972, a large L-shaped addition to the southwest side doubled the square footage of the building. A spur line came into the property from the Central California Traction Company on the northeast side of the property, but was removed in 2003. This property has been operated by several box manufacturers since 1970 including Western Corrugated Inc., Western Kraft Paper Group, Willamette Industry, and currently Capital Corrugated & Carton, who has been at this facility since 1999.[3]

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[1] Walter G. Reed, *History of Sacramento County, California,* (Los Angeles: Historic Record Co., 1923), 36.

[2] Reed, *History of Sacramento County, California,* 946-947; *Sacramento Bee,* "Procter & Gamble Company Selects Sacramento As Location for New Factory," 28 May 1951, p. 8, c. 3; USDA, Sacramento County, California [aerial photograph], 1972, frame A40 06067 172-58; W.A.C Corporation, Northwest California, [aerial photograph], 1984, frame WAC-84C-7-183; 1992, frame WAC-92C-13-152; City of Sacramento, "Annexation History," [map], April 2005.

[3] Drury Butler, *Map of the County of Sacramento California*, Drury Butler County Surveyor,1924; USDA, Sacramento County, California [aerial photograph], 1964, frame ABC-3EE-120; 1972, frame A40 06067 172-58; W.A.C Corporation, Northwest California, [aerial photograph], 1984, frame WAC-84C-7-183; 1992, frame WAC-92C-13-152; Polk Directories, Sacramento, California 1970-1992, California State Library; Hines Directories, 1983-1998, Sacramento California, Haines & Co., Sacramento Room, Sacramento Public Library.

Evaluation

The historical record does not indicate that the businesses operating in this location were significant within the context of cardboard or box manufacturing, or within the context of the industrial development of Sacramento. While successful or valuable endeavors, research did not indicate that the location was anything more than a common industrial site in an industrial area. Therefore it would not meet the standards for listing under NRHP Criterion A or CRHR Criterion 1.

It does not appear that any of the box manufacturers or any other individual directly associated with this property, made demonstrably important contributions to history at the local, state, or national level. Therefore, this property is not significant for its association with the lives of persons important to history, and does not meet the standards for NRHP Criterion B or CRHR Criterion 2.

Building 1 is constructed using pre-cast concrete or "tilt-up" construction methods. This method became popular in the 1950s in the western United States, and was extensively used on the Pacific Coast. Latisteel Inc. pioneered a method of construction with steel-frame wall panels clad in concrete erected in a tilt-up fashion. One of the larger companies involved in tilt-up construction was W.P. Neil Company out of Los Angeles. Their particular method was widely used on Navy facilities. Their method called the "Neil System" was utilized by other companies including Daly Brothers of San Francisco and National Engineering Corporation in Palo Alto, whom conducted research on various forms of tilt-up construction methods.[4] This method proved to be a cost effective construction technique that was widely utilized and well documented. This building has been added to several times, and does not embody distinctive characteristics of a type, period, or method of construction; nor, is it the work of a master. Rather, it was built using a common and popular post-war method of construction typical of countless similar buildings around the region, state, and nation. Additionally, Building 2 and Building 3 are less than 50 years old, and do not meet the exacting requirements under Criterion Consideration G for properties achieving significance within the last fifty years. Therefore, this property is not eligible for listing under NRHP Criterion C or CRHR Criterion 3. Under NRHP Criterion D or CRHR Criterion 4, this property is not a significant or likely source of important information about historic construction materials or technologies.

Building 1 does retain integrity of association, because it has been operated as a cardboard manufacturer since its development. However, it does not have integrity of design, materials, workmanship, setting, and feeling. The building has been heavily altered by two additions. An L-shaped addition was done between 1965 and 1972 and more than doubled the size of the building. A second addition constructing an awning to the west side was done between 1973 and 1984. These additions have significantly altered the buildings mass and size and diminished its integrity of design, workmanship, materials, and feeling. The remaining buildings are modern utilitarian structures. Lacking both significance under any criteria and integrity, this property is not eligible for listing in either the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR), nor is it a resource for the purposes of CEQA.

[4] F. Thomas Collins, "Tilt-up Construction in Western United States," in *Journal of the American Concrete Institute*, (October 1951), 133-134.

Pb5. Photographs (continued):

Photograph 2. East and south sides of Building 1, note sawdust blowers, camera facing northwest, October 9, 2014.

Photograph 3. West side of Building 1 showing awning, camera facing east, October 9, 2014.

Pb5. Photographs (continued):

Photograph 4. Building 1 showing the office, camera facing northeast, October 9, 2014.

Photograph 5. Building 1 showing the office awning and two sawdust blowers, camera facing northwest, October 9, 2014.

Pb5. Photographs (continued):

Photograph 6. Building 2 in foreground with Building 1 beyond, camera facing northwest, October 9, 2014.

Photograph 7. Building 3 showing south and west walls, camera facing east, October 9, 2014.

Site Map:

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

*Resource Name or # 061-0164-008 & 061-0010-009

P1. Other Identifier: Central California Traction Company

*P2. Location: ☐ Not for Publication ☒ Unrestricted *a. County Sacramento

and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5′ Quad Sacramento East 1992 T 8N; R 5E; SW & SE ¼ of Sec 23; MD B.M.

c. Address _____ City Sacramento Zip 95826

d. UTM: (give more than one for large and/or linear resources) Zone _____; _____mE/ _____mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

Assessor Parcel Numbers (APN): 061-0164-008 & 061-0010-009

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records an approximately one mile segment of Central California Traction Company's (CCTC) railroad located across two parcels in Sacramento between Power Inn and Florin-Perkins roads in an industrial area. There are several types of standard gauge track recorded at three points (see Linear Feature Records and Sketch Map) including a main line, several spurs (track extending from main track that usually serves customers), sidings (track adjacent to a main or secondary track for meeting or passing), and storage track (auxiliary track for storage). These tracks parallel 21st Avenue, and are part of CCTC's Polk area (MP 38 to MP 43.6), which is currently switched by Union Pacific. There are no stations, line shacks, or towers located along this approximate one mile section recorded on this form.

P3b. Resource Attributes: (List attributes and codes) HP39 - Railroad Tracks

*P4. Resources Present: ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photo of Drawing (Photo required for buildings, structures, and objects.)

P5b. Description of Photo: (View, date, accession #) Photograph 1: Point 1, active and abandoned railroad track, camera east southwest, October 9, 2014.

*P6. Date Constructed/Age and Sources:
☒ Historic ☐ Prehistoric ☐ Both
1910 (David Stanley and Jeffrey Morgan, *Central California Traction California's Last Interurban*)

*P7. Owner and Address:
Central California Traction Company
2201 W Washington Street
Stockton, CA 95203

*P8. Recorded by: (Name, affiliation, address)
Leslie Trew and Garret Root
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

*P9. Date Recorded: Oct. 9 & 16, 2014

*P10. Survey Type: (Describe) Intensive

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "SMUD P&G Cogeneration Plant Boiler Project Historic Resources Inventory and Evaluation Report," October 2014.

*Attachments: NONE ☐ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list) _____

B1. Historic Name: Central California Traction Company
B2. Common Name: Central California Traction Company
B3. Original Use: Railroad B4. Present Use: Railroad
***B5. Architectural Style:** None
***B6. Construction History:** (Construction date, alteration, and date of alterations) Rail line constructed between 1909-1910 in Sacramento; portions of these tracks removed and abandoned in 1966; sidings, spurs, and storage track added over time (USDA Aerials 1954-1972; WAC Aerials 1984, 1992; see Historic Context).

***B7. Moved?** ☒ No ☐ Yes ☐ Unknown **Date:** _____ **Original Location:** _____
***B8. Related Features:**

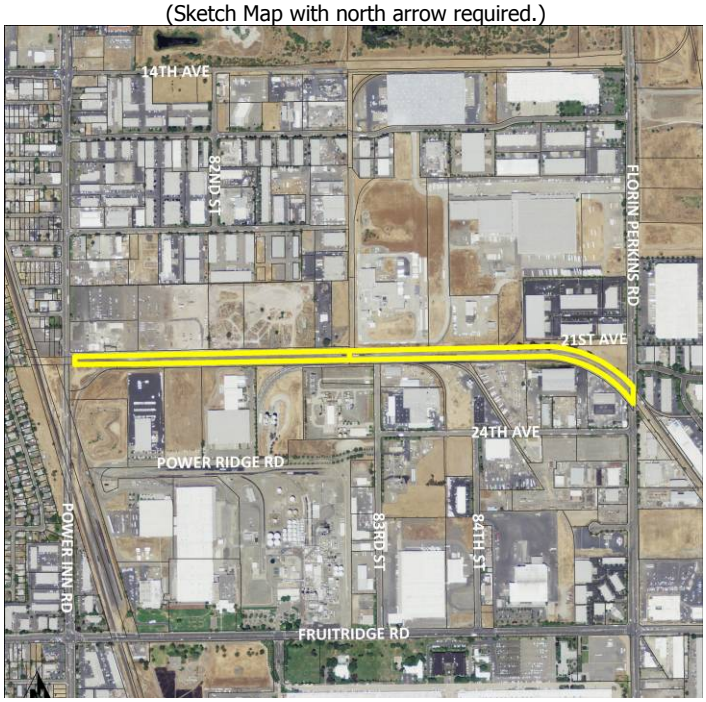
B9. Architect: n/a b. Builder: Central California Traction Company
***B10. Significance: Theme** n/a **Area** n/a
Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The one mile section of the Central California Traction Company (CCTC) railroad recorded on this form does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR), nor does it appear to be a historical resource for the purposes of CEQA. This property has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This form does not record or evaluate the entire CCTC railroad, instead, for the purposes of the proposed project by SMUD (report cited in field P11), it records and evaluates only an approximate one mile section between Power Inn and Florin-Perkins roads.

Historic Context

Central California Traction Company (CCTC) began as a Stockton streetcar line. Howard H. Griffiths expanded the streetcar line into a passenger and freight line running north to Sacramento. Griffiths and ten partners including the Fleishhacker brothers, H.H. Gerns, F.W. Smith, Walter Bartnett, J.D. Brown, John Treadwell, Fred West and D.F. Walker incorporated CCTC on August 7, 1905. (See Continuation Sheet).

(Sketch Map with north arrow required.)



B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**

George W. Hilton and John F. Due, *The Electric Interurban Railways in America,* Stanford, CA: Stanford University Press, 1960; *The Ferroequinologist*, No. 270 (August 1974);William Burg, *Images of Rail: Sacramento's Streetcars,* San Francisco, CA: Arcadia Publishing, 2006; Stanley and Moreau, *Central California Traction: California's Last Interurban*, Berkeley: Signature Press, 2002; For Additional References, See Footnotes.

B13. Remarks:

***B14. Evaluator:** Leslie Trew

***Date of Evaluation:** October 2014

(This space reserved for official comments.)

L1. Historic and/or Common Name: Central California Traction Company

L2a. Portion Described: ☐ Entire Resource Segment ☒ Point Observation **Designation:** Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.)

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

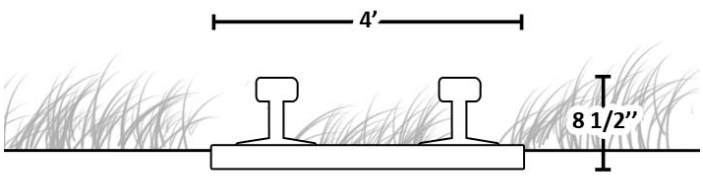
Point 1, located south of 21st Avenue and east of Power Inn Road, records the original CCTC track that led to Polk Viaduct (Bridge 45A) abandoned in 1966. These tracks are standard gauge with flat bottom rails, timber ties, and ballast. Weeds are overgrown, and removed concrete pillars, timber ties, and track are scattered around (see Photograph 1 and Photograph 2). Directly south of this abandoned track are active tracks that interchange with Southern Pacific, now owned and operated by Union Pacific (see Photograph 3).

L4. Dimensions: (in feet for historic features and meters for prehistoric features)

Standard gauge track and flat bottom rails (4 ft. by 8.5 in.)

L5. Associated Resources:

L4e. Sketch of Cross-Section (include scale) **Facing:** West



Not to scale

L6. Setting: (Describe natural features, landscape characteristics, sl

The railroad track is located in an industrial area. The land has been graded to accommodate the railroad. The parcel has a deep earthen ditch on its north boundary. The ground is mostly level, but rises in some places for the tracks, but also has a slight sloping to the south.

L7. Integrity Considerations:

Polk Viaduct (Bridge 45A) that crossed over the main Southern Pacific line and Power Inn Road removed in 1966.

L8a. Photograph, Map, or Drawing.

L8b. Description of Photo, Map, or Drawing:

Photograph 1. From right to left, concrete pillar, abandoned CCTC railroad track, and active track curving south; Polk Viaduct (Bridge 45A) was once seen here; camera facing west, October 16, 2014.

L9. Remarks:

L10. Form prepared by: (Name, affiliation, address)

Leslie Trew and Garret Root
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

L11. Date: October 9& 16, 2014.

L8a. Photograph (continued):

Photograph 2. Abandoned CCTC track directly south of 21st Avenue, active track shown near power lines; camera facing east, October 16, 2014.

Photograph 3. Active tracks paralleling Power Inn Road and turning east to parallel 21st Avenue, camera facing northeast, October 9, 2014.

***Resource Name or #** 061-0164-008 & 061-0010-009

L1. Historic and/or Common Name: Central California Traction Railroad

L2a. Portion Described: ☐ Entire Resource Segment ☒ Point Observation **Designation:** Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.)

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

Point 2, located at the northern end of 83rd Street, consists of the old main line, spur, storage track, and siding tracks all standard gauge with flat bottom rails, ballast, and timber ties. These tracks switch at multiple points (see Photograph 4).

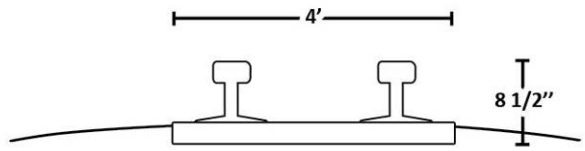
L4. Dimensions: (in feet for historic features and meters for prehistoric features)

Standard gauge track (4 ft. by 8.5 in.)

L5. Associated Resources:

None.

L4e. Sketch of Cross-Section (include scale) **Facing:** East



Not to scale

L6. Setting: (Describe natural features, landscape characteristics,

The railroad track is located in an industrial area. The land has been graded to accommodate the railroad. The parcel has a deep earthen ditch on its north boundary. The ground is mostly level, but rises in some places for the tracks, but also has a slight sloping to the south.

L7. Integrity Considerations:

Spur lines, storage track, and sidings have been added over time (see Historic Context and Figure 3)

L8a. Photograph, Map, or Drawing.

L8b. Description of Photo, Map, or Drawing:

Photograph 4. Railroad tracks near end of 83rd Street showing spur, siding, and storage track, camera facing northwest, October 9, 2014.

L9. Remarks:

L10. Form prepared by: (Name, affiliation, address)

Leslie Trew and Garret Root
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

L11. Date: October 9, 2014

L8a. Photograph (continued):

Photograph 5. Point 2 showing switch of siding with spur; main line at far left, camera facing northeast, October 9, 2014.

Photograph 6. Point 2 showing storage track, siding, and main line, camera facing northwest, October 9, 2014.

L1. Historic and/or Common Name: Central California Traction Railroad

L2a. Portion Described: ☐ Entire Resource Segment ☒ Point Observation **Designation:** Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.)

L3. Description: (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

Point 3 is a switch for a spur line and the main line before the grade crossing at Florin-Perkins Road (see Photograph 8 and Photograph 9). There is an abandoned line south of this switch skirting the northern boundary of a recycling plant. The tracks are standard gauge with flat bottom rails, timber ties and ballast (see Photograph 7).

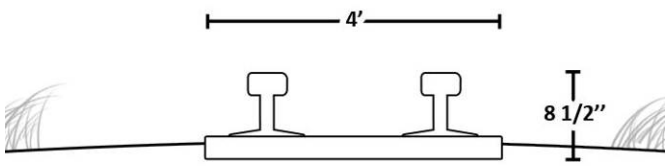
L4. Dimensions: (in feet for historic features and meters for prehistoric features)

Standard gauge track with flat bottom rails (4 ft. by 8.5 in.)

L5. Associated Resources:

Crossing arms and lights at grade crossing

L4e. Sketch of Cross-Section (include scale) **Facing:** East



Not to scale

L6. Setting: (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

The railroad track is located in an industrial area. The land has been graded to accommodate the railroad. The ground is mostly level, but rises in some places for the tracks, but also has a slight sloping to the south.

L7. Integrity Considerations:

Spur lines, storage track, and sidings have been added over time (see Historic Context and Figure 3)

L8a. Photograph, Map, or Drawing.

L8b. Description of Photo, Map, or Drawing:

Photograph 7. "Y" switch of spur and main line shown at right; abandoned track at left, camera facing west, October 9, 2014.

L9. Remarks:

L10. Form prepared by: (Name, affiliation, address)

Leslie Trew and Garret Root
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

L11. Date: October 9, 2014

L8a. Photograph (continued):

Photograph 8. Point 3 showing "Y" switch of spur and main lines, camera facing west, October 9, 2014.

Photograph 9. Point 3 showing grade crossing across Florin-Perkins Road, camera facing east, October 9, 2014.

B10. Significance (continued):

Street car service started in Stockton on March 3, 1906. By August 1907, CCTC had service to Lodi. The following year plans were made to build the railroad between Modesto and Sacramento, and work laying rails started in 1909. CCTC completed the extension to Sacramento July 29, 1910, and operation officially began August 29th.[1]

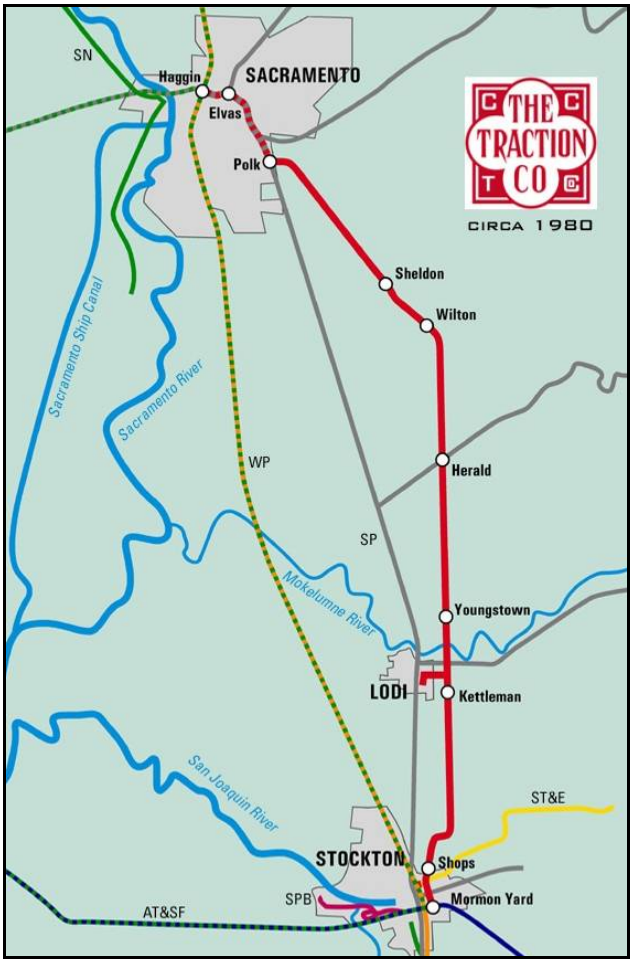


Figure 1. Systems Map, red line showing CCTC (CCTC, "About Us - Systems map," CCTC, http://www.cctrailroad.com/map.htm (accessed October 14, 2014)).

CCTC ran 53 miles on standard gauge track between Stockton and Sacramento and had a short branch line serving Lodi (see Figure 1). The line handled all types of general freight, and provided terminal switching and passenger services. CCTC connected in Sacramento with the Western Pacific, Southern Pacific, and Sacramento Northern railroads. There were interchanges with Southern Pacific in Lodi and Polk (the section evaluated as part of this study).[2] CCTC's streetcar system in Sacramento operated on the main line from Stockton and serviced the communities of Colonial Heights and Colonial Acres by providing commuter service to the central city. In 1943, National City Lines purchased the streetcar system, but

[1] Ralph Lea and Janice Roth, "The Central California Traction Company," in *Lodi Historian,* vol. 15, no. 2 (Spring 2004), 441-448; *Sacramento Union,* "Trolley Line to Lodi," 29 August 1907, 2.
[2] George W. Hilton and John F. Due, *The Electric Interurban Railways in America* (Stanford, CA: Stanford University Press, 1960), 401; *The Ferroequinologist*, No. 270 (August 1974), 2.

CCTC retained rights to the track. The company became a fully diesel-electric operation in 1946. Freight was carried over their belt lines through Sacramento until 1966, when the company switched over to Southern Pacific's right of way.[3]

Southern Pacific purchased CCTC in 1928. However, concerns over a monopoly caused the Interstate Commerce Commission to order Southern Pacific to allow both the Western Pacific and Santa Fe railroad companies each to purchase a one-third interest.[4] During the depression, revenues from passenger service declined because of the increasing popularity of the automobile and competition with bus lines. Interurban passenger service ended in February 1933, and that June the company dismantled 32 of its passenger waiting stations. Although interurban passenger service ended, CCTC's freight service grew because of the expanding wine and grape industry in California. The railroad provided freight service for Bear Creek Winery, Eastside Winery, and Cherokee Winery (now known as Woodbridge Winery). In addition to shipping grapes, CCTC handled fruits and vegetables, livestock and other farm products. At this time, passenger service on the Sacramento Colonial Heights local line increased, and instead of selling the streetcar line to PG&E, as was discussed, CCTC upgraded its cars and service. [5]

Like many industries during World War II, CCTC experienced labor shortages and an increased demand for services. Women filled some positions; however, most of the skilled trackmen were borrowed from other railroads to accommodate demand during harvest season. As a result of the increased traffic on the rails, upgrades to the railway were required.[6]

After World War II, Kaiser Sand and Gravel Company wanted to build a loading facility near Harold Station, and approached CCTC for freight service. As plans were underway to accommodate the new facility, William L. White, the railroad's general manager, advised Kaiser to seek freight service elsewhere, because the railroad did not have enough manpower and trains to accommodate their request. White also refused Procter & Gamble's request to build a spur south of Polk station into the proposed plant site stating again that the railroad would not be able to meet the needs of the manufacturer, because of a lack of locomotives and employees. Therefore, the contract for switching at the Procter & Gamble plant went to Southern Pacific, although Procter & Gamble became the largest off-line customer of CCTC through the interchange at Polk with Southern Pacific. CCTC never had any regular service between Lodi and Fruitridge, which stimulated several discussions regarding the abandonment along this 27 mile stretch of track.[7]

Central California Traction's right of way and track alignment changed between 1948 and 1954. In 1949, house track at milepost 43.1 near the Project Area of Analysis was removed. Other parts of CCTC's line were retired in 1950. Within the Project Area of Analysis, the railroad added spur lines, sidings, and storage track as more industry came to Sacramento following the construction of Procter & Gamble in 1952-53.[8]

In the 1960s, CCTC freight service continued to grow. Libby Fruitridge distribution center increased carloads, and Safeway became a new customer in the Fruitridge area. Safeway Stores was the second-largest on-line industry for the railroad. As historians Stanley and Moreau noted, CCTC had "the capacity to unload 16 carloads of inbound groceries inside [Safeway's] huge warehouse, in addition to three auxiliary outside spur tracks serving its produce and frozen food departments."[9] Furthermore, the railroad continued to supply off-line service to Procter & Gamble with a large volume of traffic over the

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[3] William Burg, *Images of Rail: Sacramento's Streetcars,* (San Francisco, CA: Arcadia Publishing, 2006), 89.
[4] "The Traction Company's Colonial Heights Line," in *The Western Railroader*, Vol. 19, no. 12 (October 1956), 17.
[5] Ralph Lea and Janice Roth, "The Central California Traction Company," in *Lodi Historian,* vol. 15, no. 2 (Spring 2004), 450; Stanley and Moreau, *Central California Traction: California's Last Interurban*, (Berkeley: Signature Press, 2002), 127, 141, 148; George W. Hilton and John F. Due, *The Electric Interurban Railways in America* (Stanford, CA: Stanford University Press, 1960), 401.
[6] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 167.
[7] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 210-211.
[8] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 216-217; USDA, Sacramento County, California [aerial photograph], 1953, Frame ABC-4K-16; Sacramento County, California [aerial photograph], 1957, Frame ABC-68T-105; Sacramento County, California [aerial photograph], 1964, Frame ABC-3EE-120; Sacramento County, California [aerial photograph], 1972, Frame A40 06067 172-58.
[9] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 262.

interchange near Polk, which handled inbound boxcars shipping coconut oil to the plant and outbound cars shipping packaged products to market.[10]

Figure 2. Polk Viaduct (Bridge 45A) looking West toward Sacramento, July 28, 1966 (1983/001/Bob Handsaker, Sacramento Bee Collection, Center for Sacramento History)

Although the railroad experienced success in its freight service, the Division of Highways and the City of Sacramento worked towards the removal of CCTC street trackage. Officials believed that the rail line would interfere with the expected increase in automobile traffic caused by the proposed highway routing around the central city. Soon after, Southern Pacific made a deal with CCTC to allow the railroad to use SP track through the city in exchange for access to the old state fairgrounds. This agreement allowed CCTC to abandon its track in the city between milepost 44.64 and 52.10, and at the Polk viaduct (Bridge 45A), which once elevated CCTC track over Southern Pacific's Brighton subdivision main line and Power Inn Road (see Figure 2 and Figure 3).[11] In 1966, the *Sacramento Bee* reported, "The Interstate Commerce Commission … approved a plan by four railroad companies to remove rail tracks from several Sacramento Streets. Terms of the decision, announced by the ICC … call for elimination of rails from 21st Avenue, Stockton Boulevard, 2nd Avenue, Alhambra Boulevard and X Street" (see Figure 4).[12] The realignment of CCTC in October 1966 completely altered the railroad's main line through the Fruitridge area, and a section of track evaluated as part of this study.

[10] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 262.
[11] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 236-238.
[12] *Sacramento Bee,* "Street Rail Tracks Removal Is Okayed," 26 July 1966.

Figure 3. Aerial showing Polk Viaduct (Bridge 45A) at right, ca. 1950s (1977-024-0084, Harry Sweet Collection, Center for Sacramento History).

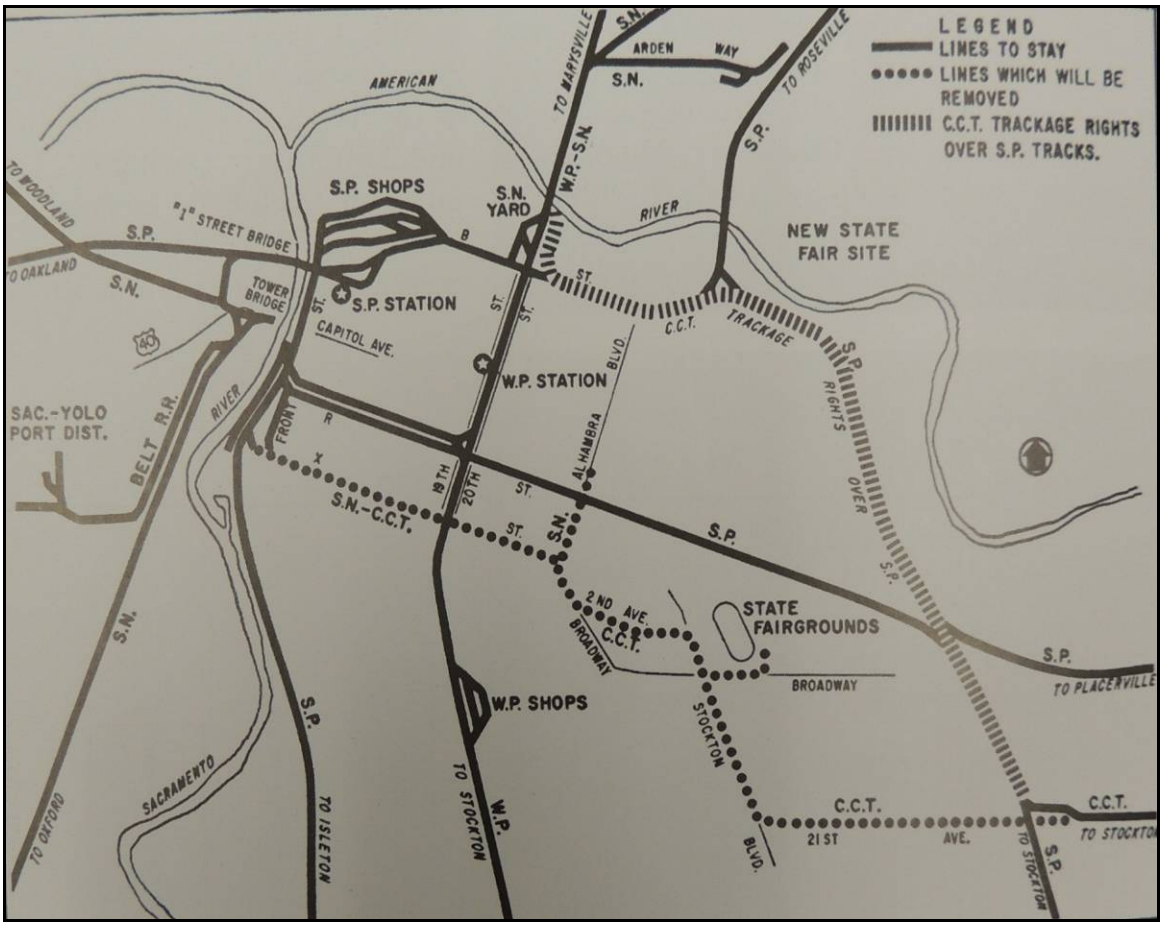

Figure 4. Map showing CCTC track changes in Sacramento, (*Sacramento Bee,* "Removal Is Okayed," 26 July 1966).

Central California Traction Company's continued success and growth spurred the opening of the Fruitridge Agency on May 29, 1974. This office was a command center and hub of activity for the Fruitridge area, which housed offices for the General Manager, who at the time was Ken Tinker, Agent Martin A. Melish, and three clerical staff. This facility also provided a locker room for train crews and enginemen, and served clients including Procter & Gamble, Safeway Stores, United Grocers, Libby, McNeil & Libby, and other small local industries. The *Sacramento Bee* reported that the new office was a symbol of Fruitridge area's growing importance.[13]

During the 1980s, CCTC faced an uncertain future. Freight traffic from Procter & Gamble, Pacific Coast Producers cannery, and Hunt-Wesson Foods only required thrice-weekly service between Stockton and Sacramento. In 1982, Union Pacific acquired two-thirds interest in CCTC when it purchased both the Southern Pacific and Western Pacific railroads. Additionally, the General Manager's position was abolished with the retirement of Ken Tinker in 1985. Business continued to decline into the 1990s, and thirty miles of the main line between Sacramento and Lodi (milepost 15.1 and 41.9) were removed from service on June 12, 1998. However, the track was kept for potential future service demands. Central California Traction Company lives on today as the last interurban railroad still operating in California, and currently provides service to the Port of Stockton.[14]

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[13] *Sacramento Bee,* "Mini-Railroad Expands," 26 May 1974, C9; Stanley and Moreau, *Central California Traction: California's Last Interurban*, 287.

[14] Stanley and Moreau, *Central California Traction: California's Last Interurban*, 329; Ralph Lea and Janice Roth, "The Central California Traction Company," in *Lodi Historian,* vol. 15, no. 2 (Spring 2004), 452; Central California Traction Company, "Welcome to

Evaluation

Although the CCTC line is located along its original alignment, this section of the railroad lacks historic integrity of design, setting, materials, workmanship, and feeling to its potential period of significance between 1909 and 1910, when the line was first constructed. This railroad retains integrity of association, because it is still owned by CCTC and operated as a railroad providing freight services. No rail dates were observed during fieldwork; however, the historical and archival record shows this segment between Power Inn and Florin-Perkins roads has been altered by track abandonments and the addition of spur lines, sidings and storage tracks. The removal of Polk Viaduct has severally altered the railroad at Point 1, leaving very little evidence that the railroad traveled up a bridge over Southern Pacific at a 3% grade. Furthermore, spur lines, sidings, and storage track have been added over time at and between Point 2 and Point 3. Integrity of setting and feeling has also been compromised by the change from the areas use as an agricultural one into an industrial one. As such, the segment of railroad track evaluated on this form is not eligible for listing in either the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR) individually or as a contributor to a district.

Under NRHP Criterion A/CRHR Criterion 1, the segment of the CCTC inventoried on this form does not have direct important associations with events that made a significant contribution to broad patterns of history at the local, state, or national level. This railroad was one of many railroads built in Sacramento County in operation since the early twentieth century to serve the agricultural industry and to provide passenger service. In general, railroads have an impact on their region; however, this segment does not have demonstrable historic importance specific to the significant development and growth of Sacramento. It also was not the first interurban passenger or freight railroad in Sacramento County. This section does not appear to be significant for its contribution to the development of either the agricultural or housing industries in Sacramento or Sacramento County.

Under NRHP Criterion B/CRHR Criterion 2, this segment of the CCTC does not have important and direct association with persons who made significant contributions at the local, state, or national level. Research did not reveal that any such individuals were involved with the design, building, or operation of the CCTC line in Sacramento.

Under NRHP Criterion C/CRHR Criterion 3, no special engineering or construction techniques were known to be used in the construction of this rail segment. Rather, it is a line of typical construction, similar to hundreds of miles of similar railroad tracks. Thus, this segment of railroad is not significant for its type, period, and method of construction, nor does it appear to be the design of a master or possess high artistic value.

Under NRHP Criterion D/CRHR Criterion 4, this resources is not significant as a source (or likely source) of important information regarding history. This property type is well documented in the historical record and does not appear to have any likelihood of yielding important information about historic construction materials or technologies.

Central California Traction Company," CCTC, http://www.cctrailroad.com/index.html (accessed October 14, 2014); John Gruber, "Central California Traction: Through Service Ends," in *RailNews,* Issue 416 (July 1998), 72.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Sketch Map

Primary # _____
HRI # _____
Trinomial _____

***Resource Name or #** (Assigned by recorder) 061-0164-008 & 061-0010-009

***Recorded by** L. Trew and G. Root *Date October 9 & 16, 2014 ☒ Continuation ☐ Update

*** Drawn by:** Leslie Trew & Rebecca Flores *** Date of map:** October 20, 2014

Appendix D
List of Property Owners

APPENDIX Z
PROPERTY OWNERS WITHIN 1,000 FEET

APN_D	OWNERNAME	M_HSENO	M_DIR	M_STREET	M_SFX	M_UNIT	M_CITY	M_STATE	M_ZIP
061-0100-030	CABLE & KILPATRICK INC	960		FULTON	AVE	#100	SACRAMENTO	CA	95825
061-0010-009	CENT CALIF TRACTION CO	2201	W	WASHINGTON	ST		STOCKTON	CA	95203
061-0010-019	CENT CALIF TRACTION CO	2201	W	WASHINGTON	ST		STOCKTON	CA	95203
061-0010-030	COGENERATION AUTHORITY SACRAMENTO			PO BOX 15830			SACRAMENTO	CA	95852
061-0010-031	SACRAMENTO MUNICIPAL UTILITY DISTRICT			PO BOX 15830			SACRAMENTO	CA	95852
061-0010-033	PROCTER & GAMBLE MANUFACTURING CO			PO BOX 599			CINCINATTI	OH	45201
061-0010-041	ENGINEERED POLYMER SOLUTIONS INC	930	W	1ST	ST	#303	FORT WORTH	TX	76102
061-0010-042	SOUTHDOWN CALIF CEMENT LLC	1501		BELVEDERE	RD		WEST PALM BEAC	FL	33406
061-0010-043	POWER RIDGE LAND CJP LLC	8775		FOLSOM	BLVD	#200	SACRAMENTO	CA	95826
061-0010-048	BIXBY NORTHWEST LLC	3525	NW	DIMPLE HILL	RD		CORVALLIS	OR	97330
061-0100-001	WAREHOUSE WAY ASSOCIATES LTD VIII	30		SADDLE WOOD	DR		NOVATO	CA	94945
061-0100-006	ROBERT S PARKS			PO BOX 15146			TUMWATER	WA	98511
061-0100-012	HICKEY FAMILY TRUST	8290		ALPINE	AVE		SACRAMENTO	CA	95826
061-0100-015	HICKEY FAMILY TRUST	8290		ALPINE	AVE		SACRAMENTO	CA	95826
061-0100-017	MARIANNE A & DAVID R WARWICK	5730		BENNETT VALLEY	RD		SANTA ROSA	CA	95404
061-0100-018	MARIANNE A & DAVID R WARWICK	5730		BENNETT VALLEY	RD		SANTA ROSA	CA	95404
061-0100-019	MARIANNE A & DAVID R WARWICK	5730		BENNETT VALLEY	RD		SANTA ROSA	CA	95404
061-0100-023	MARIANNE A & DAVID R WARWICK	5730		BENNETT VALLEY	RD		SANTA ROSA	CA	95404
061-0100-029	ALTA PLATING INCORPORATED & HICKEY FAMILY TRUST	8290		ALPINE	AVE		SACRAMENTO	CA	95826
061-0121-002	HBB HOLDING CO INC			PO BOX 214664			SACRAMENTO	CA	95821
061-0131-001	HBB HOLDING CO INC			PO BOX 214664			SACRAMENTO	CA	95821
061-0131-002	HBB HOLDING CO INC			PO BOX 214664			SACRAMENTO	CA	95821
061-0131-003	JOSEPH BREAULT PROPERTIES LLC	4724		WINDING	WAY		SACRAMENTO	CA	95841
061-0131-004	CABLE & KILPATRICK INC	960		FULTON	AVE	#100	SACRAMENTO	CA	95825
061-0140-071	HP HOOD LLC	6		KIMBALL	LN		LYNNFIELD	MA	1940
061-0140-072	HP HOOD LLC	6		KIMBALL	LN		LYNNFIELD	MA	1940
061-0140-083	CABLE & KILPATRICK INC	960		FULTON	AVE	#100	SACRAMENTO	CA	95825
061-0140-084	CABLE & KILPATRICK INC	960		FULTON	AVE	#100	SACRAMENTO	CA	95825
061-0162-004	AIR PRODUCTS MANUFACTURING CORPORATION	7201		HAMILTON	BLVD		ALLENTOWN	PA	18195
061-0162-006	AIR PRODUCTS & CHEMICALS INC	7201		HAMILTON	BLVD		ALLENTOWN	PA	18195
061-0162-007	JOHN G MCLOUGLIN 2007 TRUST	5050		84TH	ST		SACRAMENTO	CA	95826
061-0163-007	PACE SUPPLY CORP	3033		DUTTON	AVE		SANTA ROSA	CA	95407
061-0164-007	ALAN & SHERRY SHUFELBERGER REVOCABLE TRUST			PO BOX 990861			REDDING	CA	96099
061-0164-008	CENTRAL CALIF TRACTION CO	949	E	CHANNEL	ST		STOCKTON	CA	95202
061-0164-009	A & W INVESTMENTS LLC			PO BOX 278060			SACRAMENTO	CA	95826
061-0164-010	A & W INVESTMENTS LLC	8333		24TH	AVE		SACRAMENTO	CA	95826
061-0164-011	A & W INVESTMENTS LLC	8333		24TH	AVE		SACRAMENTO	CA	95826
061-0164-012	SOUTHERN PACIFIC TRANSPORTATION CO	1400		DOUGLAS	ST	#1640	OMAHA	NE	68179
061-0164-013	CORP OF PRESIDENT L D S CHURCH	50	E	N TEMPLE 22 FL			SALT LAKE CITY	UT	84150

APPENDIX Z
PROPERTY OWNERS WITHIN 1,000 FEET

061-0164-014	CORP OF PRES OF L D S CHURCH	50 E	N TEMPLE 22 FL		SALT LAKE CITY	UT	84150
061-0164-015	PARAMJIT KAUR	8788	BOYSENBERRY	WAY	SACRAMENTO	CA	95826
061-0164-021	FRUITRIDGE DEVELOPMENT CO	1 N	ADDRESS		SACRAMENTO	CA	95826
061-0171-008	ROOFING SUPPLY REDDING		PO BOX 861		REDDING	CA	96099
061-0171-009	CARL HAWORTH & KATHRYN CLOUGH LIVING TRUST	141	OLYMPIC		GRANITE BAY	CA	95746
061-0171-012	ROOFING SUPPLY REDDING		PO BOX 990861		REDDING	CA	96099
061-0172-002	C & S LOGISTICS SACRAMENTO	47	OLD FERRY	RD	BRATTLEBORO	VT	5302
061-0172-003	C & S LOGISTICS SACRAMENTO	7	CORPORATE	DR	KEENE	NH	3431