DOCKETED

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CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov

DATE: June 10, 2015

TO: Interested Parties

FROM: Mary Dyas, Compliance Project Manager

SUBJECT: **Sacramento Power Authority's Campbell Cogeneration Project (93-AFC-3C) Staff Analysis on Petition to Amend**

On November 24, 2015, Sacramento Power Authority (SPA) filed a petition with the California Energy Commission (Energy Commission) requesting to amend the 1994 Energy Commission Final Decision for the SPA Campbell Cogeneration project (SPAC). The modifications proposed include providing an option to replace the use of potable water with recycled water in the cooling tower when available in suitable quantities and quality; construction of additional water treatment facilities; and increasing discharge amounts to the city of Sacramento's sanitary sewer system, resulting from the use of recycled water. An addendum to the petition was filed on May 19, 2016, to provide additional information on the likely location and depth of the recycled water line, the air quality impacts from construction equipment, and to modify the project description to address the addition of a small metering building near the cooling tower.

The 158-megawatt cogeneration project was certified by the Energy Commission on November 30, 1994, and began commercial operation in 1997. The project is located at 3215 47th Avenue, east of the corner of 47th Avenue and Franklin Boulevard, approximately 1 mile west of Highway 99 in Sacramento County. The project is on approximately 5.8 acres adjacent to the former Campbell Soup Supply Company LLC facility (now known as the Capital Commerce Center), which was the project's steam host.

Energy Commission staff (staff) reviewed the petition and assessed the impacts of this proposal on environmental quality and on public health and safety and for conformance with all applicable laws ordinances, regulations, and standards (LORS). In the Staff Analysis, technical staff in the areas of **Air Quality**, **Geology and Paleontology**, **Public Health**, and **Soil and Water Resources** propose the addition and/or deletion of a number of conditions of certification.

It is staff's opinion that, with the implementation of these new/revised conditions of certification, the project would remain in compliance with applicable LORS, and the proposed modifications would not cause a significant impact on the environment (Cal. Code Regs., tit. 20, § 1769). Energy Commission staff intends to recommend approval of the petition at the July 13, 2016, Business Meeting of the Energy Commission.

The Energy Commission's webpage for this facility, https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=93-AFC-03C, has a

link to the petition and the Staff Analysis. After the Commission Decision, the Energy Commission's Order regarding this petition will also be available from the same webpage.

This notice has been mailed to the Energy Commission's list of interested parties and property owners adjacent to the facility site. It has also been e-mailed to the facility listserv. The listserv is an automated Energy Commission e-mail system by which information about this facility is e-mailed to parties who have subscribed. To subscribe, go to the Commission's webpage for this facility, cited above, scroll down the right side of the project webpage to the box labeled "Subscribe," and provide the requested contact information.

Any person may comment on the Staff Analysis. Those who wish to comment on the analysis are asked to submit their comments by 5:00 p.m., July 11, 2016. To use the Energy Commission's electronic commenting feature, go to the Energy Commission's webpage for this facility, cited above, click on the "Submit e-Comment" link, and follow the instructions in the on-line form. Be sure to include the facility name in your comments. Once submitted, the Energy Commission Dockets Unit reviews and approves your comments, and you will receive an e-mail with a link to them.

Written comments may also be mailed or hand-delivered to:

California Energy Commission
Dockets Unit, MS-4
Docket No. 93-AFC-3C
1516 Ninth Street
Sacramento, CA 95814-5512

All comments and materials filed with and approved by the Dockets Unit will be added to the facility Docket Log and become publicly accessible on the Energy Commission's webpage for the facility.

If you have questions about this notice, please contact Mary Dyas, Compliance Project Manager, at (916) 651-8891, or by fax to (916) 654-3882, or via e-mail at mary.dyas@energy.ca.gov.

For information on participating in the Energy Commission's review of the petition, call Alana Mathews, Public Adviser, at (916) 654-4489 or (800) 822-6228 (toll-free in California) or send your e-mail to publicadviser@energy.ca.gov. News media inquiries should be directed to the Energy Commission Media Office at (916) 654-4989, or by e-mail to mediaoffice@energy.ca.gov.

Mail List: 784
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STAFF ANALYSIS

SACRAMENTO POWER AUTHORITY'S CAMPBELL COGENERATION PROJECT (93-AFC-3C)

PETITION TO AMEND

SACRAMENTO POWER AUTHORITY'S
CAMPBELL COGENERATION PROJECT (93-AFC-3C)

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INTRODUCTION

On November 24, 2015, Sacramento Power Authority (SPA) filed a Petition to Amend (PTA) with the California Energy Commission (Energy Commission) requesting to amend the 1994 Energy Commission Final Decision (Decision) for the SPA Campbell Cogeneration (SPAC) project by proposing to provide an option to replace the use of potable water with recycled water in the cooling tower when available in suitable quantities and quality; constructing additional water treatment facilities; and increasing discharge amounts to the city of Sacramento's sanitary sewer system, resulting from the use of recycled water. An addendum to the petition was filed on May 19, 2016, to provide additional information on the likely location and depth of the recycled water line, the air quality impacts from construction equipment, and to modify the project description to address the addition of a small metering building near the cooling tower. Staff has completed its review of all materials received.

The purpose of the Energy Commission's review process is to assess any impacts the proposed modifications would have on environmental quality and public health and safety. The process includes an evaluation of the consistency of the proposed changes with the Decision, and if the project, as modified, will remain in compliance with applicable laws, ordinances, regulations, and standards (LORS) (Cal. Code Regs., tit. 20, § 1769).

This Staff Analysis contains the Energy Commission staff's detailed evaluation of the technical areas of **Air Quality**, **Geology and Paleontology**, **Public Health**, and **Soil and Water Resources**. The basis for staff's determination in all other technical area is also provided.

PROJECT LOCATION AND DESCRIPTION

The 158-megawatt cogeneration project was certified by the Energy Commission on November 30, 1994, and began commercial operation in 1997. The project is located at 3215 47th Avenue, east of the corner of 47th Avenue and Franklin Boulevard, approximately 1 mile west of Highway 99 in the city of Sacramento. The project is on approximately 5.8 acres adjacent to the former Campbell Soup Supply Company LLC facility (now known as the Capital Commerce Center), which was the project's cogeneration steam host.

DESCRIPTION OF PROPOSED MODIFICATIONS

The modifications proposed include the following:

- Provide an option to replace the use of potable water with recycled water in the cooling tower when available in suitable quantities and quality;
- Construct additional water treatment facilities; and
- Increase discharge amounts to the city's sanitary sewer system, resulting from the use of recycled water.

SPA requests that the Air Quality conditions of certification be revised to incorporate any new permit conditions imposed by the Sacramento Metropolitan Air Quality Management District as part of its review of proposed project modifications. A new condition for Public Health, **PUBLIC HEALTH-1** is being proposed to reduce the potential for growth of Legionella and other micro-organisms in the cooling tower.

The additional information provided in the addendum to the petition to amend notes that the recycled water line connection point will be located on the west side of the driveway, to the west of the existing potable water supply lines. The two proposed routes are approximate and may need to be modified during construction to avoid existing pipelines, and may need to be installed as much as 10 feet deep.

Also, since switching to recycled water use will require additional chemical use, construction of a small metering building located adjacent to the chemical storage area has been added to the proposed project changes in the addendum.

NECESSITY FOR THE PROPOSED MODIFICATIONS

Although it is not critical for the operation of SPAC, the option to use recycled water (when available) instead of potable water will reduce the consumption of potable water in the Sacramento area. This is particularly helpful because the State of California is in the middle of its fourth consecutive drought year. It is consistent with the Governor's Executive Order B-29-5 that proclaims a state of emergency throughout California due to severe drought conditions. This executive order also requires the Energy Commission to "expedite the processing of all…petitions for amendments to power plant certifications…for the purpose of securing alternate water supply necessary for continued power plant operation."

STAFF'S ASSESSMENT OF THE PROPOSED PROJECT CHANGES

Energy Commission technical staff reviewed the petition for potential environmental effects and consistency with applicable laws, ordinances, regulations, and standards (LORS). Technical staff in the areas of **Air Quality**, **Geology and Paleontology**, **Public Health**, and **Soil and Water Resources** proposes the addition and/or deletion of a number of conditions of certification to ensure the proposed changes would not have a significant impact on the environment and that the project continues to comply

with LORS. For these technical areas, a formal amendment to the Decision is required. All other technical areas are either not affected or existing conditions of certification in the Decision are sufficient to ensure no significant impacts and continued LORS compliance. Staff's conclusions reached in each technical area are summarized in **Executive Summary Table 1**.

Executive Summary Table 1
Summary of Impacts to Each Technical Area

TECHNICAL AREAS REVIEWED	STAFF RESPONSE			Revised Conditions of Certification Recommended
	Technical Area Not Affected	No Significant Environmental Impact*	Process As Amendment	
Air Quality			X	X
Biological Resources		X		
Cultural Resources		X		
Efficiency	X			
Facility Design		X		
Geology and Paleontology			X	X
Hazardous Materials Management		X		
Land Use		X		
Noise and Vibration		X		
Public Health			X	X
Reliability	X			
Socioeconomics		X		
Soil and Water Resources			X	X
Traffic and Transportation		X		
Transmission Line Safety & Nuisance	X			
Transmission System Engineering	X			
Visual Resources		X		
Waste Management		X		
Worker Safety and Fire Protection		X		

*There is no possibility that the modifications may have a significant effect on the environment and the modification will not result in a change or deletion of a condition adopted by the commission in the final decision or make changes that would cause the project not to comply with any applicable laws, ordinances, regulations, or standards (LORS) (Cal. Code Regs., tit. 20, § 1769 (a)(2)).

Staff has determined that the technical or environmental areas of **Efficiency**, **Reliability**, **Transmission Line Safety and Nuisance,** and **Transmission System Engineering** are not affected by the proposed changes.

For the technical areas of **Biological Resources**, **Cultural Resources, Facility Design**, **Hazardous Materials Management**, **Land Use, Noise and Vibration**, **Socioeconomics**, **Traffic and Transportation**, **Visual Resources, Waste Management**, and **Worker Safety and Fire Protection**, staff has determined that the modified project would continue to comply with applicable LORS and no changes to any conditions of certification are necessary to ensure impacts remain less than significant. Staff notes the following for these technical areas:

BIOLOGICAL RESOURCES

The location of the proposed waterline and water treatment facilities, as well as the laydown areas, is adjacent to trees planted pursuant to Condition of Certification **BIO-4** that provide suitable habitat for nesting avian species. Project activities associated with the construction and installation of the waterline and associated water treatment facilities would potentially disturb and impact birds nesting at the project site.

In the PTA, the project owner stated,

> "To reduce the potential to disturb nesting birds during construction activities, if construction occurs 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 from SPAC 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 (SPA Recycled Water PTA §3.2- Biological Resources)."

Implementation of these avoidance and minimization measures proposed by the project owner, coupled with implementation of the original Conditions of Certification (**BIO-1**: Designated Biologist; **BIO-2**: Worker Environmental Awareness Program; and **BIO-5**: Biological Resources Mitigation Implementation and Monitoring Plan) at the project site, would ensure that no significantly adverse effects to biological resources would occur as a result of this project modification.

CULTURAL RESOURCES

The proposed modifications are not likely to create significant cultural resources impacts on the project site or the laydown area. Staff arrives at this conclusion based upon a review of past and current project information, and cultural resource data obtained from the California Historical Resources Information System. In the event that cultural resources might be encountered during construction of the pipeline and associated facilities, implementation of Cultural Resources Conditions of Certification **CUL-1**

Cultural Resources Specialist Qualifications, **CUL-2** Discovery Guidance and Management Instructions, and **CUL-3** Monitoring and Mitigation Protocol, will mitigate any potentially adverse impacts during construction. While the project owner has specified the names of the Cultural Resources Specialist (CRS) and Cultural Resources Monitor it intends to employ for monitoring on this project (SPA 2015, p.3-8), Cultural Resources Condition of Certification **CUL-1** requires submittal of resume information indicating that the designated CRS meets the education and field experience as detailed in the condition.

While state and local LORS have been updated since the Decision in 1994, the project modification, as proposed, remains in compliance with LORS as they pertain to Cultural Resources and no changes to Conditions of Certification are required for this project amendment.

FACILITY DESIGN

This installation must comply with the California Building Code and related engineering LORS. Implementation of the existing **Facility Design** conditions of certification adopted in the Decision would ensure this.

HAZARDOUS MATERIALS MANAGEMENT

The petitioner's proposed usage of recycled water for the cooling tower and modifications to the water treatment system would change the amounts of some hazardous materials used and stored on site. After reviewing the proposed PTA, staff found that the amount of sodium hypochlorite and sulfuric acid on site would increase. The increased quantities would be updated in the existing Hazardous Materials Business Plan and sent to the Compliance Project Manager (CPM) per the Condition of Certification **HAZ-1**. The secondary containment of the sodium hypochlorite would be modified to provide sufficient secondary containment for the total onsite volume of sodium hypochlorite (TN 210275). By continuing to comply with the above standards and regulatory framework, the petitioner's proposed increased use of sodium hypochlorite and sulfuric acid would comply with the applicable hazardous materials management laws, ordinances, regulations and standards.

LAND USE

The proposed water treatment facilities would be consistent with the development standards of the County of Sacramento Industrial Zone as required by Condition of Certification **LAND-1**. The recycled water pipeline interconnection with the Sacramento Regional County Sanitation District's recycled water main would include above-ground facilities (e.g., piping, meter, and valves) within the 50-foot-wide setback area along 47th Avenue. Although not consistent with the Industrial Zone standards, the County of Sacramento has requested that these above-ground facilities be located adjacent to existing, above-ground potable water piping and valves at 47th Avenue and the Sacramento Power Authority Campbell driveway. The existing piping is surrounded by hedges to screen them from 47th Avenue. The new above-ground piping, meter, and

valves in the setback area should also be screened with vegetation as specified by Condition of Certification **VIS-3**.

NOISE

The noise-sensitive receptors previously identified and analyzed in the Decision remain the most noise-sensitive receptor and there are no new noise-sensitive receptors in the project area since the issuance of the Decision. Construction work associated with this installation would occur during the daytime hours and it would be temporary. Any noise generated during this activity would result in a less-than-significant impact with implementation of the existing **Noise** conditions of certification in the Decision, specifically **NOISE-1**, public notification process, and **NOISE-2**, noise complaint process. Project operational noise levels at the project's noise-sensitive receptors would not be affected by this amendment.

SOCIOECONOMICS

The construction of a recycled waterline and appurtenant facilities would take approximately three months to complete and require approximately 10 to 12 workers. From a socioeconomics standpoint, the proposed amendment would have insignificant workforce-related impacts on housing and community services. Condition of Certification **SOCIO-1** would apply, which requires recruitment of employees and procurement of materials and supplies from the local area. The amendment would include construction of a small metering building near the cooling tower. Staff confirmed with the Sacramento County Building Permits and Inspection in the Department of Community Development that the metering building is not considered a habitable space and therefore, would not be subject to school impact fees.

TRAFFIC AND TRANSPORTATION

The proposed construction activities would yield no significant traffic impacts. The project owner must comply with Caltrans, city of Sacramento, and Sacramento County limitations on vehicle sizes/weights and obtain necessary transportation permits, as required by Condition of Certification **TRANS-1** in the Decision. The construction activities would occur for a 3 month period with a peak workforce of 12 workers. The average truck deliveries during peak construction would be 3 per day. This is far fewer than the 199 workers required for initial construction over a period of 2 years. The new waterline would be entirely within the SPA Campbell property. Parking and laydown area would be leased from Hackman Capital Partners and would be located east of the plant, adjacent to SPAC. The construction activities should not require any encroachments into the public right-of-way. The amendment does not include the transportation of any hazardous materials.

VISUAL RESOURCES

The proposed recycled water pipeline (which may be overhead, underground, or a combination of both) and water treatment facilities would present a minor, compatible visual change to the power plant, and, therefore, would not substantially degrade the existing visual quality and character of the site and its surroundings. Condition of Certification **VIS-1** requires painting project structures visible to the public to minimize contrast and harmonize with the surrounding environment; however, the recycled water pipeline and associated storage and processing facilities would be required to comply with state requirements governing the labeling and color scheme of recycled water facilities. The proposed modifications would be required under Condition of Certification **VIS-3** to provide and maintain landscaping on the north side of 47th Avenue.

WASTE MANAGEMENT

The installation of a recycled water supply pipeline to the cooling tower and irrigation water supply, and construction of the water treatment facilities would not significantly impact waste management. The hazardous and non-hazardous materials generated during construction would include paint, waste oil, empty containers, and possibly trace amounts of miscellaneous building materials. Existing Condition of Certification **WASTE-1** would apply to the proposed petition and ensure the modified project complies with applicable Waste Management LORS. **WASTE-1** requires that the project owner provide a construction waste management plan to the CPM demonstrating waste would be appropriately disposed.

WORKER SAFETY AND FIRE PROTECTION

By continuing to comply with the existing conditions of certification, the petitioner's proposed usage of recycled water for the cooling tower and modifications to the water treatment system would not have a significant adverse impact on the public, and would continue to comply with all applicable LORS. Activities to be performed during both, the installation and future operations, would comply with worker safety and fire safety requirements already contained in health and safety plans utilized for construction of the main facility per Condition of Certification **SAFETY-1**.

ENVIRONMENTAL JUSTICE

MINORITY

The **Environmental Justice (EJ) Population Figure** shows 2010 census blocks in the six-mile radius of the SPAC with a minority population greater than or equal to 50 percent. The population in these census blocks represents an EJ population based on race and ethnicity as defined in the Council on Environmental Quality's *Environmental Justice: Guidance Under the National Environmental Policy Act*.

POVERTY

Based on the American Community Survey (ACS) data in the **Environmental Justice Population Table**, staff concluded that when compared with the below-poverty-level population in Sacramento and Yolo counties, the cities of Sacramento and West Sacramento have a higher percent of people living below the poverty level, and thus are considered an EJ population based on poverty as defined in *Environmental Justice: Guidance Under the National Environmental Policy Act*.

Environmental Justice Population Table 1 -
Poverty Data within the Project Area

	Total Population	Population Below Poverty Level	Percent Below Poverty Level (%)
	Estimate*	Estimate	Estimate
Cities in a Six-Mile Radius			
Sacramento	468,960 +/-562	104,731 +/-3,318	**22.3** +/-0.7
West Sacramento	49,624 +/-200	10,308 +/-1,150	**20.8** +/-2.3
Reference Geographies			
Sacramento County	1,427,006 +/-1,484	258,031 +/-6,196	**18.1** +/-0.4
Yolo County	196,258 +/-741	39,333 +/-1,673	**20.0** +/-0.9

Notes: *Population for whom poverty is determined. Staff's analysis of the 2010 – 2014 estimates returned coefficient of variation values less than 15, indicating the data is reliable.

CONCLUSIONS

In the technical areas **Air Quality**, **Public Health**, and **Soil and Water Resources**, staff proposes changes to conditions of certification in the Decision. Staff has determined that by adopting the proposed changes to the existing conditions of certification, the potential impacts of the proposed project changes would be reduced to less than significant levels. With the implementation of these conditions, impacts would be reduced to less than significant for any population in the project's six-mile radius, including the EJ population represented in **Environmental Justice Population Table 1** and the **Figure**.

In the technical or environmental areas of **Hazardous Materials Management**, **Land Use**, **Noise and Vibration**, **Socioeconomics**, **Traffic and Transportation**, **Transmission Line Safety and Nuisance, Visual Resources**, and **Waste Management,** staff have identified impacts that are either less than significant, or with the project's continued compliance with existing conditions of certification would be reduced to less than significant. Therefore, impacts would be less than significant for

any population in the project's six-mile radius, including the EJ population represented in **Environmental Justice Population Table 1** and the **Figure.**

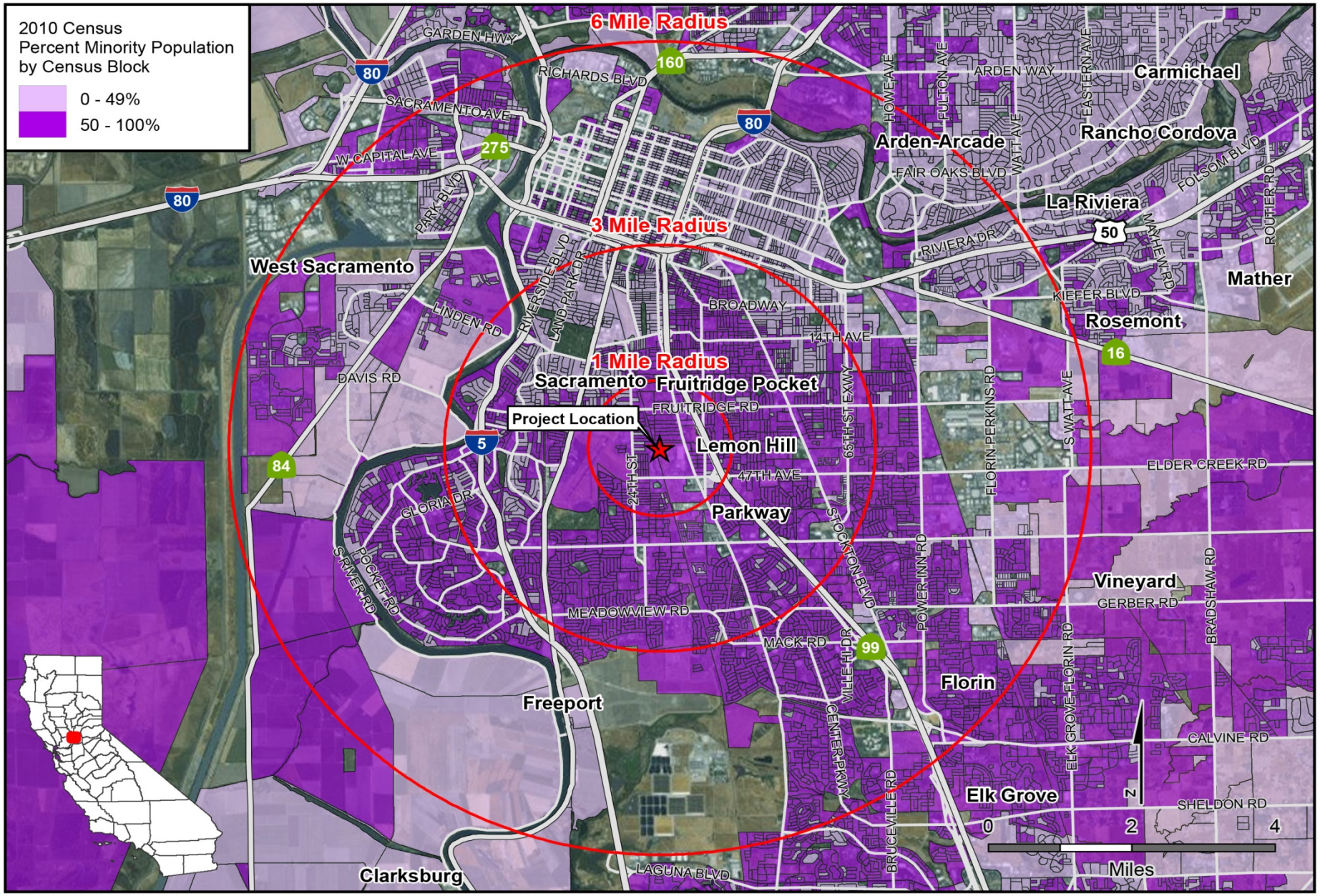
STAFF RECOMMENDATIONS AND CONCLUSIONS

Staff concludes that the following required findings, mandated by Title 20, California Code of Regulations, section 1769 (a)(3), can be made, and staff recommends approval of the petition by the Energy Commission:

- The proposed modifications would not change the findings in the Energy Commission's Decision pursuant to Title 20, California Code of Regulations, section 1755;
- There would be no new or additional unmitigated, significant environmental impacts associated with the proposed modification;
- The facility would remain in compliance with all applicable LORS;
- The modifications proposed in the petition would enable the project to use recycled water (when available) instead of potable water which would reduce the consumption of potable water in the Sacramento Area;
- The proposed modifications would be beneficial to the project owner and public because it would allow SPA to operate SPAC and use recycled water for plant cooling, when available, rather than potable water; and
- The proposed modification is justified because this change would be consistent with Executive Order B-29-5 and with Sacramento Municipal Utility District's (SMUD) policies of reducing potable water use.

ENVIRONMENTAL JUSTICE POPULATION FIGURE

SPA Campbell Cogeneration - Census 2010 Minority Population by Census Block



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

SOURCE: Census 2010 PL 94-171 Data

SACRAMENTO POWER AUTHORITY'S
CAMPBELL COGENERATION PROJECT (93-AFC-3C)

Petition to Amend the Commission Decision
AIR QUALITY
Jacquelyn Record

INTRODUCTION

On November 20, 2015, the Sacramento Power Authority (SPA) submitted a petition to the California Energy Commission (Energy Commission) to amend to allow the option to use of reclaimed/recycled water as makeup water for the cooling towers at the SPA's Campbell Cogeneration Project (SPAC) (93-AFC-3C). The currently applicable Air Quality (AQ) conditions of certification (COCs) evolved from the original November 30, 1994 Energy Commission Decision (Decision) (CEC Pub. No. P800-94-011, CEC 1994), as amended by Order No. 97-1217-05 (CEC 1997), Order No. 98-04-15-03 (CEC 1998 Order No. 99-1215-08 (CEC 1999), and Order No. 09-826-4 (CEC 2009).

The currently requested amendment would require new AQ COCs and amended AQ COCs. SPA proposes to amend the conditions to:

- Construct a reclaimed/recycled water line to the cooling tower,
- Use reclaimed/recycled water as part of the makeup feed water in order to reduce the consumption of potable water in the cooling tower, and
- Incorporate new COCs required by the Sacramento Metropolitan Air Quality Management District (SMAQMD or District) related to this modification and to incorporate other modifications to align Energy Commission COCs with permit conditions in their Title V permit with the federal government.

There are some minor proposed administrative changes to some of the current Air Quality COCs as shown below in the section titled "Proposed Changes or Modifications to Conditions of Certification." The proposed changes would also add new COCs for the Cooling Tower (**AQ-CT1** through **AQ-CT8**), shown in the same section and also modifications to other conditions due to increased emissions of volatile organic compounds (also called reactive organic compounds).

This staff analysis evaluates the consistency of all currently-proposed changes with the Decision and subsequent amendments and evaluates whether the project, as modified, would remain in compliance with applicable laws, ordinances, regulations, and standards (Title 20, California Code of Regulations, section 1769).

BACKGROUND AND AMENDMENT DESCRIPTION

The modifications proposed include the following:

- Provide an option to replace the use of potable water with reclaimed/recycled water in the cooling tower when available in suitable quantities and quality;
- Construct additional water treatment facilities;
- Increase discharge amounts to the City's sanitary sewer system, resulting from the use of reclaimed/recycled water;
- Add a small metering building near the cooling tower; and
- Revise Air Quality conditions of certification to incorporate any new permit conditions imposed by the SMAQMD as part of its review of proposed project modifications.

Sacramento Regional County Sanitation District (SRCSD) is proposing to construct a reclaimed/recycled waterline from its Water Reclamation Facility located at the Sacramento Regional Wastewater Treatment Plant to SPAC and other potential customers along the route. The SRCSD project includes a reclaimed/recycled water main, laterals, lateral structures, and equipment lay-down areas (SRCSD 2014a and b). The environmental impacts from construction of this reclaimed/recycled water main, as mitigated, were addressed in SRCSD Environmental Impact Report (EIR); see SRCSD 2014a, SRCSD 2014b and SRCSD 2014c.

The proposed changes would allow SPAC to use reclaimed/recycled water from the County of Sacramento's Regional Waste Water Treatment Plant, when available, for the cooling tower rather than using the current potable water source. This change would be consistent with the Governor's Executive Order B-29-5 that proclaims a state of emergency throughout California due to severe drought conditions (SPA 2015). The SRCSD main reclaimed/recycled water supply pipeline would terminate either: (1) adjacent to the existing City of Sacramento potable water mains that enter SPAC; or (2) on the east side of the SPAC driveway (SPAC 2015).

1. If the connection point is near the existing water mains, the reclaimed/recycled water piping would cross the SPAC driveway underground to the east side of the access road. From the east side of the access road, the reclaimed/recycled water piping would be installed north to the cooling tower.

2. If the connection point is on the east side of the SPAC access road, the reclaimed/recycled water piping would be installed north to the cooling tower.

The reclaimed/recycled water piping on the east side of the access road could either be installed above or below ground (SPAC, 2015). According to preliminary designs, this connection will occur adjacent (to the west of) the existing potable water lines coming into the plant. The SMAQMD issued an Engineering Evaluation of the proposed changes on May 25, 2016 (SMAQMD 2016a) and issued an "Authority to Construct"

(ATC, SMAQMD 2016b) modifying the existing SMAQMD permit conditions to allow the use of reclaimed/recycled water in the project's makeup water for the cooling towers. The proposed modifications triggered the need for new Air Quality Conditions of Certification and a need to modify some current Air Quality Conditions of Certification. This analysis shows how the conditions of certification would need to be changed to reflect SMAQMD's current ATC conditions and SPA's proposed modifications.

ANALYSIS

The proposed project includes the use of treated municipal effluent water (reclaimed/recycled water) in the SPA cooling tower and is estimated to have a potential to operate on a full time basis 24-hours per day, 365 days per year. The SRCSD has proposed construction of a 6-mile-long pipeline that would provide reclaimed/recycled water to SPA (SPA 2015).

This analysis includes evaluation of the associated emissions related to the modification. The criteria pollutants analyzed are nitrogen oxides (NO_x), sulfur dioxide (SO_2), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM10), and fine particulate matter (PM2.5). All of the SMAQMD relevant original conditions have been reviewed by Energy Commission staff (staff), and the modifications to the project's Conditions of Certification are shown in this analysis. The new conditions have been included as a series beginning with **AQ-CT,** meaning Air Quality – Cooling Tower. This analysis finds that changes requested by SPA would comply with applicable federal, state, and SMAQMD air quality laws, ordinances, regulations, and standards, and the amended project would not cause significant air quality impacts, provided that the recommended Conditions of Certification are included as provided below.

CONSTRUCTION RELATED EMISSIONS ANALYSIS

It is expected that on-site construction required to connect the SRCSD pipe to the SPA cooling tower would take up to 3 months with approximately 8 weeks of off-road construction equipment use. With around 10 to 12 construction workers commuting to the SPAC site on a daily basis during the construction period, and material deliveries would average around 3 trips per day (SPA 2015 and SPA 2015a). On May 19, 2015, the project owner submitted an addendum to their petition to amend with expected quantified construction related emissions and can be seen in **Air Quality Table 1**.

AIR QUALITY Table 1
Maximum Daily Construction Emissions

	NOx	CO	VOC	SO_2	PM10	PM2.5	CO_2e[1]
Onsite Construction Equipment (Fugitive and Exhaust)	24.2	13.0	2.4	0.025	1.2	1.2	2,583.1
Off-site Construction (Hauling, Vendors and Workers)	0.3	1.0	0.1	0.002	0.1	0.0	158.7
Total	24.5	14.0	2.4	0.027	1.3	1.2	2,741.8

Source: Petition for Modification Addendum (SPA 2016a)
1 Carbon Dioxide equivalent (CO_2e)

In Energy Commission Order No. 09-826-4 (CEC 2009), this amendment removed many construction related conditions of certification that would have been adequate to mitigate any potentially significant emissions related to construction related activities over the short term, 3 months' time frame. Because there would be some potential for construction related emissions, staff recommends incorporating a new construction related staff condition **AQ-SC6** in order to minimize construction related emissions to the maximum extent feasible. Staff conditions **AQ-SC1** through **AQ-SC5** already exist; however, there are no conditions that currently exist to mitigate the temporary construction related emissions associated to the 3-month construction phase of this project modification.

RECLAIMED/RECYCLED WATER USE IN THE COOLING TOWERS

The existing cooling tower is rated at 45,000 gallons per minute (gpm) circulation rate and has a Total Dissolved Solids (TDS) permit limit of 3,000 parts per million wet basis (ppmw). It includes a drift eliminator system that limits water drift losses to 0.0006 percent of the circulating flow. The proposed use of reclaimed/recycled water in the cooling tower would result in TDS levels at or below current permitted levels (SPA 2015). The applicant has not requested any physical changes to the cooling tower, or to change the operational profile of SPAC. It is expected there would be no increase in particulate matter emissions from drift emitted from the cooling tower.

The use of reclaimed/recycled water would not increase the TDS levels from the currently permitted value; however, there is a potential to emit small quantities of VOCs, which are also called reactive organic compounds or ROCs. In addition, there would also be a small potential increase in ammonia emissions (SPA 2015, SMAQMD 2016a). Ammonia is considered a Toxic Air Contaminant (TAC) instead of a criteria pollutant, criteria pollutants are further discussed in this Air Quality section. Please see the **Public Health** section of this amendment analysis for evaluation of the effect of ammonia emissions as a TAC in the Health Risk Assessment (HRA).

VOCs/ROCs have been identified in the tertiary treated reclaimed/recycled water at the SRCSD facility in parts-per-billion levels. It is assumed that this small amount of

VOCs/ROCs would result in VOC/ROC emissions from the SPAC cooling tower (SPA 2015). Based on recent water testing, if all the VOCs/ROCs measured at the source of the reclaimed/recycled water are emitted from the applicant's facility, the VOC/ROC emissions would be 0.249 lb/day (SMAQMD 2016a). According to SMAQMD, the applicant has requested a permit limit of 0.49 lb/day of VOC to allow for variations in concentration. The applicant will be adding additional chlorine to the water as a further step to reduce VOCs/ROCs in the make-up water. In addition, the chlorine should limit the volatilization of the VOCs/ROCs and the total facility-wide actual emissions would be expected to be less than the potential to emit permitted limit.

Air Quality Table 2 summarizes the proposed emissions from use of reclaimed/recycled water. The applicant has not requested a change to the permitted TDS level of 3,000 parts per million wet basis (ppmw), or to the drift rate of 0.0006%, which would remain in compliance with Air Quality Conditions of Certification **AQ-SC2** and **AQ-SC3**.

AIR QUALITY Table 2
Maximum Future Potential Emissions

Pollutant	Emission Factors	Potential to Emit			
		lb/day	lb/quarter		lb/year
Ammonia	1.01 lb/hr	24.3	2,189	Q1	8,877
			2,213	Q2	
			2,237	Q3	
			2,237	Q4	
VOC/ROC[c]	0.49 lbs/day	0.49	44	Q1	179
			45	Q2	
			45	Q3	
			45	Q4	
PM10/PM2.5[a, b]	0.41 lbs/hr	9.7	875	Q1	3,551
			885	Q2	
			895	Q3	
			895	Q4	

Source: SMAQMD 2016b

(a) VOC/ROC emission are based on the applicants request of 0.49 lb/day and 90, 91, 92, and 92 days per Quarter (Q)1, Q2, Q3, Q4, respectively.

(b) At the time of the original permitting, PM2.5 was not evaluated.

(c) All PM emissions are assumed to be PM10 and PM2.5, the values in the chart are not considered cumulative, and are equivalent.

PM10/PM2.5 emissions are calculated using the following:

Cooling Tower Drift Rate = 0.0006%

Water Circulation Rate = 45,000 gal/min

TDS =3,000 ppmw

Density of Water = 8.34 lb/gal

PM (lb/hr) = (45,000 gal/min) (60 min/hr) (8.34 lb/gal) (3,000/1,000,000)

(0.0006/100) = 0.405324 lb/hr rounded to 0.41 lb/hr

PM (lb/day) = (PM lb/hr)(24 hr/day)

PM (lb/qtr) = (PM lb/day)(days/qtr)

Where: Qtr1 = 90 days

Qtr2 = 91 days

Qtr3 = 92 days

Qtr4 = 92 days

Ammonia was calculated using the following assumptions:

Inlet Flow = 900 gal/min

ppmw of Ammonia = 45 ppmw

Ammonia available for stripping = 5%

Density of Water = 8.34 lb/gal

Ammonia (lb/hr) = (900 gal/min) (60min/hr) (8.34 lb/gal)

(45/1,000,000)(.05) = 1.0133 lb/hr rounded to 1.01 lb/hr

Ammonia emissions are projected to increase as a result of the use of the reclaimed/recycled water. The potential to emit for ammonia is shown in **Air Quality Table 2**.The ammonia emissions were conservatively estimated using a concentration of 40 ppmw to give an hourly emission rate of 1.01 pounds per hour (lb/hr) assuming all ammonia would be volatile for the purposes of the HRA, please see the Public Health section of this document.

Air Quality staff have new and revised conditions of certification to reduce project impacts to less than significant. Therefore, with the implementation of these conditions, impacts would be reduced to less than significant for any population in the project's six-mile radius, including the Environmental Justice population represented in **Environmental Justice Population Figure** and **Table** in the **Executive Summary**.

COMPLIANCE WITH LAWS, ORDINANCES, RULES AND REGULATIONS (LORS)

Rule 201 – General Permit Compliance

The purpose of this rule is to provide an orderly procedure for the review of new sources of air pollution and for the modification and operation of existing sources through the issuance of permits. Along with several current conditions of certification (for example **AQ-7** and **AQ-8**), there would be new AQ COCs needed to insure compliance with this rule. The needed modifications are in **AQ-SC1** and **AQ-SC2** and new COCs are **AQ-CT2** through **AQ-CT6**.

Rule 202 – New Source Review Compliance

The purpose of this rule is to provide for the issuance of authorities to construct and permits to operate for new and modified stationary air pollution sources and to provide mechanisms, including emission offsets, to ensure not interfering with the attainment or maintenance of ambient air quality standards. New COCs **AQ-CT7** and **AQ-CT8** are required to comply with this rule.

Rule 202, Section 408: Authority to Construct and Permit to Operate

As a condition for the issuance of a permit to operate, a stationary emitting source may need to provide offsets in order to determine compliance with this section of SMAQMD Rule 202. Current COCs **AQ-7** and **AQ-8**, once modified, would ensure compliance with the authority to construct and permit to operate provision of this rule.

Rule 202, Section 301: BACT (Best Available Control Technology)

The use of reclaimed/recycled water in the cooling tower does not trigger BACT requirements according to SMAQMD Rule 202 because incremental emissions do not exceed the levels specified for this rule. For purposes of this rule calculation, the difference is done using tenths, and then the difference is rounded to an integer using standard rounding convention (round up if greater than or equal to 0.5) (SMAQMD 2016a).

Rule 202, Section 302: Offsets

Air Quality COC **AQ-7** limits the combined emissions from the gas turbine, duct burners, and the cooling tower on a pound per quarter (lb/quarter) and pound per year (lb/year) basis. Emissions are shown in **Air Quality Table 3**. Previously, the maximum allowable emissions are shown in the first line of **Air Quality Table 3**. With an increase in emissions, as part of this amendment request, a “New Total” combined emissions are shown below and would be limited by Condition of Certification **AQ-8**. All other pollutants would remain the same.

AIR QUALITY Table 3
Maximum Allowable Combined Emissions[a]

Pollutant	Combined Emissions from: Gas Turbine, Duct Burner and Cooling Tower				
	Quarter 1 lb/quarter	Quarter 2 lb/quarter	Quarter 3 lb/quarter	Quarter 4 lb/quarter	Total lb/year
VOC/ROC	8,792	8,898	13,264	8,968	39,922
Increase in Cooling Tower Emissions					
VOC/ROC Emissions	+44	+45	+45	+45	+179
New Total: (Revised AQ COC **AQ-8**)	**8,836**	**8,943**	**13,309**	**9,013**	**40,101**

[a] There is no change in any other criteria pollutant emissions as a result of this permitting action

The applicant is proposing VOC/ROC emissions increases and offsets as shown in **Air Quality Table 4**.

Since the facility wide total of VOCs/ROCs already exceed the offset threshold of 5,000 lbs per quarter, the project VOC/ROC emissions will have to be offset prior to the start of operation using reclaimed/recycled water.

Offsets for VOC/ROC would be provided from an emission reduction credit certificate for the reduction of rice straw burning originating in the Feather River Air Quality Management District (FRAQMD). An offset ratio would be applied to the quantity of offsets required pursuant to Rule 202, section 411.4. The offset ratio required for offsets located greater than 15 miles from an emissions source but within 50-mile radius and within the Sacramento Valley Air Basin for VOCs/ROCs is 2.0 to 1.0. The offset ratio required for offsets located within a 15 mile radius and within the Sacramento Valley Air Basin for VOCs/ROCs is 1.2 to 1.0; each is shown in **Air Quality Table 4**.

Offsets for VOC/ROC will be provided from emission reduction credit certificate Nos. 99001-T2, 04-00916 and 04-00920. The current owner of the FRAQMD Certificate No. 99001-T2 is Sacramento Municipal Utility District (SMUD), and according to the SMAQMD, SMUD has made an application to re-certify their credit pursuant to FRAQMD Rule 10.9. SMAQMD performed an ERC adjustment evaluation using FRAQMD adjustment factor in Rule 10.9, on the total value of available rice burn credits owned by SMUD. Certificate #99001-T2 was originally generated from the phase down of rice straw brining in Southern Sutter County. After the adjustment factor was applied to the original certificate No, 99001-T2, the amount available is shown in **Air Quality Table 4**. Two alternate sources of Emission Reduction Credits (ERCs) for Authority to Construct (ATC) Application 24808 were requested by the project owners of SPAC. The project

owners are proposing to use one or more of the following SMAQMD ERC Certificates: No. 04-000916 and No. 04-000920. Each ERC Certificate was created at the Campbell Soup Supply Company located at 6200 Franklin Boulevard, Sacramento, CA 95824, located directly adjacent to the SPA property.

Currently, the project owners have procured adequate quantities of ERCs and could potentially cover the proposed projects' required emission reduction liability, once the certificates have either been verified by the SMAQMD and/or the FRAQMD.

AIR QUALITY Table 4
ERC Credit Certificates Available

Emission Reduction Credit Certificate No.	Pollutant and Ratio	Amount of Credits Available lbs/quarter			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4
FRAQMD #99001-T2	VOC/ROC 2.0 to 1.0	2,999	1,231	321	4,441
6200 Franklin Blvd. Sacramento, CA Certificate No. 04-00916	VOC/ROC 1.2 to 1.0	782	258	1,196	1,551
6200 Franklin Blvd. Sacramento, CA Certificate No. 04-00920	VOC/ROC 1.2 to 1.0	458	354	1,603	59

Rule 202, Section 305: Ambient Air Quality Impact Analysis

An ambient air quality impact analysis is required only for a new major source or major modification, and the proposed SPA cooling tower reclaimed/recycled water project is neither a new major source nor a major modification. Therefore, an ambient air quality impact analysis is not required.

Rule 401 – Ringelmann Chart/Opacity Compliance

This rule requires the proposed modification to limit the discharge of air contaminants into the atmosphere through visible emissions and opacity. A new COC **AQ-CT1** would require the cooling tower comply with the Ringlemann No. 1 or 20% opacity standard. The equipment shall be inspected according to new COCs **AQ-S2** and **AQ-S3** prior to initial startup and the issuance of the permit to operate and on a regular basis thereafter to ensure continuous compliance.

Rule 402 – Nuisance Compliance

This rule protects the public's health and welfare from the emission of air containments which would constitute a nuisance. New COC **AQ-3b** would require the cooling tower may not discharge an air contaminant or other material that would cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the

public, or which would endanger the comfort, repose, health or safety of any such persons or the public.

Rule 403: Fugitive Dust

This rule requires the application of best available control technology to control fugitive dust during construction. While construction activities needed to implement this modification to the project would be temporary, approximately three (3) months, a new COC **AQ-SC6** is recommended by staff in order to ensure compliance with this rule.

PROPOSED CONDITIONS FOR RECLAIMED/RECYCLED WATER USE IN COOLING TOWER

The existing Conditions of Certification include mass emission rate limits for the cooling tower in the combined emission limits for the gas turbine, duct burner and cooling tower based upon daily (**AQ-7**), and quarterly (**AQ-8**) emissions totals. New Conditions of Certification have been proposed for the cooling tower's potential to emit additional amounts of VOCs/ROCs and would be limited by **AQ-CT1** through **AQ-CT8**.

Recommended Revisions to Other Conditions

Staff recommends that some existing Energy Commission conditions be modified in order to align Energy Commission conditions of certification with the current SMAQMD permit. Staff considers these changes to be minor administrative changes. The following revisions would not cause any additional air quality impacts or adversely affect the ability of the project to comply with LORS.

- Revise existing conditions **AQ-7** and **AQ-8** to now account for the additional potential to emit of VOCs/ROCs from use of reclaimed/recycled water in the cooling tower.
- Revise **AQ-1** to now include language for properly maintaining the equipment related to the cooling tower.
- Modified Air Quality **S**taff **C**onditions **AQ-SC1** and **AQ-SC2** to include new language added to the permit.
- Add a new construction staff condition **AQ-SC6** in order to minimize construction related emissions over the limited 3-month construction period.
- Add new Startup Conditions **AQ-S2** through **AQ-S5** to now include language to comply with SMAQMD Rule 201, along with new language to include requirements to modify the facilities' Title V permit.
- Add a new general condition **AQ-3b** to ensure the cooling tower complies with SMAQMD Rule 402, and would not cause a nuisance.

CONCLUSIONS

The requested changes in permit conditions would comply with applicable federal, state, and SMAQMD air quality laws, ordinances, regulations, and standards, and the amended project would not cause significant air quality impacts, provided that the following new and changed Conditions of Certification are included. The conditions in the Authority to Construct issued May 25, 2016 have been reviewed and approved by Energy Commission staff and SMAQMD. Staff recommends that the revised COCs be approved as shown below.

PROPOSED CHANGES OR MODIFICATIONS TO CONDITIONS OF CERTIFICATION

There are a combination of current Air Quality Conditions of Certification that are proposed to be modified, and new Conditions of Certification that would now include the option to use of reclaimed/recycled water use in the Cooling Tower. The complete modification to the air quality conditions are shown here.

Bold underline is used to indicate new language. ~~Strikethrough~~ is used to indicate deleted language.

SPAC AMENDED CONDITIONS OF CERTIFICATION

STAFF COMPLIANCE REQUIREMENTS

AQ-SC1 The cooling towers shall not use any chromium-containing water treatment chemicals~~.~~ **and must keep the hexavalent chromium concentration in the cooling tower circulating water less than 0.15 milligrams hexavalent chromium per liter**.

Verification: The project owner shall maintain appropriate emission data records as required by Conditions **AQ-19** and **AQ-20**.

AQ-SC2 The total dissolved solids content of the circulating cooling water shall not exceed 3,000 ppm**w**, averaged over any consecutive three hour period**. The 3-hour average TDS limit is on a clock-hour basis.**

Verification: The project owner shall maintain appropriate emission data records as required by Conditions **AQ-19** and **AQ-20**.

AQ-SC6 As part of the grading and erosion control plans to be submitted to the CPM under the requirement of Condition SOILS-1, the project owner shall include, but not be limited to the following fugitive dust mitigation measures as part of the grading and erosion control plans:

a) Area of disturbance within the construction site shall be watered so that it is visibly wet, twice or more daily, as necessary. This

Condition shall not apply on rainy days where the ground is visibly wet.

b) **Except for emergency and site surveyor vehicles, vehicular movement on unpaved and undisturbed areas is prohibited.**
c) **Except for trucks using the transmission corridor south of 47th Avenue, all truck tires shall be cleaned of dirt using water spraying, or operation of equivalent effectiveness, subject to the CPM approval, prior to entering public roadways.**
d) **At least 500 yards of public roadways from the construction site or the transmission lines entrances shall be cleaned on a weekly basis, or when there are visible dirt tracks on the public roadways with either mechanical sweeper or water flushing.**
e) **All trucks hauling excavated soils which have a potential to generate fugitive dust shall have the soil loads covered.**
f) **All construction equipment shall be properly maintained to detect and prevent mechanical problems that may cause excess emissions.**
g) **A speed limit sign shall be posted at the entrance of the construction site, to limit vehicle speed to no more than 15 miles per hour on unpaved areas.**

Verification: Not later than sixty (60) days prior to the start of construction, the project owner shall submit approved copies of the plan(s) from each local jurisdiction to the CPM for review and approval. The project owner shall maintain a daily log of water truck activities, including the number of gallons of water used to reduce the dust at the construction sites. This log shall be available for inspection by the CPM during the construction period. The project owner shall submit in its monthly construction reports of the area the project owner shall cover or treat with a dust suppressant. The project owner shall make the construction site available to the District and the CPM for inspection and monitoring.

STARTUP CONDITIONS

AQ-S2 After completing the equipment installation authorized under this Authority to Construct (ATC), the permit holder must contact the SMAQMD to arrange a start-up inspection. SMAQMD may be contacted at (916) 874-4800. The CA Energy Commission Compliance Project Manager (CPM) must be notified of the startup inspection.

Verification: Within 30 days prior to the startup inspection, the project owner shall advise appropriate site personnel of this condition, and provide the Energy Commission CPM with a notification by letter that site personnel have been informed regarding the arranged start-up inspection described above.

AQ-S3 This Authority to Construct (ATC) may serve as a temporary Permit to Operate provided that:

(A) The permit holder has notified SMAQMD that the equipment installation is complete and the facility is ready for a start-up inspection,

(B) The equipment installed matches the equipment authorized in this Authority to Construct,

(C) The equipment is operated in compliance with all conditions in this Authority to Construct, and

(D) The equipment and its operation complies with SMAQMD, state and federal laws and regulations.

Verification: No verification necessary.

AQ-S4 The ATC has been reviewed through an Enhanced New Source Review process in accordance with the procedural requirements of Section 401 through 408 of Rule 207 Title V – Federal Operating Permit Program.

Verification: No verification necessary.

AQ-S5 The Sacramento Power Authority shall submit to the Air Pollution Control Officer (APCO) an application to modify the Title V permit with an Administrative Title V Permit Amendment prior to commencing operation with modifications authorized by this Authority to Construct.

Verification: Within fifteen (15) working days before the execution of the condition, the facility owner shall notify the SMAQMD APCO and the CPM.

GENERAL CONDITIONS

AQ-1 The equipment shall be properly maintained~~.~~ **and operated in accordance with the information submitted with the application and the manufacture's recommendations at all times.**

Verification: ~~The project owner shall make the site available for inspection by representatives of the District, ARB, and the Commission upon request.~~**As part of the Quarterly Emissions Report required by Condition of Certification AQ-20, the facility owner shall assert that they comply with this condition and report any instances of noncompliance.**

AQ-3a This Authority to Construct does not authorize the emission of air contaminants in excess of those allowed by Division 26, Part 4, Chapter 3, of the California Health and Safety Code or the Rules and Regulations of the SMAQMD.

Verification: No verification necessary.

AQ-3b The facility may not discharge air contaminates or other materials that cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons of the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Verification: As part of the Quarterly Emissions Report required by Condition of Certification AQ-20, the facility owner shall assert that they comply with this condition and report any instances of noncompliance.

EMISSION LIMITATION REQUIREMENTS

AQ-7 Emissions at the SPAC cogeneration project, from the combustion turbine, duct burner and cooling tower, on a pounds per calendar day basis, except as specified in Condition **AQ-CM11**, daily mass emissions from the following equipment at the facility shall not exceed the following limits.

Pollutant	Maximum Allowable Emissions (A) lb/day		
	Gas Turbine and Duct Burner	Cooling Tower	Total
VOC/ROC	146.7	~~NA~~ **0.5**	~~146.7~~ **147.2**
NOx	384.5	NA	384.5
SO2	21.8	NA	21.8
PM10	142.1	9.7	151.8
PM2.5 (B)	**NA**	**9.7**	**NA**
CO	326.9	NA	326.9

(A) Including start-ups, shutdowns and short term excursions as defined in Conditions **AQ-13**, **AQ-14** and **AQ-15**.

(B) PM2.5 was not evaluated when the turbine was first permitted, PM10 limit is equivalent to PM2.5

Verification: The project owner shall maintain appropriate emission data records as required by Conditions **AQ-19** and **AQ-20**. A summary of significant operation and maintenance events and monitoring records shall be included in the quarterly operation report (**AQ-20**).

AQ-8 Combined mass emissions from the following equipment at the facility shall not exceed the following limits.

Pollutant	Maximum Allowable Emissions (A) Combined Emissions from: Gas Turbine and Duct Burner and Cooling Tower				
	Quarter 1 lb/quarter	Quarter 2 lb/quarter	Quarter 3 lb/quarter	Quarter 4 lb/quarter	Total lb/year
VOC/ROC	~~8,792~~ **8,836**	~~8,898~~ **8,943**	~~13,264~~ **13,309**	~~8,968~~ **9,013**	~~39,922~~ **40,101**
NOx	24,209	24,545	26,321	24,725	99,800
SOx	1,814	1,836	1,944	1,853	7,447
PM10	11,015	10,160	12,294	11,619	45,088
CO	21,265	21,601	22,803	21,708	87,377

(A) Including start-ups, shutdowns and short term excursions as defined in Conditions **AQ-13**, **AQ-14** and **AQ-15**.

Verification: The project owner shall maintain appropriate emission data records as required by Conditions AQ-19 and AQ-20. A summary of significant operation and maintenance events and monitoring records shall be included in the quarterly operation report (AQ-20).

AQ-CT1 The equipment must not discharge into the atmosphere any visible air contaminant other than uncombined water vapor for a period or periods aggregating more than three minutes in any one hour if the discharge is as dark or darker than Ringelmann No. 1 or is equal to or greater than 20% opacity.

Verification: As part of the Quarterly Air Quality Report (as required by AQ-20), the facility owner shall submit to the and Energy Commission CPM a copy of a statement of compliance with the above provisions and regulations.

AQ-CT2 The mass emissions from the cooling tower must not exceed the following:

Pollutant	Maximum Allowable Emissions Cooling Tower	
	lb/hour	lb/day
VOC/ROC[a]	N/A	0.5
NOx	N/A	NA
SO2	N/A	NA
PM10[b]	0.41	9.7
PM2.5[b]	0.41	9.7
CO	N/A	NA

[a] VOC emissions are estimated by tests conducted at the source of the reclaimed/recycled water. Further testing at the final use point, may show a lower VOC value that will be adjusted during the final permitting process, see AQ-CT8.

[b] Based on a water circulation rate of 45,000 gal/min, cooling tower drift rate of .0006%, and a TDS level of 3,000 ppmw, based on a 3-hour average.

Pollutant	Maximum Allowable Emissions Cooling Tower (lb/quarter)			
	Q1	Q2	Q3	Q4
VOC/ROC[a]	44	45	45	45
NOx	N/A	N/A	N/A	N/A
SO2	N/A	N/A	N/A	N/A
PM10[b]	875	885	895	895
PM2.5[b]	875	885	895	895
CO	N/A	N/A	N/A	N/A

[a] VOC emissions are estimated by tests conducted at the source of the reclaimed/recycled water. Further testing at the final use point, may show a lower VOC value that will be adjusted during the final permitting process, see AQ-CT8.

[b] Based on a water circulation rate of 45,000 gal/min, cooling tower drift rate of .0006%, and a TDS level of 3,000 ppmw.

Verification: The project owner shall maintain appropriate emission data records as required by Conditions AQ-19 and AQ-20. A summary of significant operation

and maintenance events and monitoring records shall be included in the quarterly operation report (AQ-20).

MONITORING SYSTEM CONDITIONS

AQ-CT3 The Sacramento Power Authority shall operate a continuous monitoring system that has been approved by the Air Pollution Control Officer that either measures or calculates and records the following.

Parameter to be Monitored	Units
Total dissolved solids content of the circulating water in the cooling towers	PPMV

Verification: The facility owner shall make the site available for inspection by representatives of the SMAQMD, the ARB, and the CPM to verify the continuous monitoring and recordkeeping system is properly installed and operational.

EMISSIONS TESTING CONDITIONS

AQ-CT4 Testing for VOC/ROC and Hexavalent Chrome (measured as compounds of chrome) of the reclaimed/recycled water inlet to the cooling tower must be performed within 60 days of startup (or if revising the VOC emission limits testing must occur before startup with reclaimed/recycled water) and once every second calendar year thereafter to verify compliance with Condition AQ-CT2 and AQ-SC1.

A. Submit a source test plan to the Air Pollution Control Officer for approval at least 30 days before the test is to be performed.

B. Notify the Air Pollution Control Officer at least 7 days prior to the source test date of the exact date and time of test if the date has changed from that approved in the source test plan.

C. Submit the source test report to the Air Pollution Control Officer within 60 days from the completion of the test(s).

Verification: At least thirty (30) days before conducting a source test, the facility owner shall submit to the SMAQMD and the CPM for their review and approval, a source test plan. The facility owner shall notify the SMAQMD and the CPM within seven (7) working days before the project begins initial operation and/or plans to conduct a source test. All source test results shall be submitted to the CPM and the SMAQMD within sixty (60) days of the date of the tests.

RECORD KEEPING & REPORTING CONDITIONS

AQ-CT5 The following records must be continuously maintained onsite for the most recent five year period and must be made available to the Air Pollution Control Officer upon request. Monthly, quarterly, and annual records must be made available within 30 days of the end of the reporting period.

Frequency	Information to be Recorded
Hourly	A. Total dissolved solids content of the circulating water in the cooling towers In ppmw. B. Cooling Tower hourly PM10 mass emission rate. The hourly emissions shall be calculated based on the cooling water circulation rate multiplied by the cooling tower drift rate, density of water, and the measured TDS level.
Daily	C. Cooling Tower PM10 daily emissions. D. Total daily PM10 emissions from all equipment at the Sacramento Power Authority Facility.
Quarterly	E. Total facility PM10 quarterly mass emissions.

Verification: The facility owner shall make the site available for inspection by representatives of the SMAQMD, the ARB, and the CPM to verify the continuous monitoring and recordkeeping system is properly installed and operational.

AQ-CT6 The project owner shall, upon determination of applicability and written notification by the SMAQMD, comply with all applicable requirements of the Air Toxics "Hot Spots" Information and Assessment Act (California Health and Safety Code Section 44300 et seq.)

Verification: The facility owner shall notify the SMAQMD and the CPM within fifteen (15) working days before the execution of this condition.

EMISSION OFFSETS CONDITIONS

AQ-CT7 Prior to commencing operation, the permittee must surrender sufficient ERCs to the SMAQMD Air Pollution Control Officer to offset the following amount of emissions:

Pollutant	Qtr1 lb/qtr	Qtr2 lb/qtr	Qtr3 lb/qtr	Qtr4 lb/qtr
VOC	44 lbs	45 lbs	45 lbs	45 lbs

The applicant has identified three possible credits that individually are sufficient to offset the project VOC emissions. One of the credit certificates originated from the reduction in rice straw burning from the Feather River Air Quality Management District (FRAQMD). The locations of the reduction in rice straw burning are located greater than 15 miles from SCA but less than 50 miles. Two other credits that could potentially be submitted were generated from a shutdown of the compound application process at Campbell Soup Company which is located adjacent to the SPA facility. Therefore, the table below depicts the total quantity of offsets that would be needed to be surrendered for the project.

Emission Reduction Credit Certificate No. (A)	Pollutant	Amount of ERC's Surrendered lb/quarter				Offset Ratio	Value Applied To The Project Emission Liability lb/quarter			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4		Qtr 1	Qtr 2	Qtr 3	Qtr 4
FRAQMD #99001-T2, or	VOC	88	90	90	90	2.0	44	45	45	45
SMAQMD #04-00916, or	VOC	52.8	54	54	54	1.2				
SMAQMD #04-00920	VOC	52.8	54	54	54					

A The applicant has requested that 3 certificates be listed as options to be used for this project.

Verification: **At least thirty (30) days prior to the start of construction, the facility owner must provide to the CPM a copy of one of the three certificates listed as follows: SMAQMD #04-00916, or SMAQMD #04-00920 or the signed recertification from Feather River Air Quality Management District and Sacramento Metropolitan Air Quality Management District demonstration the banking certificate (Certificate FRAQMD #99001-T2) which must have been validated.**

AQ-CT8 **The applicant must provide the District, prior to commencing operation under this permit, emission reduction credit certificates in sufficient quantity to offset the emissions increase specified in Condition AQ-CT7. If further source testing of the cooling tower reclaimed/recycled water shows a lower VOC concentration in the reclaimed/recycled water, then the amount of VOC credits submitted may be adjusted downward provided the VOC emission limitations in Conditions AQ-CT2, AQ-7, and AQ-8 are correspondingly adjusted to reflect the revised lower reclaimed/recycled water VOC concentration. Any adjustment of the VOC emission limits and corresponding reduction of VOC credits must occur prior to startup of the cooling tower with reclaimed/recycled water. Source testing must include sampling of the reclaimed/recycled water prior to entering the cooling tower basin.**

Verification: Prior to commencing operating of the above activities, the facility owner must provide written notice to the District and the CPM. Any adjustment of the VOC emission limits and corresponding reduction of VOC credits, shall also be in a written notification to the CPM regarding any changes to ERCs.

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SACRAMENTO POWER AUTHORITY'S
CAMPBELL COGENERATION PROJECT (93-AFC-3C)

Petition to Amend the Commission Decision
GEOLOGY AND PALEONTOLOGY
Christopher Dennis, P.G., C.Hg.

INTRODUCTION

Staff has reviewed the Sacramento Power Authority Campbell (SPAC) Cogeneration Project Petition to Amend (PTA) dated November 24, 2015, TN 206750, and addendum dated May 19, 2016, TN 211559. The purpose of the PTA is to:

- Provide the power plant with the option to replace cooling tower potable water use with recycled water when available in suitable quantities and quality;
- To construct additional water treatment facilities at the power plant; and
- Increase sanitary sewer discharge limits due to the use of recycled water.

The objective of this analysis is to ensure that standards are met to safeguard the public health, safety, and general welfare from geologic hazards and that there would be no impacts to geologic or paleontologic resources.

BACKGROUND AND AMENDMENT DESCRIPTION

SPAC is located on 5.8 acres of relatively flat land, adjacent to the former Campbell Soup facility and former cogeneration steam host (SPAC 2015). Extensive excavation, grading, and deposition of fill occurred during SPAC construction in the mid-1990s.

The PTA proposes the following changes to SPAC:

- Constructing a recycled water supply pipeline to the cooling tower and irrigation water supply from a connection to a recycled water main that will be constructed by Sacramento County Regional Sanitation District (SRCSD) along 47th Avenue.
- Construction of the following additional water treatment facilities:
  - 6 foot by 8 foot recycled water metering building;
  - Increasing bleach storage tank and feed capacity;
  - Possibly adding an additional acid pump;
  - Adding an additional scale inhibitor tank and two pumps; and
  - Possibly adding a second biocide tank and two pumps.
- Increasing wastewater discharge to the sanitary sewer.
- Leasing the parking lot to the east, adjacent to SPAC, for use as a temporary construction laydown.

The SRCSD main recycled water supply pipeline would terminate west of and adjacent to the existing City of Sacramento potable water mains that enter SPAC and traverse through the SPAC driveway (SPAC 2016). The recycled water piping would be constructed in a trench up to 10 feet deep adjacent to the existing potable water supply main adjacent to 47th Avenue. It would traverse north underground along the existing access road to the cooling tower.

The recycled water metering building footprint would be small and the foundations would be minimal. The project owner estimates that the building foundation would likely be 6 inches below ground surface (bgs) or less (SPAC 2016).

The site is covered with 1 to 1.5 feet of fill material, which is underlain by sedimentary Riverbank formation sediments to 65 feet bgs (CEC 1994). The Riverbank formation sediments are clayey and sandy silts, sandy clays, and silty and clayey sands. Depth to groundwater at SPAC is estimated to be about 40 to 65 feet bgs, based on California Department of Water Resources (DWR) well data within a mile of SPAC (DWR 2015).

ANALYSIS

California Energy Commission (Energy Commission) staff (staff) reviewed the proposed modifications to determine if the changes would result in adverse environmental impacts to geologic and paleontologic resources or be subject to geologic hazards that were not originally analyzed by the November 1994 Energy Commission Decision (Decision), as amended. Staff also reviewed the proposed changes to assess compliance with existing laws, ordinances, regulations, and standards (LORS).

GEOLOGIC HAZARDS

The proposed SPAC modifications would be designed and constructed in accordance with current building codes and seismic requirements as required by LORS. Staff recommends deleting Conditions of Certification **GEO-1** and **GEO-2** and replacing them with proposed Condition of Certification **GEO-3**. **GEO-1** and **GEO-2** refer to the Uniform Building Code which has now been superseded by the California Building Code (CBC, 2013). Condition of Certification **GEO-3** would require compliance with CBC (2013).

CBC (2013) includes a series of standards that are to be used as the basis for design and construction of buildings in California. The purposes of the standards are to establish minimum requirements to safeguard the public health, safety, and general welfare, and provide safety to life and property, and emergency responders. These standards include safeguards from geologic hazards such as seismic shaking, liquefaction, and slope failure.

Condition of Certification **GEO-3** requires geologic hazards to be addressed in a project-specific geotechnical report. Compliance with this condition of certification would ensure that the project is built in compliance with current seismic standards and that potential

impacts are mitigated to insignificant levels in accordance with current standards of engineering practice.

GEOLOGIC RESOURCES

Geologic resources include both the processes that act upon the Earth and the features developed as a result of those processes (NPS 2015). Geologic processes include erosion and sedimentation, seismic, volcanic, and geothermal activity, glaciation, rockfalls, landslides, and shoreline change. Geologic features include mountains, canyons, natural arches and bridges, minerals, rocks, fossils, cave and karst systems, beaches, dunes, glaciers, volcanoes, and faults.

The Decision found that significant adverse impacts to geologic resources would not occur as a result of construction of the SPAC (CEC 1994). The geologic resources have not changed since the Decision and the proposed construction would occur on the existing site. Therefore, there would be no significant adverse impacts to these resources.

PALEONTOLOGIC RESOURCES

The Paleontological Resources Preservation Act, section 6301, defines `paleontological resource' as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. This definition excludes materials associated with an archaeological resource and cultural items.

The proposed modifications would be located within the project site, an area that has already been disturbed and monitored during original grading and construction of SPAC. The potential area disturbed beyond those already evaluated in the Decision would be minimal. This area is located in the SPAC access road and is underlain by 1 to 1.5 feet of fill material and Riverbank Formation.

A senior CH2M Hill paleontologist recently conducted paleontologic resource literature reviews and records searches for the SPAC site (SPAC 2015, SPAC 2016). The senior paleontologist concluded that:

- The subsurface is not paleontologically sensitive;
- Much of the shallow subsurface (less than 3 feet) was previously disturbed and the probability of encountering paleontological resources within the proposed 10 foot deep trench excavations is highly unlikely; and
- There is no record of paleontologic resources being discovered during construction of SPAC.

The Decision found that while no paleontologic resources have been discovered at the SPAC site during initial surveys, a reasonable possibility exists that such resources may

be encountered during construction of SPAC. To mitigate potential adverse impacts to paleontologic resources that may exist within the construction areas, the Decision required compliance with Conditions of Certification **PAL-1** through **PAL-3**. Staff believes these conditions are adequate to ensure there are no impacts to paleontologic resources. The project owner acknowledges (SPAC 2015) that they would comply with **PAL-1** and submit the resume of a paleontological specialist that will be available should paleontological resources be discovered.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

Staff has reviewed applicable LORS. The proposed modifications would be in compliance with all LORS provided the SPAC amendment complies with the proposed Condition of Certification **GEO-3**.

CONCLUSIONS

A design-level geotechnical investigation and report would be required for the project amendment by the CBC (2013) and **GEO-3**. The geotechnical report would present standard engineering design recommendations for mitigation of geologic hazards. **GEO-3** would ensure potential adverse impacts to project facilities from geologic hazards are mitigated based on current LORS.

No new significant adverse impacts to geologic resources would likely result from proposed facilities construction and operation. There are no known viable geologic resources at the proposed SPAC site. Potential impacts to paleontologic resources due to construction activities would be mitigated through worker training and monitoring by qualified paleontologists, as required by existing Conditions of Certification **PAL-1** through **PAL-3**.

It is staff's opinion that the proposed facilities can be constructed and operated in accordance with all applicable LORS, and in a manner that both protects geologic and paleontologic resources, and ensures standards are met to safeguard the public health, safety, and general welfare, and provide safety to life, property, and emergency responders from geologic hazards.

PROPOSED MODIFICATIONS TO THE CONDITIONS OF CERTIFICATION

LORS and professional guidelines have been updated since SPAC was approved in 1994. Staff recommends the following revisions to the conditions of certification for consistency with current LORS and professional guidelines. Staff proposes replacing conditions of certification **GEO-1** and **GEO-2** with **GEO-3**, as shown below in **bold underline** - the intent and requirements placed on the project owner are not substantively changed, but only updated.

~~**GEO-1** Prior to the start of construction, the project owner shall assign to the project~~

an engineering geologist(s), certified by the State of California, to carry out the duties required by the Uniform Building Code (UBC), section 7006(d), 1991 edition. The certified engineering geologist(s) assigned must be approved by the CEC CPM.

Verification: At least 30 days prior to the start of construction, the project owner shall submit to the CEC CPM for approval the name(s) and license number(s) of the certified engineering geologist(s) assigned to the project. The submittal shall include a statement that CEC CPM approval is needed. The CEC CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of its findings within 10 days of receipt of the submittal. If the engineering geologist(s) is subsequently replaced, the project owner shall submit for approval the name(s) and license number(s) of the newly assigned individual to the CEC CPM. The CEC CPM will approve or disapprove of the engineering geologist(s) and will notify the project owner of its findings within 10 days of receipt of the notice of personnel change. Superseded by **GEO-3**.

GEO-2 The assigned engineering geologist shall carry out the duties required by UBC (1991 or most recently adopted edition) sections 7006(d) and 7015(a)3:

- Prepare the Engineering Geology Report.
- Monitor geologic conditions during construction.
- Prepare the Final Geologic Report.

Protocol: The Engineering Geology Report required by subsection 7006(d) shall include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy of the site as affected by geologic factors.

The Final Geologic Report to be completed after completion of grading, as required by UBC section 7015(a)3, shall contain the following: a final description of the geology of the site; any new information disclosed during the grading and the effect of same on recommendations incorporated in the approved grading plan; and statements that, to the best of the engineering geologist's knowledge, the actual mitigation measures used to protect the facilities from geologic hazards are adequate and that, to the best of his/her knowledge, the work within his/her area of responsibility is in accordance with the approved Engineering Geology Report. Superseded by **GEO-3**.

Verification: a) Within 10 days of submittal of the application(s) for grading permit(s) to the Chief Building Official (CBO), other designated authority or the CEC's duly authorized representative, the project owner shall submit a signed statement to the CEC CPM stating that the Engineering Geology Report has been submitted to the CBO as a supplement to the plans and specifications and that the recommendations contained in the report are incorporated into the plans and specifications; b) Within 90 days following completion of the final grading, the project owner shall submit copies of the

~~Final Geologic Report required by UBC section 7015(a)3 to the CEC CPM and the CBO.~~

GEO-3 A Soils Engineering Report as required by Section 1803 of the California Building Code (CBC 2013), or its successor in effect at the time construction of the project were to commence, shall specifically include laboratory test data, associated geotechnical engineering analyses, and a thorough discussion of seismicity; liquefaction; dynamic compaction; compressible soils; corrosive soils; and tsunami. In accordance with CBC, the report must also include recommendations for ground improvement and/or foundation systems necessary to mitigate these potential geologic hazards, if present.

Verification: The project owner shall include in the application for a grading permit a copy of the Soils Engineering Report which addresses the potential for strong seismic shaking; liquefaction; dynamic compaction; settlement due to compressible soils; and corrosive soils; and a summary of how the results of the analyses were incorporated into the project foundation and grading plan design for review and comment by the delegate chief building official (CBO). A copy of the Soils Engineering Report, application for grading permit and any comments by the CBO are to be provided to the Compliance Project Manager (CPM) at least 30 days prior to grading for review and approval.

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NPS, 2015. National Park Service, Website http://science.nature.nps.gov/im/inventory/geology/ (December, 2015).

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SACRAMENTO POWER AUTHORITY'S
CAMPBELL COGENERATION PROJECT (93-AFC-3C)

Petition to Amend the Commission Decision
PUBLIC HEALTH
Huei-An (Ann) Chu, Ph.D.

INTRODUCTION

On November 19, 2015, the Sacramento Power Authority (SPA) filed a Petition to Amend (PTA) for SPA's Campbell Cogeneration Project (SPAC). This petition for post-certification license amendment proposes the following actions:

- Provide an option to replace the use of potable water with recycled water in the cooling tower when available in suitable quantities and quality;
- Construct additional water treatment facilities, such as pipelines to cooling tower and irrigation water, bleach storage tank, acid pump, scale inhibitor tank and two pumps, second biocide tank and two pumps; and,
- Increase discharge amounts to the City of Sacramento's sanitary sewer system, resulting from the use of recycled water.

Staff's analysis addresses the construction and operational impacts on Public Health associated with the use of recycled water at SPAC's cooling tower. To protect the public from Legionella bacteria, a cooling tower water management plan is proposed in Condition of Certification **PUBLIC HEALTH-1**.

CONSTRUCTION

Sacramento Regional County Sanitation District (SRCSD) is proposing to construct a 6-mile-long recycled waterline from its Water Reclamation Facility located at the Sacramento Regional Wastewater Treatment Plant to SPAC and other potential customers along the route. Construction of the recycled water main (including the interconnection to the site) is not part of the amendment. The environmental impacts from construction of this 6-mile-long recycled water main, as mitigated, were addressed in Environmental Impact Report (EIR). Therefore, further analysis of construction impacts of the 6-mile-long recycled waterline is not needed.
The proposed on-site construction activities associated with this amendment include:

- Construction of a buried and/or overhead recycled waterline from the point of interconnection with the SRCSD waterline/meter (on the project site) to the SPAC cooling tower;
- Construction of additional water treatment facilities;
    - Piping to cooling tower and irrigation water;
    - Increase bleach storage tank and feed capacity;
    - Possible additional acid pump;

    - Additional scale inhibitor tank and two pumps;
    - Possibly second biocide tank and two pumps; and
- Increased wastewater discharge to the sanitary sewer.

The on-site construction period would take up to 3 months. Construction would generally occur between 7:00 a.m. and 7:00 p.m. on weekdays. It is expected that 10 to 12 construction workers would commute to the SPAC site on a daily basis during the construction period, and that materials deliveries would average less than 3 trips per day on major arterial roads with four lanes that have a rated capacity of 750 vehicles per lane per hour.

Considering the short construction period (i.e. 3 months) and that the potential exposure of diesel particulate matter (DPM) would be sporadic and limited in length, staff believes that construction-related emissions (i.e. DMP) are expected to be minor and insignificant. Moreover, mitigation measures in the **Air Quality** section would ensure that health-related impacts of diesel exhaust emissions for the public and off-site workers are mitigated during construction to a point where they are not considered significant. Therefore, staff concludes that impacts associated with the DPM from SPAC construction activities would be less than significant.

OPERATION

TOXIC AIR CONTAMINANTS

For the SPAC cooling tower, there are potential ammonia and toxic air contaminant (TAC) emissions associated with the use of recycled water. Recycled water analyses were used to calculate the ammonia and TAC emission increases associated with the proposed amendment. The project owner conducted detailed TAC emission calculations and a screening-level health risk assessment for the increase in ammonia and TAC emissions associated with the use of recycled water in the cooling tower. The risk analysis was conducted using U.S. Environmental Protection Agency (U.S. EPA)'s AERMOD dispersion modeling software together with the California Air Resources Board (ARB)'s Hotspots Analysis and Reporting Program, Version 2 (HARP2) computer model. The HARP2 model was used to assess cancer risk, 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 **Public Health Table 1**.

Public Health Table 1 shows that the Health Risk Assessment (HRA) results of the original 1994 SPAC Project and the increased risks associated with using recycled water in the SPAC cooling tower, and the total risks of these two. According to **Public Health Table 1**, all the risk values are below the significance threshold. Therefore, the ammonia and TAC emission impacts for the proposed cooling tower recycled water project will not be significant, and the project is not expected to create health risk.

Staff has reviewed the project owner's Petition to Amend the 1994 Energy Commission Final Decision (Decision) for potential environmental effects and consistency with applicable laws, ordinances, regulations, and standards (LORS). Based on this review, staff does not expect any significant adverse cancer, or short- or long-term non-cancer health effects from the project's toxic air emissions. Based on this review, staff concludes that the proposed project modifications would not result in a significant adverse impact to Public Health during operations or cause the project to be noncompliant with applicable LORS.

Public Health Table 1
Operation Hazard/Risk at Point of Maximum Impact

Type of Hazard/Risk	Risk/Hazard Index/Risk			Significance Level	Significant?
	1994 Project HRA	Cooling Tower using Recycled Water	Total		
Cancer Risk - Residential	$1.158x10^{-7}$	$7.63x10^{-8}$	$1.92x10^{-7}$	$10x10^{-6}$	No
Cancer Risk - Workplace	$1.158x10^{-7}$	$3.5x10^{-9}$	$1.19x10^{-7}$	$10x10^{-6}$	No
Acute Non-cancer	0.1693	0.154	0.323	1	No
Chronic Non-cancer	0.0111	0.149	0.026	1	No

Source: SPA 2015, p. 3-13

LEGIONELLA

Legionella is a bacterium that is ubiquitous in natural aquatic environments and is also widely distributed in man-made water systems. It is the principal cause of Legionellosis, otherwise known as Legionnaires' disease, which is similar to pneumonia. Transmission to people results mainly from inhalation or aspiration of aerosolized contaminated water. Untreated or inadequately treated cooling systems, such as industrial cooling towers and building heating, ventilating, and air conditioning systems, have been correlated with outbreaks of Legionellosis.

Legionella can grow symbiotically with other bacteria and can infect protozoan hosts. This provides Legionella with protection from adverse environmental conditions, including making it more resistant to water treatment with chlorine, biocides, and other disinfectants. Thus, if not properly maintained, cooling water systems and their components can amplify and disseminate aerosols containing Legionella.

The State of California regulates recycled water for use in cooling towers in Title 22, section 60303, California Code of Regulations. This section requires that, in order to

protect workers and the public who may come into contact with cooling tower mists, chlorine or another biocide must be used to treat the cooling system water to minimize the growth of Legionella and other micro-organisms. SPAC would use tertiary-treated recycled water provided by SRCSD that has been pre-treated with chlorine. SPAC would supplement this treated water with additional chlorine bleach at the cooling tower basin to minimize the growth of microorganisms. Therefore, it is not expected that bacterial growth in the modified SPAC cooling tower will present a public health risk. New Condition of Certification **PUBLIC HEALTH-1** has been proposed by the project owner to reduce the potential for growth of Legionella and other micro-organisms in the cooling tower.

Operation of the plant using recycled water would result in an increase of wastewater discharge to the sanitary sewer because the water cannot be used for as many cycles of concentration in the cooling tower compared to potable water. Please see the **Soil and Water Resources** and **Waste Management** sections of this amendment analysis for more details regarding the evaluation of the increase of wastewater discharge to the sanitary sewer.

ENVIRONMENTAL JUSTICE

Staff has also considered the potential for adverse public health impacts to the minority population surrounding the site. However, according to the risk results of **Public Health Table 1**, the project's public health impacts would be less than significant. Therefore, the project would not result in a significant or adverse impact to an identified environmental justice population.

CONCLUSIONS

Staff has analyzed potential public health risks associated with the construction and operation of the modifications proposed in SPA's petition to amend the Decision for SPAC. Staff does not expect any significant adverse cancer, short-term, or long-term health effects on any members of the public, including low income and minority populations, from the project's toxic emissions. Staff also concludes that there is a need to add Condition of Certification **PUBLIC HEALTH-1** and that SPAC would remain in compliance with all applicable LORS.

PROPOSED CONDITIONS OF CERTIFICATION

New Condition of Certification **PUBLIC HEALTH-1** has been proposed as shown below in **bold underline**.

PUBLIC HEALTH-1 The project owner shall develop and implement a Biocide Use and Monitoring program to ensure that the potential for bacterial growth in cooling water is kept to a minimum. The Biocide Use and Monitoring program shall incorporate, as applicable, the Best Practices and Recommendations for Minimization of Risks Associated with

Legionella as outlined in the Cooling Tower Technology Institute July 2008 publication titled "Legionellosis, Guideline: Best Practices for Control of Legionella." The Biocide Use and Monitoring Program shall specifically address full- and part-load plant operation, and short- and long-term shutdowns.

Verification: **At least 60 days prior to the commencement of modified cooling tower operations, the Biocide Use and Monitoring program shall be provided to the CPM for review and approval.**

REFERENCES

SPA (Sacramento Power Authority). 2015. Petition for Post Certification License Amendment. Campbell Cogeneration Project. CEC Docket: 1993-AFC-3C. November 20, 2015.

SACRAMENTO POWER AUTHORITY'S
CAMPBELL COGENERATION PROJECT (93-AFC-3C)

Petition to Amend the Commission Decision
SOIL & WATER RESOURCES
Abdel Karim Abulaban

INTRODUCTION

California Energy Commission (Energy Commission) staff has reviewed the Sacramento Power Authority Campbell (SPAC) Cogeneration Project Petition to Amend (PTA) filed November 24, 2015 (TN 206750) and Addendum to PTA filed May 19, 2016 (TN 211559). The purpose of the PTA and Addendum is to:

- Provide the power plant an option to replace potable water with recycled water in the cooling tower when available in suitable quantities and quality;
- To construct additional water treatment facilities at the power plant; and
- Increase discharge limits to the sanitary sewer system due to the use of recycled water.

The objective of this analysis is to ensure that there would be no adverse impacts to the environment, construction workers or to the general public related to soil and water resources during construction and operation of the facilities as a result of the switch to recycled water in the cooling tower.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS COMPLIANCE

The laws, ordinances, regulations and standards (LORS) cited in the original project's Final Energy Commission Decision (Decision) (CEC 1994) are still applicable to the project activities to be undertaken under the proposed amendment and are therefore incorporated here by reference. Staff also adds the LORS listed in **SOIL & WATER Table 1** that are new to this analysis.

SOIL & WATER Table 1
Laws, Ordinances, Regulations, and Standards

State LORS	
California Constitution, Article X, Section 2	Requires that the water resources of the State be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use, or unreasonable method of use of water is prohibited.
CWC Section 13550	Requires the use of recycled water for industrial purposes subject to recycled water being available and upon a number of criteria including: provisions that the quality and quantity of the recycled water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use will not impact downstream users or biological resources.
California Code of Regulations, Title 17	Title 17, Division 1, Chapter 5, addresses the requirements for backflow prevention and cross connections of potable and non-potable water lines.
California Code of Regulations, Title 22	Title 22, Division 4, Chapter 15, requires the California Department of Public Health (DPH) to review and approve new or modified recycled water projects to ensure they meet all recycled water criteria for the protection of public health.
Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et seq.)	In the 2003 Integrated Energy Policy Report (IEPR), consistent with SWRCB Policy 75-58 and the Warren-Alquist Act, the Energy Commission clearly outlined the state policy with regards to water use by power plants, stating that the Energy Commission would approve the use of fresh water for cooling purposes only where alternative water supply sources and alternative cooling technologies are shown to be “environmentally undesirable” or “economically unsound.”

BACKGROUND AND AMENDMENT DESCRIPTION

The SPAC is a nominal 158-megawatt (MW) combined cycle facility (formerly a cogeneration facility) located on 5.8 acres of relatively flat land, adjacent to the former Campbell Soup facility and former cogeneration steam host (SPAC 2015). A considerable amount of soil disturbance has occurred over the SPAC facility site. Extensive excavation, grading, and deposition of fill occurred during SPAC construction in the mid-1990s.

The PTA proposes the following changes to SPAC:

- Installing a recycled water supply pipeline to the cooling tower and irrigation water supply.
- Construction of the following additional water treatment facilities:

    - 6-foot by 8-foot recycled water metering building;
    - Increasing bleach storage tank and feed capacity;
    - Possibly adding an additional acid pump;
    - Adding an additional scale inhibitor tank and two pumps; and
    - Possibly adding a second biocide tank and two pumps.
- Increasing wastewater discharge to the sanitary sewer.
- Leasing the parking lot adjacent to SPAC to the east for use as temporary construction laydown.

The Sacramento Regional County Sanitation District's (SRCSD or Regional San) recycled water supply pipeline would terminate adjacent to the existing City of Sacramento potable water mains that enter SPAC.

SPAC proposes to construct a small (6 feet by 8 feet) recycled water metering building. The building would house monitoring equipment for the recycled water as well as electrics to run the equipment and water tubing to bring the water to the equipment. The foundations for the metering building would be minimal. The project owner estimates that the building foundation would likely be no more than 6 inches below ground surface (SPAC, 2016a).

The SRCSD's recycled water main would terminate on the west side of the 47th Avenue east access road, and so the connection to the project would be on the west side of the project access road. The recycled water pipeline would be installed underground. It would traverse north from the connection point for a short distance, then diagonally or perpendicularly towards the center of the road where it would continue to the cooling tower. The recycled water line would be constructed in a trench up to 10 feet deep to avoid congestion from other piping in the ground (SPAC 2016a).

Due to the lower quality of the recycled water compared with potable water, the project would generate industrial wastewater at a larger rate and of a different quality. Industrial process wastewater would be discharged to the sanitary sewer for ultimate discharge to SRCSD's wastewater treatment facilities.

ANALYSIS OF PROPOSED MODIFICATION

Staff reviewed the proposed modifications to determine if the changes would result in adverse environmental impacts to soil and water resources that were not originally analyzed by the November 1994 Energy Commission Decision, as amended. Staff also reviewed the proposed changes for compliance with existing LORS.

WATER SUPPLY

SPAC proposes to have the option of using recycled water from SRCSD, in addition to existing water supplies, for use in the evaporative cooling towers. They do not propose

to use recycled water for other project needs. SPAC would use about 1,000 acre feet per year (AFY) of recycled water from SRCSD for cooling of the steam cycle. Potable water would continue to be used as backup during periods when sufficient recycled water of the required quality is not available The project owner would also continue to use potable water for other plant processes such as steam production for any prospective steam host, steam cycle make-up, evaporative inlet cooling, combustion turbine generator injection water, and sanitary potable water uses.

The project is currently licensed to use 1,314 AFY of potable water from the City of Sacramento and 295 AFY from wells on the Campbell Soup Company site for all project uses. Over the past 4 years since the Campbell Soup closed and the project lost the steam host, the project has used about 900 AFY of potable water. Replacing potable water used for evaporative cooling with recycled water would significantly reduce freshwater use and make up to about 900 AFY available for other uses within with City of Sacramento service area.

In order to construct the pipeline to supply recycled water to the power project, as well as other potential future customers, SRCSD prepared an Environmental Impact Report (EIR) to analyze the environmental impact from construction of a six-mile pipeline that would deliver the recycled water to SPAC, including the water interconnection into the facility, as well as to other potential users (SRCSD 2014). The EIR was approved by SRCSD's Board of Directors in November 2014. Information from the EIR shows that the Water Recycling Facility (WRF), a division of the SRCSD created to handle production and delivery of recycled water, is designed with a capacity of 4.6 million gallons per day (mgd), equivalent to about 5,000 AFY. This is much higher than the SPAC project needs of 1,000 AFY, which is currently the only proposed user of the recycled water on this pipeline. The recycled water pipeline project is being designed and constructed with the primary purpose of delivering recycled water to SPAC with future users taking the remaining supply.

On April 19, 2016, SPAC also submitted a will-serve letter issued by SRCSD for SPAC (SPAC 2016). The will-serve letter demonstrates SRCSD is committed to delivering the necessary supply to the project for the remaining term of project operation. Based on the amount of recycled water that would be produced by SRCSD, their commitment to deliver the necessary supply, and the regional plan to stimulate further recycled water use by other users in the area with SPAC as the primary user, staff concludes that there would be an adequate and dependable supply of recycled water for project operation. Also, staff concurs with the EIR's conclusion that there would be no significant adverse environmental impacts associated with the construction of the recycled water pipeline and delivery of the recycled water to SPAC for operation needs. SPAC is considered the anchor customer that SRCSD is relying on to kick-start and promote its recycled water production program with the goal of attracting more customers to use recycled water instead of potable water for uses. This would save the potable water for other, more beneficial uses.

WASTEWATER

The project currently discharges approximately 60 gallons per minute (gpm) of project operation wastewater to the SRCSD treatment facility. The project owner proposes to continue discharge to the SRCSD's Sacramento Regional Wastewater Treatment Plant (SRWTP) with the use of recycled water. Due to the lower quality of the recycled water compared to potable water, the number of cycles of concentration in the cooling tower would be reduced from 10 to about 3 or 4 cycles resulting in an increase in the blowdown rate. Reduction in the number of cycles results in a higher blowdown rate and thus wastewater discharge would significantly increase from about 60 gpm to about 298 gpm. With the EchoWater Project upgrades occurring at the SRWTP, overall plant capacity for treatment of wastewater would be 181 mgd, which equals over 125,000 gpm. Current wastewater inflows are approximately 141 mgd, or 98,000 gpm (SRCSD, 2014).

The SRWTP would have more than enough available capacity for discharges from SPAC. The project is currently discharging its industrial wastewater to the City sanitary sewer. On April 19, 2016, SPAC submitted a will-serve letter issued by SRCSD for SPAC (SPAC 2016) demonstrating they would accept the poorer quality industrial wastewater in larger quantities that would be generated by the project using recycled water in the cooling tower. Sanitary sewer discharge from domestic use of potable water would not be affected by the proposed project changes and would continue to be discharged to the sanitary sewer. Staff recommends that the project owner be required to comply with **WATER-5** which would ensure the discharge of wastewater is in compliance with the SRCSD requirements. Staff concludes that there would no impacts related to wastewater discharge from project use of recycled water provided the project owner complies with this condition.

SOIL EROSION AND WATER QUALITY

The PTA also proposes to construct a recycled water line from the interconnection with the recycled water main at 47th Avenue to the cooling tower and a small (6 feet by 8 feet) metering building. The water line would be constructed up to 10 feet below ground. In addition, additional water treatment facilities at the power plant would be constructed to treat the recycled water to make it suitable for use in the cooling tower. Installation of these facilities would require disturbance of soils in a relatively small area in a previously constructed site covered with asphalt. Excavation of deep trenches for construction of the 10 feet deep water line could generate significant volumes of spoils. Staff is concerned that although the area of disturbance is small, large stockpiles of soil could be prone to erosion and runoff from the site if stormwater is not properly managed. Staff recommends that the project owner be required to comply with **SOILS-1** and ensure appropriate Best Management Practices's are implemented during construction. The project owner should also be required to comply with **SOILS-4** and determine whether they must comply with the current Construction General Permit. Installation of the water line, as well as construction of the water treatment facilities and the metering building, would have no significant impacts to soil and water resources

provided the project owner complies with the existing conditions of certification **SOILS-1** and **SOILS-4**.

LORS ANALYSIS

Replacing project use of potable water with recycled water for steam cycle cooling would be consistent with Section 13550 of the Water Code which states in part, “the use of potable domestic water for nonpotable uses…is a waste or an unreasonable use of the water within the meaning of Section 2 of Article X of the California Constitution if recycled water is available…”

Use of recycled water at the power project has numerous regional and environmental benefits, including:

- Conserving potable surface and groundwater supplies
- Reducing discharges of treated effluent to the Sacramento River
- It is compatible with allowed uses of recycled water
- It provides a sustainable water supply for industry
- It helps to meet local, regional, state and federal water recycling goals

Allowing the project owner to use a recycled waste water supply at the cooling tower for power plant cooling is appropriate because it is the more environmentally desirable alternative compared to potable water and is consistent with State of California and Energy Commission water policy. Staff supports and commends the project owner for its decision to use recycled water for cooling purposes consistent with State of California policy. Staff is concerned, however, that the PTA proposes the use of recycled water as an option for the project, not a change to use as the primary water supply. The PTA indicates there is concern about water quality and whether the SRCSD can provide a dependable supply.

Section 13550 of the Water Code specifically requires the use of recycled water when it can be shown that: 1) the quality of recycled water is adequate and available for the intended use, 2) the recycled water can be furnished for the uses at a reasonable cost to the user, 3) the use of recycled water from the proposed source will not be detrimental to public health, and 4) the use of recycled water for these uses will not adversely affect downstream water rights, will not degrade water quality, and is determined not to be injurious to plant, fish, and wildlife. Staff assesses each of these requirements below:

1) In October 1993 when SPA filed its Application for Certification and in November 1994 when the license was granted to SPA to construct SPAC, recycled water was not available. At that time, the only water available for cooling was potable water. Now, recycled water from SRCSD is going to be available to the project as a result of the EchoWater Project, which SRCSD has been undertaking to

produce high quality recycled water. The project owner has voluntarily offered to use the recycled water and presented information showing they believe the recycled water is generally of adequate quality for project use.

Also, as shown above in the water supply assessment, there is more than adequate supply for project operation and this project will be the stimulus for further regional development of recycled water use in the region further suggesting it is of adequate quality for many other uses. SRCSD has completed an EIR for the recycled water program and analyzed the potential uses of recycled water in the region. Staff concludes the recycled water will generally be of adequate quality for project operation. The project owner is concerned that there may be times when the quality is not adequate for cooling tower operation and they would like the option of using freshwater as a backup supply. Staff concludes this is reasonable and given experience on numerous other recycled water projects this would be appropriate. Staff has also found that use of freshwater can be minimized where it used for blending with recycled water that is of variable quality.

2) SPA negotiated the terms of delivery of the recycled water with SRCSD such that it would be cost-neutral for SPAC to use recycled water. That is, the cost for SPAC to use the recycled water would be the same as that that for the amount of potable water needed to achieve the same cooling effect. Staff also learned in their visit to SPAC on April 19, 2016 that when SPA calculated the costs of the recycled water, SPA experts had neglected the substantial costs of additional chemicals necessary to condition the recycled water for project use. However, SPA agreed to shoulder those additional costs for the sake of promoting production and distribution of recycled water in the region.

   During the site visit (CEC 2016) Staff also questioned whether the project could use recycled water for all other industrial uses beyond just evaporative cooling for the steam cycle. The project owner stated that those uses, such as steam make-up, require higher quality water and would require costly treatment to bring the quality of the recycled water to the necessary level. The petitioner also stated that the other uses constitute less than five percent of the total water need for the project (approximately 45 AFY). With the 15-fold increase between the dissolved solids in the potable water currently used (~ 40 mg/l) and that of the recycled water (~600 mg/l) the water treatment demineralization system would have to be increased in size by a factor of 15. Use of portable trailer-mounted demineralizer treatment equipment would require about 30 trailers per day. The project owner indicates it would be economically infeasible to undertake the large capital improvement needed to treat the recycled water to the high-quality water needs of SPAC (CEC 2016). In addition, according to the project representatives, there is no room on the project site to place additional treatment facilities because the project already occupies all the land to the fence line. The project owner also points out that the project has been online for 18 years and only about 12 years of the design life remains. This is too short to justify the increased capital costs associated with improving the water quality for these small industrial uses. Staff concludes that since the recycled water use would replace about 95 percent of

the freshwater use and the cost to include the marginal water volume would be prohibitive, use of recycled water for evaporative cooling of the steam cycle would be appropriate.

3) The use of recycled water would not impact public health and safety because all uses of recycled water are regulated by the State Water Resources Control Board. The project owner is aware of these regulations and would comply with them for project operation. Recycled water use would be in accordance with Titles 17 and 22 of the California Code of Regulations (CCR). The recycled water would also meet all water reuse requirements issued by the Central Valley Regional Water Quality Control Board (CVRWQCB) prior to using the recycled water. Under these regulations, the project owner is required to prepare an Engineering Report describing the production, distribution and use of recycled water. The Engineering Report will verify that SRCSD's recycled water meets the standards for unrestricted use and that the plumbing constructed for the SPAC project is inspected for prevention of backflow and cross connection with the potable water supply. Staff includes Condition of Certification **WATER-6** which would require the project owner to comply with Title 17 and Title 22 of the CCR to ensure there would be no impact to public health and safety.

4) In order to supply recycled water and develop the Water Recycling Pipeline Project, SRCSD and the other project sponsors had to complete an analysis of the potential impacts to downstream water users, water quality, and plant, fish, and wildlife. The program sponsors have completed environmental analysis including the 2014 EIR adopted for the recycled water project indicating they have addressed any potential environmental impacts from recycled delivery and use and they can deliver the proposed supplies for the intended uses.

Staff concludes that all the conditions necessary for requiring use of recycled water are present. Staff acknowledges the cost of treating recycled water for other project uses beyond the cooling towers would be cost prohibitive and should not be required. Staff also acknowledges the project owner's concern for fluctuations in water quality and how this might affect the project operation. Staff experience with numerous other projects that use recycled water indicates this is a valid concern. Staff concludes that the project owner should be required to use recycled water but that they be provided the flexibility to use freshwater as a backup. Staff understands that it could take some time for the project to test the use of recycled water under different conditions in order to make necessary adjustments for equipment to handle the recycled water. Staff further understands that there would be times when the recycled water might not be available due to water quality upsets, routine maintenance needs or other reasons beyond the project owner's control. Therefore, staff supports keeping potable water as the backup source for such conditions. Staff also recommends that where feasible the project owner blend freshwater with recycled water to minimize use of freshwater for back up purposes.

Consistent with this conclusion staff recommends the project owner be required to comply with proposed Condition of Certification **WATER-7**, which specifies the amount of recycled water the project would use and the conditions under which the project

would use the freshwater back up supply. Condition of Certification **WATER-7** also requires the project owner to install metering devices as part of the water supply and distribution system to document project water use to monitor and record in gallons per day the total volume(s) of water supplied to the SPAC from this water source. This would ensure the project owner could demonstrate how much recycled water has been used in accordance with this analysis and provide the necessary information for reporting in accordance with section 1304 of Title 20 CCR.

CONCLUSIONS

Based on the information provided by the project owner, staff concludes that the proposed modifications would not have a significant negative effect on water quality provided **SOILS-1** and **SOILS-4** are complied with. There would also be no impact on water resources from use of recycled water provided the project owner complies with the three new Conditions of Certification, **WATER-5, WATER-6,** and **WATER-7** which would ensure project use of recycled water consistent with this analysis, protect public health and safety, and ensure LORS compliance.

PROPOSED CHANGES OR MODIFICATION TO CONDITIONS OF CERTIFICATION

Staff proposes the following three new Conditions of Certification, shown in **bold underline**. **WATER-5** addresses the increased discharge of industrial wastewater which is of different quality than what the project currently generates due to the use of recycled water, while **WATER-6** and **WATER-7** address the new source of water for project operation.

WATER-5: Prior to site discharge of generated industrial wastewater to the sanitary sewer for ultimate disposal to the Regional San's Sacramento Regional Wastewater Treatment Plant (SRWTP), the project owner shall obtain a Permit for Industrial Wastewater Discharge and comply with the wastewater discharge limitations, pretreatment requirements, peak flow restrictions, payment of fees, and monitoring and reporting requirements of SRWTP as applicable for construction.

Verification: At least 30 days prior to SPAC's discharge of industrial wastewater generated using recycled water for project operation, the project owner shall provide the CPM with a copy of its Permit for Industrial Wastewater Discharge from Regional San as applicable for construction. The CPM shall be notified in writing within 10 days of any reported non-compliance with Regional San's SRWTP discharge requirements, including corrective measures for non-compliance and the results of implementing those measures.

WATER-6: Prior to use of recycled water for wet cooling operations, the project owner shall provide the CPM a copy of the executed Recycled Water Purchase Agreement (agreement) with the recycled water producer, Regional San, for the supply and delivery of tertiary treated recycled water to SPAC. SPAC shall not connect to the Regional San's recycled water pipeline without the final agreement in place. The project owner shall comply with the requirements of Title 22 and Title 17 of the California Code of Regulations and section 13523 of the California Water Code.

Verification: No later than 30 days prior to the connection to the Regional San's recycled water pipeline, the project owner shall submit a copy of the executed agreement for the long-term supply and delivery of tertiary treated recycled water to SPAC. The agreement shall specify a maximum delivery rate of 1 MGD and total maximum use of 1,120 AFY and shall specify all terms and costs for the delivery and use of recycled water by SPAC.

No later than 30 days prior to connection to the Regional San's recycled water main, the project owner shall submit to the CPM a copy of the Engineering Report and Cross Connection inspection and approval report from the California Department of Public Health and all water reuse requirements issued by the CVRWQCB.

WATER-7: The project owner shall use tertiary treated recycled water supplied from the Regional San's Water Reclamation Facility (WRF) as its primary source for evaporative cooling of the steam cycle and landscape irrigation. Annual usage (excluding fire suppression) shall not exceed 1,120 acre-feet per year (AFY). Prior to the use of recycled water for commercial operation, the project owner shall install and maintain metering devices as part of the water supply and distribution system or verify that the recycled water supplier will provide adequate metering or billing to the project owner to document project water use as required to monitor and record in gallons per day the total volume(s) of water supplied to the SPAC from this water source. The metering devices shall be operational for the life of the project. The project may use potable water for backup and blending purposes in cases of interruptions in delivery of the recycled water, and when recycled water quantities or water quality are not sufficient for project use. Potable water shall not be used exclusively for evaporative cooling unless the source of recycled water is unavailable in the event of an emergency. For purposes of this condition, the term emergency shall mean the inability for SPAC to take or for Regional San to deliver recycled water to the SPAC in a quantity and quality sufficient to meet SPAC's demand due to natural disaster or other circumstances beyond the control of the project owner and it is necessary for SPAC to continue to operate.

Verification: The project owner shall prepare an annual summary, which will include the monthly range and monthly average of daily water usage in gallons per day, and total water used on a monthly and annual basis in acre-feet. For years subsequent to the initial year of operation, the annual summary will also include the yearly range and yearly average water use by source. For calculating the total water use, the term "year" will correspond to the date established for the annual compliance report submittal. The project owner shall report to the CPM any upsets in the delivery of the recycled water, deliveries of insufficient quantities, and water quality for use by SPAC.

REFERENCES

CEC 1994 -- Sacramento Power Authority at Campbell Cogeneration Project, California Energy Commission Decision, California Energy Commission Docket No. 93-AFC-3, Publication No. P800-94-011 (November 30, 1994).

CEC 2016 – Report of Conversation for site visit on April 19, 2016. Docket TN # 211263, docketed April 27, 2016.

SPAC 2015 -- Sacramento Power Authority - Campbell Cogeneration Project - Petition to Amend, California Energy Commission Docket No. 93-AFC-3C, Publication No. TN 206750 (November 25, 2015).

SPAC 2016 – Sacramento Power Authority Campbell Cogeneration Project. Sacramento Power Authority's Campbell Cogeneration Project – Data Responses Set 4 (Soil & Water). Docket TN # 211146, April 19, 2016.

SPAC 2016a -- Sacramento Power Authority - Campbell Cogeneration Project – Addendum to Petition to Amend, California Energy Commission Docket No. 93-AFC-3C, Publication No. TN 211559 (May 19, 2016).

SRCSD 2014 -- Final Environmental Impact Report, Sacramento Regional County Sanitation District/Sacramento Power Authority/City of Sacramento Water Recycling Pipeline Project. State Clearinghouse Number: 2013122046. October 2. Available online at: http://www.regionalsan.com/sacramento-power-authority-cogen-project; last accessed on March 30, 2016.