

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING SEPTEMBER 7-8, 2006

Prepared August 2, 2006

ITEM NUMBER: 7

SUBJECT: Low Threat and General Discharge Cases

DISCUSSION

Low Threat Discharge to Surface Water (R3-2001-119)

California American Water Company, Pilot Desalination Plant, Moss Landing, Monterey County [Peter von Langen 805/549-3688]

On July 26, 2006, California American Water Company (Discharger) submitted a complete application and Notice of Intent for enrollment under the Low-Threat General Permit, WDR Order No. 01-119. The Discharger proposes to construct a pilot seawater desalination plant on property owned by LS Power in Moss Landing, Monterey County and to operate the plant for up to one year (Attachment 1). Monterey County certified the project's compliance with CEQA and issued a development permit on July 13, 2006.

The pilot desalination plant will produce an average of 0.08 million gallons per day (MGD) of waste desalination brine and 0.06 MGD of product water. The Discharger proposes to combine the brine and product water with the large flow (up to 750 MGD) of LS Power's once-through cooling (OTC) water, which is regulated by Waste Discharge Requirements Order No. 00-041. The combined pilot desalination plant and OTC flows will be discharged to the Pacific Ocean through LS Power's existing outfall-diffuser system.

The Discharger proposes to control pH, solids concentrations, chlorine residual concentrations, and scaling in the desalination equipment by adding small

quantities (total less than 129 pounds per day) of inorganic chemicals (Sodium Hypochlorite, Sulfuric Acid, Ferric Chloride, Powdered Activated Carbon (PAC), Antiscalant, Sodium Hydroxide, and Sodium Bisulfite) to the discharge and by treating the desalination feed water via micro-filtration (Attachment 2). These treatment chemicals are approved for use in potable drinking water. Waste Discharge Requirements Order No. 00-041, which the Water Board issued in 2000, establishes effluent limitations and other requirements that protect the Pacific Ocean's beneficial uses from existing and threatened adverse effects posed by the wastewater discharge from the Moss Landing Power Plant.

The large flow of OTC water will render insignificant any potential adverse effects of the chemical additives on ocean water quality. That is, the concentrations in the pilot plant's discharge will not degrade receiving waters even if it were to be discharged directly. However, those concentrations will be further reduced due to the dilution (approximately 5350:1) provided by OTC.

Additionally, wastes produced during filter backwash and cleaning will be collected in storage tanks and disposed of offsite. There are no impingement and entrainment issues attributable to this pilot desalination plant because the facility takes its source water from the power plant OTC system. Due to the low threat of the pilot plant discharge to the water quality of the Pacific Ocean, staff

recommends regulating this discharge through enrollment in the General Permit. Unless the Water Board objects, staff will notify the Discharger of the enrollment and require compliance with Monitoring and Reporting Program No. 01-119, modified for this discharge. A full scale facility would be regulated by an individual permit.

Poseidon Resources, Pilot Desalination Plant, Moss Landing, Monterey County [Peter von Langen 805/549-3688]

On May 25, 2006, Poseidon Resources Corporation (Discharger) submitted a complete application and Notice of Intent for enrollment under the Low-threat General Permit, WDR Order No. 01-119. The Discharger proposes to construct a pilot seawater desalination plant on the former National Refractories facility in Moss Landing, Monterey County (Attachment 1). Monterey County certified the project's compliance with CEQA and issued a development permit on March 21, 2006. The desalination plant will discharge up to 0.29 million gallons per day (MGD) of waste desalination brine and product water. The Discharger will discharge the combined flows to the Pacific Ocean through the existing National Refractories outfall-diffuser system.

The Discharger will pump feed water from Moss Landing Harbor through an existing intake structure. The Discharger will control pH, solids concentrations, chlorine residual concentrations and scaling in the desalination process by adding small quantities of inorganic chemicals to the desalination feed water and by treating the feed water via micro-filtration. The Discharger will send used membrane cleaning solution to the onsite waste disposal ponds or the sanitary waste disposal system.

The Discharger will pump waste brine to the Pacific Ocean through an existing outfall with a diffuser. Combining the brine and product water streams before

discharge will render insignificant any potential adverse effects from increased salinity. Staff also evaluated the concentrations of constituents (Polymer, Sodium Hypochlorite, Sodium Bisulfite, Ferric Sulfate, Ferric Chloride, and Sulfuric Acid) in the intake and discharge and found that there would not be any significant concentrations of pollutants at the outfall (Attachment 2). Material Safety Data Sheets (MSDS) support that low concentrations of flocculants and polymer are benign.

The Discharger evaluated the potential effects of entrainment and impingement based on a volumetric approach that compared the pilot desalination project to previous studies at the Moss Landing Power Plant (MLPP). The Discharger found that impingement and entrainment effects would be insignificant since the proposed discharge would have flows about 2,600 times lower than the combined flows of the MLPP's two cooling water systems (approximately 750 MGD). Although insignificant, the Discharger proposes to incorporate additional mitigation measures to address impingement and entrainment. Specifically, the discharger will include an intake velocity-reduction chamber, disk filters on the intake pipe, and provide an impingement and entrainment survival study of the disk filtration system.

Due to the low threat of the pilot plant discharge to the water quality of the Pacific Ocean, staff recommends regulating this discharge through enrollment in the General Permit. Unless the Water Board objects, staff will notify the Discharger of the enrollment and require compliance with Monitoring and Reporting Program No. 01-119, modified for this discharge. A full scale facility would be regulated by an individual permit.

Attachments

1. Map of Moss Landing showing intake and discharge points
2. Table of inorganic chemical usage
3. Map of Moss Landing showing intake and discharge points
4. Table of inorganic chemical usage