POSEIDON CHANNELSIDE
a Poseidon Water company

March 1, 2018

Ben Neill
Water Resources Control Engineer
Core Regulatory Unit
San Diego Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, CA 92123

SUBJECT: Order R9-2006-0065 Discharge Monitoring Report – 2017 Annual

PROJECT: Carlsbad Desalination Plant (CDP), 4590 Carlsbad Blvd., Carlsbad, CA 92008

Dear Mr. Neill,

Poseidon Resources (Channelside), LP (Discharger) is submitting its monthly discharge monitoring report in compliance with the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit Number CA0109223, Order Number R9-2006-0065. For reference, a summary of the order for the site is presented below:

NPDES Permit	Order No.	Adopted	Order Effective Date
CA0109223	R9-2006-0065	June 14, 2006	October 1, 2006

During the 2017 NPDES reporting period, discharges occurred in accordance with NPDES Permit Number CA0109223. As required in Attachment E of the Order, samples were taken throughout the year.

In January of 2017, the CDP was offline from January 23rd to January 26th in support of scheduled NRG shutdown and tunnel cleaning. Two compliance chronic toxicity samples were collected and uploaded to CIWQS as attachments. The Discharger submitted one violation for chronic toxicity result from January 2017 reporting period.

In February of 2017, the CDP was offline from February 16th to February 27th in support of scheduled SDCWA maintenance activities. CDP was offline again from February 28th to March 1st due to intake water quality. Three compliance chronic toxicity samples were collected and uploaded to CIWQS as attachments. The Discharger submitted one violation for chronic toxicity result during the February 2017 reporting period.

In March of 2017, the CDP resumed normal operations after the February 28th shutdown. CDP was offline again from March 26th to March 30th for scheduled monthly product water tank inspection. Six chronic toxicity samples were analyzed during the March reporting period with results consistently below the permit limit. The Discharger self-reported two deficient monitoring violations for not conducting daily monitoring during a temporary maintenance/bypass period as required under Attachment E, Footnote 15 of the Order during the March 2017 reporting period.

In April of 2017, the CDP was offline from April 2nd to April 3rd in support of scheduled NRG shutdown and tunnel cleaning. CDP was offline again from April 11th to April 27th due to an algal bloom and intake water quality. Eleven chronic toxicity samples were analyzed during the April reporting period with results consistently below the permit limit. The Discharger self-reported six deficient monitoring for weekly analysis not conducted as required under Attachment E, Table 3 and Table 5 of the Order during the April 2017 reporting period. Deficient Monitoring violations occurred during the plant bypass/maintenance period. Daily grab sample analysis at monitoring location M-001 indicated that CDP effluent discharge remained within compliance during this operational period.

In May of 2017, the CDP was offline on May 3rd from 3:00am to 8:00am due to an erroneous command entered into the SCADA system. CDP was offline again on May 30th from 1:00pm to 9:00pm for SWRO maintenance activities. Five compliance chronic toxicity samples were collected and uploaded to CIWQS as attachments. The Discharger submitted three violations for chronic toxicity results during the May 2017 reporting period. The Discharger self-reported one deficient monitoring violation for not conducting daily monitoring during a temporary maintenance/bypass period as required under Attachment E, Footnote 15 of the Order during the May 2017 reporting period.

In June of 2017, the CDP was offline on June 22nd from 10:42am to 8:04pm due to a SCADA interlock between a tripped pressure switch and ammonia dosing skid. CDP was offline again on June 26th from 5:36am to 8:40pm to repair a manifold leak in the cascade and address high cluster UCL's on RO Trains 2 and 8. Six compliance chronic toxicity samples were collected and uploaded to CIWQS as attachments. Due to the results of the accelerated chronic toxicity analyses in May and June, CDP initiated TRE/TIE screening on June 29th in an effort to further identify and mitigate the source(s) contributing to the toxicity. The Discharger submitted four violations for chronic toxicity results during the June 2017 reporting period. The Discharger self-reported two deficient monitoring violations for not conducting chronic toxicity analysis during the June 2017 reporting period.

In July of 2017, the CDP was offline from July 25th to July 26th due to a VFD failure on P-900-002. Special water quality sample analysis of product water overflow were collected during this event and were upload to CIWQS as attachments for the July 2017 reporting period. Six compliance chronic toxicity samples were collected and uploaded to CIWQS as attachments. The Discharger submitted three violations for chronic toxicity results during the July 2017 reporting period.

In August of 2017, the CDP was offline from August 4th to August 10th due to an ammonia feed loss at the product water pumps and reverse flow from the SDCWA pipeline to increase chlorine residual within the pipeline. On August 17th CDP initiated a complete plant shutdown due to a manifold failure on SWRO Train 5; CDP restarted pretreatment on August 18th to operate the facility in a bypass/maintenance mode. CDP maintained this operational mode throughout the duration of August while repairs were being conducted. Twenty-two compliance chronic toxicity samples were collected and uploaded to CIWQS as attachments. The Discharger submitted three violations for chronic toxicity results during the August 2017 reporting period.

In August of 2017, CDP initiated biannual 3 species chronic toxicity screening. There were no adverse effects observed at the 6.06 percent concentration (IWC) for any of the species tested. Therefore, all test results passed and were within permit compliance. Although there were no adverse effects observed in any of the tests at the IWC, the abalone was the only species to be adversely affected at the highest test concentration and was clearly the most sensitive during this round of testing. Analysis for the 3 species screening have been uploaded to CIWQS as attachments for the 2017 Annual reporting period.

In September of 2017, CDP resumed normal operations after the August 17th shutdown on September 20th. Twenty-two compliance chronic toxicity samples were collected and uploaded to CIWQS as attachments. The Discharger submitted eight violations for chronic toxicity results during the September 2017 reporting period

In October of 2017, the CDP maintained operations and delivery to SDCWA. Five compliance chronic toxicity samples were collected and uploaded to CIWQS as attachments. The Discharger submitted four violations for chronic toxicity results during the October 2017 reporting period. The Discharger self-reported one incomplete report violation for not completing daily water quality analysis as required under Attachment E, Footnote 15 of the Order during the October 2017 reporting period while running a RO train off-spec for Bacti analysis during normal operations with 12 RO trains delivering water to the San Diego County Water Authority.

In October of 2017, CDP conducted the second series of analysis for the 3 species chronic toxicity screening. There were no adverse effects observed at the 6.06 percent concentration (IWC) for any of the species tested. Although there were no adverse effects observed in any of the tests at the IWC, the abalone was the only species to be adversely affected at the highest test concentration and was clearly the most sensitive during this round of testing. Analysis for the 3 species screening have been uploaded to CIWQS as attachments for the 2017 Annual reporting period.

In November of 2017, the CDP shutdown operations on November 4th for a coordinated maintenance shutdown with the SDCWA. CDP restarted pretreatment on November 9th to operate the facility in a bypass/maintenance mode. CDP maintained this operational mode until delivery was resumed to SDCWA on November 17th. Ten compliance chronic toxicity samples were collected and uploaded to CIWQS as attachments. The Discharger submitted five violations for chronic toxicity results during the November2017 reporting period. The Discharger self-reported one incomplete report violation for not completing daily water quality analysis as required under Attachment E, Footnote 15 of the Order during the November 2017 reporting period while running a RO train off-spec during normal operations with 12 RO trains delivering water to the San Diego County Water Authority.

In December of 2017, the CDP was offline from December 4th to December 6th to a scheduled NRG shutdown and tunnel cleaning. On December 15, 2017 CDP conducted spike studies for coagulant AC-125 and polymer AEF-330 as part of the TIE/TRE evaluation. Both the coagulant and polymer showed no toxic effect at the concentrations expected in the plant discharge at M-001. Final reports for the spike studies were uploaded to CIWQS as attachments for the CY17 H2 reporting period. Nine compliance chronic toxicity samples were collected and uploaded to CIWQS as attachments.

The Discharger submitted four violations for chronic toxicity results during the December 2017 reporting period.

In December of 2017, CDP conducted the third and final series of analysis for the 3 species chronic toxicity screening. There were no adverse effects observed at the 6.06 percent concentration (IWC) for any of the species tested. Although there were no adverse effects observed in any of the tests at the IWC, the abalone was the only species to be adversely affected at the highest test concentration and was clearly the most sensitive during this round of testing. Analysis for the 3 species screening have been uploaded to CIWQS as attachments for the 2017 Annual reporting period.

The chronic toxicity results are an artifact of the conservative toxicity testing procedure set forth in the NPDES permit for the CDP, and did not result in harm to the environment. Under existing regulations, the CDP is required to meet the toxicity standard after initial mixing occurs. Initial mixing includes the mixing of the CDP's brine discharge with the discharge from the Encina Power Plant (four gallons of seawater exiting the power plant is mixed with every gallon of brine leaving the CDP); and then the combined CDP/power plant discharge receives additional mixing in the ocean prior to reaching the compliance point under the permit that is located 1,000 feet offshore (15 gallons of seawater mixes with every gallon of combined CDP/power plant discharge prior to reaching the compliance point).

Under the terms of the permit, the CDP is required to test for toxicity at higher discharge concentrations than is actually occurring at the compliance point. This is because the conservative testing regime set forth in the permit fails to take into consideration the initial dilution provided by the power plant.

The Discharger has been conducting two sets of toxicity tests since this problem was first identified in December 2015. For the period beginning December 9, 2015 through December 27, 2017 69 out of 173 monthly, weekly, and daily chronic toxicity samples tested demonstrated some level of toxicity; whereas 56 out of 58 of the samples tested with the full initial dilution provided by the power plant and in the ocean have been below the 3 toxicity limit in the permit. These results effectively demonstrate that the exceedance of the toxicity limit is a result of the failure to account for the dilution provided by the power plant discharge in toxicity monitoring procedure included in the permit, and not an indication of the plant causing toxic conditions in the Pacific Ocean.

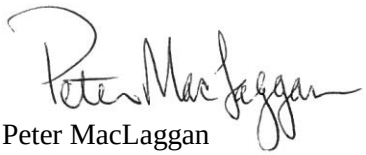
In accordance with the Order, further steps are being taken to identify and minimize source(s) of toxicity. Accelerated toxicity monitoring was initiated immediately after the first test demonstrating a toxicity issue and a Toxicity Investigation Evaluation (TIE) is being conducted in conformance with a Regional Water Board approved Toxicity Reduction Evaluation (TRE) Plan. The TIE includes investigative toxicity testing to identify the source of the toxicity.

The Discharger has been in close communication with the Regional Water Board on the CDP toxicity monitoring and the TIE. Additional sampling and testing will continue in an effort to identify and minimize the source(s) of toxicity.

I Certify under penalty of law that his document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel

properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,



Peter MacLaggan