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REQUEST FOR APPROVAL ON EQUIPMENT CHANGE

AT

Northern California Power Agency Geothermal Power Plants #2 and #3

Removal of existing hydrogen peroxide tanks and installation of a new tanks for caustic solution storage – Northern California Power Agency Geothermal Power Plants 1 and 2 (NCPA 2, and 3) currently have a 6,000 and 13,000 gallon respectively, horizontally oriented, hydrogen peroxide (50%) storage tanks that was used for secondary abatement when the plants was originally built and commissioned in the early 1980s.

The initial operation of the secondary abatement process used both FeS and H_2O_2 for hydrogen sulfide abatement. Since then, with the introduction of iron chelate, in lieu of FeS, the need for H_2O_2 has ceased. Hydrogen peroxide addition was also called for in the Alternative Compliance Plan (ACP) during load-following operations. As the steam rates, and generation output, have declined, and the Plant operates as base-load facility, there is no longer any operational need for this material. Additionally, steam flow and generation have decreased over time, the Stretford systems remain the same. This results in more than adequate capacity for H_2S abatement. Hydrogen peroxide has not been used as an abatement chemical at the facilities for nearly 20 years. Additionally there are no current operation protocols requiring the use of this material. The Northern Sonoma County Air Pollution Control District has sent a letter supporting this change directly to the CEC.

Description of Modification: This modification proposes to remove the existing tanks and replace them with tanks similar in size and configuration inside the existing secondary containments, however constructed from material compatible with caustic solution. The tanks will be constructed to API standards from carbon steel. A Structural Engineer will review the existing foundations and supports, and the proposed tank supports will meet current seismic standards. The tank installations will be installed by a qualified contractor under a public works contract. The amount of labor and number of construction works will not be known until the contract is awarded, and they will not be housed on site. No lay down area is necessary as the old tanks will have been removed allowing for the new tanks to be placed directly upon delivery.

These caustic solution tanks will be connected to the Stretford primary abatement system with above ground piping. No excavation is necessary, and the existing containment will not require any modification. The existing containments are constructed of concrete, and are 150% of tank volume. The new tank dimensions are similar to the existing tanks, both 9 feet in diameter and 16 feet long at Plant 1, and 29 feet long at Plant 2. The tank at Plant 1 weighs 9,000 pounds empty and 83,000 pound when full and the tank at Plant 2 will weigh 22,000 pounds when empty and 160,000 pounds when full. Please see attached photos and drawings for further information.

Necessity for the Modification: The installation of this new caustic tank will allow for more efficient operation of the Stretford abatement system, and eliminate the addition of soda ash. Soda ash is currently added as a daily bolus as dictated by laboratory analysis, and is a dry granular material, currently packaged in 50 pound bags. The manual handling of numerous 50 pound bags presents a potential safety concern with an aging work force. The elimination of the tanks containing 50% hydrogen peroxide that is no longer used also eliminates a serious hazard relative to liquid caustic.

Modification was not known at the time of Certification: The need for this modification became apparent during the last several years of operation and was not considered at the time of Certification.

If the modification is based on new information that changes or undermines the assumptions, rationale, findings, or other bases of the final decision, an explanation of why the change should be permitted: The modification does not change or undermine in any way the assumptions, rationale, findings, or other basis of the CEC Final Decision (81-AFC-03C).

Analysis of the impacts the modification may have on the environment: The installation of the caustic tank and related piping will have no significant adverse impacts on the environment. The remaining hydrogen peroxide will be added to the cooling tower basins without any human exposure risk, negating the disposal of the material as a hazardous substance. The Local CUPA will be informed of this operation and change to the facility, and the CERs inventory will updated to show the proposed caustic storage. All Best Management Practices (BMPs) for the storage of the 25% caustic will be followed.

Analysis on the impact of the modification on the facility's ability to comply with applicable laws, ordinances, regulations, and standards: The proposed modification does not impact the facility's ability to comply with all applicable laws, ordinances, regulations, and standards. The caustic tank will be installed per applicable LORS. Traffic routing for these tanks shall be on public highways, will not require any special permitting, and transportation of the tanks will be the responsibility of the tank manufacturer. The amount of traffic associated with this project will be negligible

A discussion of how the proposed modification affects the public: This modification will have no adverse effect on the public. The change will not likely be noticeable to the general public due to the remote location of the facility.

Property owners potentially affected by the modification: No property owners will be affected by the proposed modification. The site is located on a long term BLM lease in a very remote area.

Attachments:

A) Photos of existing hydrogen peroxide tank, containment, and general tank location Plant 1.
B) Photos of existing hydrogen peroxide tank and containment Plant 2
C) Photos of general tank location at Plant 2
D) Plot plans Plant 1 and 2

Attachment A Photos of Existing Hydrogen Peroxide Storage Tank and Containment Plant 1

Attachment B Photos of Existing Hydrogen Peroxide Storage Tank and Containment Plant 2


HYDROGEN PEROXIDE

Attachment C - Photos of Existing Hydrogen Peroxide Tank General Location at Plant 2


50% HYDROGEN PEROXIDE

Attachment D - Plot Plans NCPA Plants 1 and 2