

CALIFORNIA ENERGY COMMISSION

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California Energy Commission

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08-AFC-03C

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**DATE:** August 9, 2012**TO:** Interested Parties**FROM:** Christine Stora, Compliance Project Manager**SUBJECT: Marsh Landing Generating Station Project (08-AFC-3C)**
Staff Analysis of Proposed Modifications to Change **SOIL AND WATER-6**
to Allow the Option to Install Groundwater Wells

On May 14, 2012, GenOn Marsh Landing LLC. filed a petition with the California Energy Commission (Energy Commission) to amend the Energy Commission Decision for the Marsh Landing Generating Station Project. Staff prepared an analysis of this proposed change, and a copy is enclosed for your information and review.

The Marsh Landing Generating Station Project is a 760-megawatt facility that was certified by the Energy Commission on August 25, 2010. The project is located north of the City of Antioch, in Contra Costa County and is currently under construction.

The proposed modifications will modify **SOIL AND WATER-6**¹ and make the installation of the groundwater wells optional instead of mandatory. The wells may be installed in the future, if necessary, to meet project requirements. Energy Commission staff reviewed the petition and assessed the impacts of the provisions of the amendment to environmental quality, public health and safety, and proposes revisions to existing conditions of certification for **SOIL AND WATER-6**. It is staff's opinion that, with the implementation of the revised condition, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and that the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The amendment petition and staff's analysis have been posted on the Energy Commission's webpage at www.energy.ca.gov/sitingcases. The Energy Commission's Order (if approved) will also be posted on the webpage. Energy Commission staff intends to recommend approval of the petition at the September 12, 2012, Business Meeting of the Energy Commission. If you have comments on this proposed

¹ The petition to amend also proposed changes to **BIO-8**. The petition requests changes to **BIO-8** that would allow mitigation funds for noxious weed management be made to the California Wildlife Foundation in lieu of the Friends of San Pablo Bay. The petition to amend **BIO-8** is still under review by staff. If needed, this proposed change will be the subject of a separate Staff Analysis and may be considered at a future Business Meeting.

modification, please submit them to me at the address below prior to September 7, 2012.

Christine Stora, Compliance Project Manager
California Energy Commission
1516 9th Street, MS-2000
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Comments may be submitted by fax to (916) 654-3882, or by e-mail to christine.stora@energy.ca.gov. If you have any questions, please contact me at (916) 654-4745.

For further information on how to participate in this proceeding, please contact the Energy Commission Public Adviser's Office, at (916) 654-4489, or toll free in California at (800) 822-6228, or by e-mail at publicadviser@energy.ca.gov. News media inquiries should be directed to the Energy Commission Media Office at (916) 654-4989, or by e-mail at mediaoffice@energy.ca.gov.

Enclosure
Mail List 7299

MARSH LANDING GENERATING STATION (08-AFC-3C)
Request for Modification to Allow the Option to Install Groundwater Wells
Christine Stora

INTRODUCTION AND SUMMARY

On May 14, 2012, GenOn Marsh Landing, LLC., filed a petition with the California Energy Commission (Energy Commission) requesting to make modifications to the Marsh Landing Generating Station (Petition, 2012). The 760-megawatt project was certified by the Energy Commission on August 25, 2010. The power plant is located north of the City of Antioch, in Contra Costa County and is currently under construction.

The petition provides a description of the affected environment and an analysis of the potential environmental and cumulative impacts associated with the project amendment, along with measures to avoid adverse impacts. The analysis and supporting information are provided to comply with Energy Commission requirements, including the California Environmental Quality Act (CEQA) and to determine compliance with applicable laws, ordinances, regulations and standards (LORS).

In the petition, GenOn proposed changes to both **BIO-8** and **SOIL AND WATER-6**. Condition of Certification **BIO-8** requires payments to be made to the nonprofit Friends of San Pablo Bay, and earmarks funds for assistance in “noxious weed management”. United States Fish and Wildlife Service (USFWS) personnel have requested that the payments be made to the California Wildlife Foundation in lieu of the Friends of San Pablo Bay. Staff is still reviewing information related to the proposed **BIO-8** change and will publish a separate Staff Analysis if it is determined that this change is needed. The **BIO-8** change may be considered at a separate Business Meeting.

Due to potential construction impacts, GenOn has requested a decision on the **SOIL AND WATER-6** portion of the petition as soon as possible. For this reason, Staff is processing this change request separately.

Staff has reviewed the petition for potential environmental effects in the technical areas illustrated in Table 1 and to determine compliance with applicable LORS. Based on this review, and incorporating an amendment to **SOIL AND WATER-6**, staff has determined that no significant adverse impacts would result from the proposed project modifications and that the project amendment, if approved, will comply with all applicable LORS.

**MARSH LANDING GENERATING STATION
GROUNDWATER WELL AMENDMENT
TABLE 1 TECHNICAL AREAS REVIEWED**

TECHNICAL AREAS REVIEWED	STAFF RESPONSE			New Conditions of Certification Recommended
	Technical Area Not Affected	No Significant Environmental Impact*	Process As Amendment	
Air Quality	X			N/A
Biological Resources		X		No
Cultural Resources	X			N/A
Geological Hazards & Resources	X			N/A
Hazardous Materials Management	X			N/A
Facility Design	X			N/A
Land Use		X		No
Noise and Vibration	X			N/A
Paleontological Resources	X			N/A
Public Health	X			N/A
Socioeconomics		X		No
Soil and Water Resources			X	Yes
Traffic and Transportation	X			N/A
Transmission Line Safety & Nuisance	X			N/A
Transmission System Engineering	X			N/A
Visual Resources	X			N/A
Waste Management	X			N/A
Safety	X			N/A

*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) (20 Cal. Code Regs., § 1769 (a)(2)).

**MARSH LANDING GENERATING STATION (08-AFC-3C)
PROPOSED AMENDMENT
Soil and Water Resources**

Christopher Dennis, PG, CHG

BACKGROUND

The Marsh Landing Generating Station (MLGS) is a peaker power plant licensed to use up to 50 acre-feet (AF) of water per year (Commission Decision, 2010). This water will be used for evaporative inlet air cooling and as service water for other industrial purposes. MLGS is licensed to use brackish groundwater from beneath the project site or potable water supplied by the City of Antioch. At the time of the Commission Decision, the cost to deliver less than 50 acre feet per year of recycled water from Delta Diablo Sanitation District (DDSD) was not economically feasible or environmentally desirable (RSA, 2010). However, it was determined that, at some time in the future, delivery of recycled water to the MLGS may become reasonably available and economically feasible (RSA, 2010).

As licensed, the brackish groundwater is the primary water supply source unless a feasibility study demonstrates that use of this water is technically infeasible or uneconomic. In August 2011, such a feasibility study was submitted to the Compliance Project Manager (CPM), demonstrating the economic non-viability of using the brackish groundwater as the primary water supply. This feasibility study recommended that potable water supplied from the City of Antioch be used as the primary water supply. The CPM approved the feasibility study and its recommendation in August 2011.

**PROPOSED CHANGE TO CONDITION OF CERTIFICATION
SOIL&WATER-6**

Using potable water from the City of Antioch as the primary water supply for the MLGS triggered water conservation requirements of Condition of Certification **SOIL & WATER-6** (Commission Decision, 2010). These conservation measures require the project owner to contribute to a water conservation program that would enhance the City of Antioch's existing water conservation programs and offset the MLGS use of potable water (Commission Decision, 2010). The contributions are structured as a specified dollar amount for each acre foot of potable water used each year by the MLGS for process needs.

With the change in primary water supply, the project owner reevaluated the wording of Condition of Certification **SOIL&WATER-6**. This condition of certification requires that "the project owner shall maintain the facilities necessary to obtain brackish groundwater as a backup water supply" (Commission Decision, 2010). This statement can be interpreted to mean that the project owner is required to install groundwater wells and maintain those wells despite having a reliable primary water supply from the City of

Antioch. To avoid this ambiguity, the project owner proposes to modify condition of certification **SOIL&WATER-6** by replacing the word “shall” in the above quote with the word “may.” To incorporate the project owner’s proposed modification to avoid ambiguity in the condition language while allowing the project owner to install groundwater wells at some point in the future, staff proposes revisions to **SOIL&WATER-6** as shown below.

ANALYSIS OF PROPOSED CHANGES TO CONDITION OF CERTIFICATION SOIL&WATER-6

Condition of Certification **SOIL&WATER-6** can be read as requiring the project owner to install and maintain facilities necessary to obtain brackish groundwater. Such facilities can include groundwater wells. The project owner asserts that installing groundwater wells is not necessary for the reasons discussed below. Staff’s analysis of each of these assertions is also provided below.

Sufficient Onsite Water Storage. The project owner asserts that the MLGS will have sufficient capacity to meet the power plant’s water requirements in the event of a disruption of water service by the City of Antioch (Petition, 2012). Water supplied to the project will be pumped into and stored in a 600,000 gallon capacity potable water storage tank (AFC Amendment, 2009). An additional 170,000 gallons of capacity will be available in the reverse osmosis (RO) permeate tank (AFC Amendment, 2009; ROC, 2012). During peak summer temperatures, MLGS will require approximately 205 gallons of water per minute (gpm) to operate all four simple cycle units at maximum capacity at the same time (ROC, 2012). If a water service interruption occurred during peak summer demand, assuming both tanks are full at the time of service interruption, the MLGS would be able to continue to generate electricity for approximately 7 to 8 days operating all four units at full capacity for eight hours per day. Staff concurs that the onsite storage capacity will provide enough backup water supply for the MLGS to continue to operate in the event of service water interruptions for typical maintenance and emergency incidents.

Reliability of City of Antioch Water Supply. City of Antioch Public Works Department reliably delivers water to its customers and has provided the project owner with a will-serve letter to supply MLGS with 50 AF of water per year (CAPWD, 2010). There is a low probability of a disruption in water supply by the City and even lower probability that the disruption will last longer than 7 or 8 days, the estimated length of time the power plant potable and RO permeate water storage tanks can provide water to the power plant during peak conditions.

Also, it should be noted that the City’s 2010 Urban Water Management Plan (UWMP, 2010) analyzed water supply in the near term and projected out to 2030 under scenarios of a normal water year, single year drought, and multiple year drought. The City found that there are sufficient water supplies to reliably meet demand under each of these scenarios in the near term, except in the third year of a multiple year drought

where there would need to be a 9 percent reduction in water delivery service. The maximum water service reduction is estimated to be 15 percent during the third year of a multiple year drought during 2030. The UWMP stated that the 15 percent deficit could be met by a combination of short-term water purchases and a voluntary short-term water conservation program.

Forestar Property Groundwater Remediation. The Forestar property is located adjacent to the MLGS. The soil and groundwater beneath the Forestar property is impacted by contaminants from previous industrial operations at the property. The Central Valley Regional Water Quality Control Board (CVRWQCB) and the Forestar property owner have expressed concern that groundwater pumping at the MLGS could affect the distribution of contaminants in the groundwater undergoing remediation at the Forestar property (Petition, 2012). The CVRWQCB has also indicated that the groundwater pumping by MLGS could cause spreading of the contaminants in the groundwater to unaffected areas.

Staff is also concerned that, if groundwater wells were installed and developed, there is potential for previously unrecognized environmental impacts from use of the brackish water. Staff understands that remediation of the contaminated groundwater is in progress. However, if remediation of the Forestar property is successful and considered complete by the Department of Toxic Substances Control, then staff believes it may be feasible for MLGS to use the brackish groundwater as its primary or backup water supply.

Project Owner Retains the Option to Install Groundwater Wells. The project owner asserts that the proposed change in condition wording allows the project owner to retain the ability and flexibility to install groundwater wells if necessary at some time in the future (Petition, 2012). Staff notes that, although the use of brackish groundwater and recycled water is currently considered infeasible, there may be conditions where this could change and MLGS may be required to use an alternative supply. The use of an alternative supply could be driven by the need to conserve freshwater supplies due to legislative requirement or drought impacts which are beyond the control of MLGS. Municipal water suppliers like the City of Antioch are currently required to reduce freshwater use in their service areas by 20 percent in accordance with Senate Bill SB7x.

In addition, the State Water Resources Control Board is currently developing flow criteria for the Bay Delta water supply which could affect the availability of water supply in the project region and the priority order for which projects or suppliers like the City of Antioch could receive water supplies. Depending on how these conservation reductions or changes in flows are implemented, this could impact the near future water supply for the project. And lastly, ongoing efforts to clean up the Forestar property groundwater will alleviate concerns about contamination migration.

RECOMMENDED REVISIONS TO CONDITION OF CERTIFICATION SOIL&WATER-6

The use of brackish groundwater or recycled water as the primary water supply for the MLGS is currently not economically feasible or environmentally desirable, and the onsite storage is adequate such that there is no longer a current need for the project owner to install and maintain facilities necessary to obtain brackish groundwater as a backup water supply source. However, to ensure that the MLGS remains in compliance with Energy Commission water policy and state laws, ordinances, regulations, or standards (LORS), it is important for the project owner to continue to evaluate the feasibility of using brackish groundwater and recycled water as the primary water supply source. It is also important that the project owner continue to evaluate the availability of potable water from the City of Antioch so that reductions in state or federal water supplies or periods of drought can be accommodated.

These considerations are incorporated into staff proposed changes to condition of certification **SOIL&WATER-6** to provide the project owner with more flexibility in choosing the water supply source as conditions warrant. The revised condition of certification below also allows for the continued analysis of the feasibility of using alternative water supplies that may be required to replace the potable supply. Staff believes that there is no possibility that the proposed revisions would have a significant effect on the environment or make changes that would cause the project not to comply with any applicable LORS.

Condition of Certification **SOIL & WATER-6**

SOIL & WATER-6: The primary Marsh Landing Generating Station (MLGS) water source shall be potable water supplied by the City of Antioch. Prior to the use of ~~groundwater or potable water~~ for construction operation of the MLGS, the project owner shall install and maintain metering devices as part of the water supply and distribution system to monitor and record in gallons per day the volume of ~~groundwater and potable water~~ supplied to the MLGS. The metering devices shall be operational for the life of the project. An annual summary of daily water use by the MLGS, ~~differentiating between groundwater, potable water, and recycled water (if applicable)~~ shall be submitted to the **Compliance Project Manager (CPM)** in the ~~a~~**Annual eCompliance r**Report (**ACR**). Process water use shall not exceed 50 AFY, ~~from any source. Water supplied to MLGS shall be used for evaporative cooler makeup, service water, and water for combustion turbine washes and meet the following condition:~~

~~The primary MLGS water source shall be brackish groundwater. Once annually, the project owner shall sample groundwater quality at both pumping wells. The project owner shall treat plant wastewater (effluent) to meet Delta Diablo Sanitation District's (DDSD's) discharge requirements or implement zero liquid discharge technologies to manage the plant's process wastewater. Laboratory~~

test results from the groundwater quality sample and the effluent sample, shall be submitted to the CPM in the annual compliance report.

~~Prior to installing a connection to the City of Antioch water supply system for an alternative source, the project owner shall provide evidence to the CPM that City has agreed to supply emergency backup water to the project in sufficient quantities to meet the project's needs at a flow rate comparable with the flow rate provided by one onsite well. For the purpose of this condition, the term emergency shall mean the operation and/or emergency issues that arise with the two proposed wells or with mobile water filtration and ion exchange trailers, or the permanent water treatment plant. The City's supply must provide access to a quantity sufficient to meet MLGS demand due to Acts of God, natural disaster and other circumstances beyond the control of the project owner and it is necessary for the MLGS to continue to operate at peaking load capacity. Any connection to a water supply line shall be properly metered throughout the period of time of the emergency.~~

In the ACR, the project owner shall submit to the CPM, for review and approval, a feasibility study that includes, but is not be limited to, the following:

- A. A discussion of the status of the Forestar Property (former Gaylord Container, 2603 Wilbur Blvd, Antioch, California) soil and groundwater remediation. This discussion shall be supported by attaching copies of correspondence and other documentation from the Department of Toxic Substances Control and Central Valley Regional Water Quality Control Board. Should the soil and groundwater remediation at the Forestar property be completed, discuss the feasibility of using brackish groundwater as the primary water supply for the MLGS.**
- B. A discussion of the status of recycled water availability from the Delta Diablo Sanitation District (DDSD). If recycled water from DDSD becomes available in sufficient quantity and is accessible, discuss the feasibility of using recycled water as the primary water supply for the MLGS.**
- C. A discussion of the status of the City of Antioch's current and future ability to provide potable water to the MLGS. If the City of Antioch's potable water supply becomes limited and or there are reductions in water delivery to the City of Antioch because of reductions in state or federal water supplies or drought condition, discuss the feasibility of using brackish groundwater or recycled water as the primary water supply for the MLGS to reduce the strain on local potable water supplies.**

- D. A discussion of the availability of any new water supplies or technologies that may be used to reduce or replace potable water use by MLGS.**
- E. Recommendations whether the primary water supply should continue to be potable water and whether the MLGS primary water supply should be changed to one of the alternate water supplies, brackish groundwater or recycled water.**

If an alternative water supply is determined to be feasible by the CPM, the project owner shall meet with the CPM to determine the date for submittal of a project amendment to change the primary water supply source for the MLGS from potable water to the feasible alternate water supply source.

~~The project owner may provide evidence to the CPM that the water source described above is not feasible. Such evidence may be based on technical feasibility and/or project economics. The project owner, at the recommendation of the CPM, shall identify a primary alternative water supply as described herein: The primary alternative MLGS water source shall be City of Antioch fresh water supply. No more than 50 acre-feet of fresh water shall be supplied annually. The project owner shall pay a fee equal to no more than \$1,000 per acre-foot of City of Antioch water consumed annually (potable water for personnel consumption, eyewash stations, showers, and sanitary needs not included) to City of Antioch's water conservation program to implement new water conservation measures.~~

~~The water conservation program may change with CPM approval. A payment of \$15,000 shall be made to the City to offset fresh water used for construction and initiate the water conservation program. Water conservation fees are not required for use of recycled water during construction or operation. The project owner may shall maintain the facilities necessary to obtain brackish groundwater as a backup water supply. Brackish groundwater or recycled water (when feasible) may be used to supplement the fresh water sources.~~

The project owner shall contribute funds to a water conservation program to offset potable water use by the MLGS.

- **Provide evidence of a one-time payment of \$15,000 to the City of Antioch to offset potable water used for construction and contribute to water a conservation program.**
- **Provide evidence of a \$1,000 contribution to a City of Antioch water conservation program for each acre-foot of potable water consumed annually (excluding water for personnel consumption, eyewash stations, showers, and sanitary needs). If the MLGS changes its water supply source to brackish groundwater or recycled water, this annual contribution to a water conservation program is not required.**

Verification: At least 60 days prior to use of any water source for MLGS operation, the project owner

1. **Prior to the use of water for project construction**, submit to the CPM evidence that metering devices have been installed and are operational on the groundwater wells, potable water and recycled water (if applicable) pipelines serving the project, and.
2. **In the ACR**, provide ~~a~~**submit a** report on the **annual** servicing, testing, and calibration of the metering devices.
3. **In the ACR, submit a feasibility study discussing items A through E above.**

~~The project owner shall submit copies to the CPM of all correspondence between the project owner and the City of Antioch regarding alternative sources of water within 10 days of its receipt or submittal. No later than 30 days prior to installing a connection to the City of Antioch potable water main, the project owner shall submit to the CPM evidence that water meters have been installed and are operational. The project shall also provide proof that the City can deliver alternative water to the MLGS in the event of an emergency water interruption at a flow rate comparable with the flow rate provided by one onsite well, up to 420 gpm.~~

4. ~~The project owner shall submit a~~**A** water use summary report to the CPM in the annual compliance report **ACR** for the life of the project. The annual summary report shall be based on and shall distinguish recorded daily groundwater, potable water, and recycled water (if applicable) use. Included in the annual summary of water use, the project owner shall submit **include** copies of **water use** meter records from the City of Antioch documenting the volume of potable water supplied over the previous year. The report shall include calculated monthly range, monthly average, and annual use by the project in acre-feet. After the first year and for subsequent years, this information shall also include the yearly range and yearly average potable water used by the project. ~~The Annual Compliance Report (ACR) shall include the brackish groundwater sample laboratory test results during years when groundwater use is reported.~~

5. ~~The project owner shall provide p~~**P**roof that the initial water conservation fee of \$15,000 was paid to the City of Antioch prior to **project commissioning activities** site operations. Annual **potable water** use payments shall be determined at the rate of \$1,000 per acre-foot of ~~freshwater~~ **annual potable water use** reported annually in the ACR. Annual use payments to a water conservation program, confirmed by the CPM, shall be made no later than 60 days following CPM approval of the ACR. The project owner shall provide data or information to the CPM describing the water conservation program with estimates of the annual water saved in acre-feet in the subsequent ACR.

CONCLUSIONS

Staff believes that there is no possibility that the proposed changes to condition of certification **SOIL&WATER-6** would have a significant effect on the environment or

make changes that would cause the project not to comply with any applicable LORS. Implementing these changes would mean that there is no longer a current need for the project owner to install and maintain facilities necessary to obtain brackish groundwater as a backup water supply source.

The use of brackish groundwater or recycled water as the primary water supply for the MLGS is currently not economically feasible or environmentally desirable. However, the proposed amendment to change condition of certification **SOIL&WATER-6** will provide the project owner with more flexibility in choosing the water supply source as conditions warrant. The revised condition of certification allows for the continued analysis of the feasibility of using alternate water supplies, brackish groundwater or recycled water that may be required to replace the potable supply. Water conservation measures would continue to be required so long as the project owner continues to use potable water as the primary water supply for the MLGS.

The ACR would require the project owner to continue to evaluate the feasibility of using brackish groundwater or recycled water instead of potable water as the primary water supply for the MLGS. The project owner would also be required to continue to report in the ACR water use by the MLGS and, so long as potable water is used, provide evidence of annual payments for water conservation.

REFERENCES

AFC Amendment, 2009. URS/Anne Connell (tn: 53293). Marsh Landing Generating Station Application for Certification Amendment, September 15, 2009.

CAPWD, 2010. City of Antioch Public Works Department/R. Bernal (tn: 55636). Will-Serve Letter for Proposed Project. February 17, 2010.

Commission Decision, 2010. Marsh Landing Generating Station Application
Commission Decision August 31, 2010.

Petition, 2012. URS/ Marsh Landing Generating Station, Petition for Changes to Condition of Certification, May 14, 2012.

RSA, 2010. Revised Staff Assessment, Marsh Landing Generating Station, California Energy Commission, CEC-700-2010-010 REV, June 10, 2010.

ROC, 2012. California Energy Commission/Christopher Dennis Record of Conversation with David Frandsen GenOn Corporation re: water use, June 28, 2012.

UWMP, 2010. City of Antioch 2010 Urban Water Management Plan, June 27, 2011.
Website: <http://www.ci.antioch.ca.us/Environment/Water/Draft-Antioch-2010-UWMP.pdf>