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ENVIRONMENTAL PROTECTION

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**San Diego Regional Water Quality Control Board**

**Sent Via Email Only**

February 8, 2017

**In reply refer to:**  
**640063:dquach**

Mr. Peter MacLaggan  
Vice President  
Poseidon Resources (Channelside) LLC  
5780 Fleet Street, Suite 140  
Carlsbad, CA 92008  
pmaclaggan@poseidon1.com

**Subject: Compliance Evaluation Inspection Report for the Carlsbad Desalination Plant, Order No. R9-2006-0065, NPDES Permit No. CA0109223**

Mr. MacLaggan:

On January 11, 2017, Mr. Dat Quach, Ms. Brandi Outwin-Beals, and Mr. Ben Neill of the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) conducted a Compliance Evaluation Inspection at the Carlsbad Desalination Plant. The purpose of the Compliance Evaluation Inspection was to evaluate compliance with San Diego Water Board Order No. R9-2006-0065 (NPDES Permit No. CA0109223). A copy of the Compliance Evaluation Inspection Report is attached for your records.

In the subject line of any response, please include the reference number 640063:dquach. For questions or comments, please contact me by phone at (619) 521-5899 or by email at [Dat.Quach@waterboards.ca.gov](mailto:Dat.Quach@waterboards.ca.gov).

Respectfully,

Dat Quach  
Water Resources Control Engineer

Enclosure: Compliance Evaluation Inspection Report for Carlsbad Desalination Plant

Tech Staff Info & Use	
Order No.	R9-2006-0065
Party ID	522151
WDID	9 000001429
NPDES No.	CA0109223
Reg. Measure ID	308381
Place ID	640063
Person ID	339921(MacLaggan)
Inspection ID	27450862

**EPA Region IX and California Water Resources Control Board**  
**NPDES Compliance Evaluation Inspection (CEI) Report**

<b>Name and Location of Facility Inspected</b> Carlsbad Desalination Plant 4600 Carlsbad Boulevard Carlsbad, CA 92008		<b>Entry Date</b> 01/11/2017 <b>Entry Time</b> 9:30 AM	<b>Permit Effective Date</b> 10/1/2006
<b>NPDES Permit Number</b> CA0109223	<b>Order Number</b> R9-2006-0065	<input checked="" type="checkbox"/> <b>Major</b> <input type="checkbox"/> <b>Minor</b>	<b>County</b> San Diego County <b>Permit Expiration Date</b> 10/1/2011
<b>Name(s) &amp; Title(s) of On-Site Representative(s)</b> Peter MacLaggan (Vice President)		<b>Contact Information</b> Phone: 760-655-3999 E-mail: pmaclaggan @poseidon1.com	<b>Notified of Inspection?</b> <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>
<b>Name, Title &amp; Address of Responsible Official</b> Peter MacLaggan (Vice President) 4600 Carlsbad Boulevard Carlsbad, CA 92008		<b>Contact Information</b> Phone: 760-655-3999 E-mail: pmaclaggan @poseidon1.com	<b>Official Contacted?</b> <input type="checkbox"/> <b>yes</b> <input checked="" type="checkbox"/>
<b>Inspector(s)</b> <b>Primary:</b> Dat Quach (San Diego Water Board) <b>Other(s):</b> Brandi Outwin-Beals and Ben Neill (San Diego Water Board)			<b>Presented Credentials?</b> <b>Yes</b>
<b>Weather Conditions at the Time of the Inspection:</b> Raining		<b>Facility Receiving Water Name:</b> Pacific Ocean	
<b>Overview of Areas Evaluated During Inspection</b> <i>S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated</i>			
Permit: S		Flow Measurement: S	Biosolids/Solid Waste Handling & Disposal: N
Records/Reports: S		Self-Monitoring Program: S	Compliance Schedules: N
Facility Site Review: S		Laboratory: S	Pretreatment (POTWs Only): N
Effluent and Receiving Waters: S		Operations & Maintenance: N	Stormwater: N
Prepared By: Dat Quach (San Diego Water Board) on 2/03/2017			
Reviewed By: Brandi Outwin-Beals (San Diego Water Board) on 2/06/2017			

### **Facility Narrative**

On January 11, 2017, Mr. Dat Quach, Ms. Brandi Outwin-Beals, and Mr. Ben Neill of the San Diego Water Board inspected the Carlsbad Desalination Plant (Facility) in Carlsbad, CA. Discharges from the Facility are regulated by Order No. R9-2006-0065 (NPDES Permit No. CA0109223). The primary purpose of the inspection was to determine the accuracy and reliability of the Carlsbad Desalination Plant's self-monitoring and reporting program. The primary on-site Facility representatives were Mr. Peter MacLaggan (Vice President), Mr. David Moxey (Plant Manager), Mr. Josh Capito (Compliance Officer), and Mr. Dean Rauscher (Chief Plant Operator).

The Facility is located in Carlsbad, CA adjacent to the Agua Hedionda Lagoon and the Pacific Ocean. The Facility uses 304 million gallons per day (MGD) of Encina Power Station cooling water effluent as source water. An average daily flow of 50 MGD of fresh potable water is produced by the Facility. Treatment processes at the Facility consist of pretreatment, reverse osmosis desalination, disinfection, and product water stabilization. Of this 304 MGD of source water, 107 MGD is used for the production of 50 MGD of potable water (and 57 MGD of wastewater). The remaining 197 MGD of source water not used for production is needed as dilution water to comply with the salinity requirements of the NPDES Permit. This results in a total discharge flow rate of 254 MGD (57 MGD of wastewater and 197 MGD of dilution water).

### **Major Findings**

NONE

**PERMIT:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
1. Current copy of Facility's NPDES permit available on site.	S
2. Correct name and mailing address of permittee identified on NPDES permit.	S
3. Facility is as described in permit.	S
4. a. Notification given to Regional Water Board of process/production modifications, collection system expansions, etc. that impacted quality/quantity of discharge or changes to the Facility or increased discharge. b. Permit modification received, if required, prior to changes.	N N
5. Recent permit modifications, amendments or compliance orders on file.	S
6. Number of discharge outfalls the same as listed in the permit.	S
7. Name of receiving waters listed correctly in the permit.	S
8. Permit status (i.e., Current, Expired, or Extended) <b><i>The permit has been administratively extended.</i></b>	Extended
9. Permit renewal application submitted to the Regional Water Board at least 180 days prior to the expiration date.	S
10. Other:	N

**Notes:**

***This section was rated "satisfactory" because all checklist items reviewed were rated satisfactory.***

**RECORDS/REPORTS:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
<p>1. NPDES records maintained for the time period required (5 years):</p> <p>The following records and reports were requested and observed:</p> <ul style="list-style-type: none"> <li>- <b>Current permit, monitoring and reporting program, standard provisions</b></li> <li>- <b>Permit modifications</b></li> <li>- <b>Latest three months of eSMRs (Sept 2016 through November 2016)</b></li> <li>- <b>Spill Prevention Control and Countermeasure (SPCC) Plan (dated October 15, 2015)</b></li> <li>- <b>Spill and bypass records (three spill)</b></li> </ul>	<p>Yes</p>
<p>2. a. Did the Facility document any spills or bypasses during the period reviewed?</p> <p>b. Spills and bypasses reported and documented as required by the permit (i.e., as soon as possible, but no later than 24 hours from the time the permittee first became aware of the circumstances).</p> <p>c. Follow-up written documentation given as required by the permit (within 5 days in most cases).</p>	<p>3 Spills</p> <p>S</p> <p>S</p>

**RECORDS/REPORTS:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
3. Discharge monitoring report (DMR) and/or self-monitoring report (SMR) evaluation: <ul style="list-style-type: none"> <li>a. The responsible person or designee signs and certifies the DMRs and/or SMRs.</li> <li>b. The Facility monitors more frequently than required by the permit.</li> <li>c. All data collected are summarized on the DMRs and/or SMRs.</li> <li>d. Data reported on DMRs and/or SMRs is consistent with analytical results.</li> <li>e. Coliform concentrations calculated as required by the permit (e.g., median, geometric mean).</li> <li>f. Numerical values for minimum detection limits are reported on DMRs and/or SMRs when laboratory reports "Not Detected" or "0" (for example, MDL= 3, Report: "&lt;3" on DMR).</li> <li>g. "Less than values" properly carried through loading calculations.</li> <li>h. Flow measurement period used for loading calculations brackets the sampling period.</li> <li>i. Influent and/or effluent loading rates properly calculated; if required.</li> <li>j. Number Exceeding (N.E.) properly reported on all DMRs and annual reports.</li> </ul>	S N S S N N N N N N
4. Reports completed in the timeframe and with the frequency required by the permit (not all reports required for all facilities): <ul style="list-style-type: none"> <li>a. DMRs and/or SMRs</li> <li>b. Biosolids Monitoring Reports</li> <li>c. Biosolids Management Reports</li> <li>d. CSO/ I&amp;I Reports</li> <li>e. Compliance Schedule Reports</li> <li>f. Pretreatment Reports</li> <li>g. Other:</li> </ul>	S N N N N N N

**RECORDS/REPORTS:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
5. Sampling and analytical records (for water and solids) include: <ul style="list-style-type: none"> <li>a. Dates, times, and location of sampling</li> <li>b. Names of individuals performing sampling</li> <li>c. Analytical methods</li> <li>d. Results of analyses</li> <li>e. Dates of analyses</li> <li>f. Times of analyses, as necessary to verify holding times</li> <li>g. Analysts' names or initials</li> <li>h. Instantaneous flow at grab sample stations, if required</li> </ul>	S S S S S S S N
6. Plant records include: <ul style="list-style-type: none"> <li>a. Daily plant operational records or log book</li> <li>b. Equipment maintenance records and schedules</li> <li>c. CSO/lift station check records or log book</li> <li>d. Records of auxiliary power checks</li> <li>e. Spill Prevention Control and Countermeasure (SPCC) plan</li> <li>f. Pollution Prevention Plan (P3)</li> <li>g. Storm Water Pollution Prevention Plan (SWPPP)</li> <li>h. Influent and/or effluent flow measurement records maintained for the past three years</li> <li>i. Other:</li> </ul>	S S N N S N N S N
7. All records and reports required by the permit appear to be organized and available for inspection.	S
8. Other:	N
<b>Notes:</b> <i>This section was rated "satisfactory" because all checklist items reviewed were rated satisfactory.</i>	

**FACILITY SITE REVIEW:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
1. All treatment units and supporting equipment are in service and functioning properly mechanically.	S
2. Hydraulic and organic loadings are consistent with the fact sheet and plant design criteria. a. Are there signs of overloading to the Facility and collection system, including I&I and septage loading?	N
3. Peak flows remain within the established plant capacity. a. If flows have exceeded capacity, has the Regional Water Board been notified?	S N
4. Lift stations are properly monitored, maintained, have a backup power source and are not subject to chronic spills and/or overflows.	N
5. Odors are adequately controlled, resulting in limited complaints.	S
6. Residual chlorine monitoring is well documented and sampling/monitoring is representative of the discharge. a. If a UV system is used, the dosage intensity, tubes, and alarms are adequate, maintained and documented.	S N
7. Housekeeping procedures are adequate to prevent release of pollutants to the environment: a. Adequate dikes and secondary containment b. Spill containment and clean-up c. Signs of spillage to soil, groundwater, or surface water d. Stormwater and leachate management from storage piles e. Leaking pipes, pumps, etc. f. Drum and chemical storage areas g. Minimization of pollutants entering stormwater outfalls h. Other open dumps or debris piles i. Other:	S S S N S N N N N

**FACILITY SITE REVIEW:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
8. Signs of tank deterioration and/or settlement.	N
9. Safety concerns are present that may interfere with proper operation, maintenance, and/or monitoring.	S
10. Material Safety Data Sheets (MSDS) are available for stored chemicals.	S
11. Equipment available for spill cleanup and containment.	N
12. Other:	N
<b>Notes:</b> <i>This section was rated "satisfactory" because all checklist items reviewed were rated satisfactory.</i>	

**EFFLUENT AND RECEIVING WATERS:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
1. Recent DMR and/or SMR history (last <b>3</b> months) (outfall number(s) <b>001</b> ): a. Violations of discharge limits b. Spills/bypasses c. Fish kills or other receiving water impacts d. WET testing results are in accordance with the permit e. If effluent limit violations have been identified, what actions has the Facility taken to eliminate or reduce their recurrence?	S S N N N
2. DMR and/or SMR spot Check of <b>September 2016 through November 2016</b> : a. Internal lab sheets and contract lab results properly transferred to DMRs b. Monthly average, weekly, maximum, etc., values correctly calculated per the permit c. Influent and effluent loadings reported d. DMR and/or SMR accurate and complete for each outfall	S S S S
3. Appearance of effluent during inspection: a. The effluent(s) was viewed during the inspection b. Excessive foam, scum, or sheens present c. Cloudy and/or color d. Excessive solids e. Other:	Yes S S S N
4. Appearance of receiving water(s) during inspection: a. The receiving water(s) was viewed during the inspection b. Distinctly visible foam or sheens on receiving water c. Biosolids accumulation or deposits of solids below discharge point(s) d. Distinctly visible plume from discharge(s) to receiving water e. Discharge creates objectionable odor at or near receiving water(s) f. Other: <b><i>The discharge pond and tunnels leading to the Pacific Ocean were viewed and the effluent discharge pond appeared to be free of visually objectionable characteristics.</i></b>	NO N N N N N

**EFFLUENT AND RECEIVING WATERS:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
5. Other:	N
<b>Notes:</b> <i>This section was rated "satisfactory" because most checklist items reviewed were rated satisfactory.</i>	

**FLOW MEASUREMENT:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
1. Flow measurement devices and methods: <b>Influent Measurement:</b> Primary Device: <u>Calculated/Data Logger System</u> Secondary Device: <u>N/A</u> <b>Effluent Measurement:</b> Primary Device: <u>N/A</u> Secondary Device: <u>N/A</u> Other method of estimating flow: <u>N/A</u> <b>The Facility calculates the influent flow Calculated from 4 Mag meters, calculates the effluent flow from 20 meters.</b> <b>Mag meters are factory calibrated.</b>	S  N  N N N
2. Flow measurement devices designed to meet permit requirements ("continuous measured," "continuous record," etc.).	S
3. Flow measurement location is representative of the actual discharge (considering return and bypass lines, etc.).	See notes
4. Flumes: a. Approach channel straight for at least 10 times the maximum head height in flume b. Flow enters flume evenly distributed across the channel and free of turbulence, boils, or other disturbances c. The flume is clean and free of debris or deposits d. All flume dimensions appear accurate, level, and plumb e. Flume head is being measured properly f. Flume is appropriately sized to measure the existing range of flows g. No obstructions downstream causing inaccurate flow measurement due to excessive "submergence" in flume h. Proper flow tables being used	N N  N N N N N N

**FLOW MEASUREMENT:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
5. Weirs: <ul style="list-style-type: none"> <li>a. Approach channel straight for at least 10 times the maximum head height</li> <li>b. Flow in the approach channel is evenly distributed and free of turbulence, boils, or other disturbances</li> <li>c. No solids accumulation in the bottom of the approach channel</li> <li>d. Weir crest is located at least two times the maximum head height off the floor of the flow channel</li> <li>e. The weir plate is level, plumb and without distortions</li> <li>f. Weir is beveled on downstream side if plate is &gt; 1/8 inch thick</li> <li>g. No leakage around the weir plate</li> <li>h. Measuring point located at least 3 times the maximum head height behind (upstream of) the weir</li> <li>i. There is free-fall and access for air below the nappe of the weir (i.e., water doesn't cling to the weir plate)</li> <li>j. Weir sized properly to measure the existing range of flows</li> <li>k. Proper flow tables being used for weir type and size</li> </ul>	N N N N N N N N N N N
6. Secondary flow device properly installed and maintained, and operating without interference from foam, turbulence, webs, etc.	N
7. Date of last flow meter calibrations: <b>Influent:</b> Performed by: <u>N/A</u> <b>Effluent:</b> Performed by: <u>N/A</u>	N  N
8. Calibration checks by plant personnel routinely performed.	N
9. Calibration records (external and internal checks) maintained.	N
10. Other:	N
<p><b>Notes:</b>            Flow is not measured directly at M-001 or M-INF. Rather influent and effluent flow is calculated from multiple flow meters internal to plant operations. The process to calculate flows is confusing and could be prone to future errors.</p> <p><b><i>This section was rated "satisfactory" because all checklist items reviewed were rated satisfactory.</i></b></p>	

**SELF-MONITORING PROGRAM:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
1. Sampling locations, type, methods, and frequencies conform to the NPDES permit for all required samples (including influent, effluent, biosolids, receiving stream, etc.).	S
2. Sampling locations and methods provide representative samples. a. Grab samples are collected during peak flow conditions rather than low-stress conditions b. Composite sampling procedures comply with the permit (time vs. flow weighted) c. Other:	S  S N
3. Automatic samplers and other sampling equipment are properly cleaned.	S
4. Samples are preserved using methods listed in 40 CFR, Part 136 (e.g., chilled, acidified).	S
5. Sample containers are as listed in 40 CFR, Part 136.	S
6. Chain of custody is maintained and documented.	S
7. Samples are collected using approved protocols: a. Coliform samples are collected directly into sterilized containers b. BOD samples are collected prior to disinfection or reseeded c. Oil and grease samples are collected directly into glass containers d. Other:	N N S N
8. Other:	N

**Notes:**

***This section was rated "satisfactory" because all checklist items reviewed were rated satisfactory.***

**LABORATORY:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
1. Onsite laboratory is ELAP-certified. a. List parameters analyzed at the onsite laboratory that are used for DMR reporting: <b><i>Turbidity, pH, conductivity, TDS, and TSS</i></b> b. List additional parameters analyzed for internal monitoring and process control: <b><i>N/A</i></b> <b><i>ELAP Certification expires on April 30, 2018.</i></b>	Yes
2. EPA-approved analytical methods are used by the onsite laboratory.	S
3. Adequate equipment and procedures used for on-site analyses: a. BOD and CBOD b. TSS c. pH d. Dissolved oxygen e. Residual chlorine f. Temperature g. Other:	N N N N N N
4. Onsite laboratory records include: a. Laboratory SOPs b. Calibration and maintenance of equipment c. Equipment operating instructions and manuals	S S S
5. Adequate spare parts and supplies for onsite analyses.	N
6. Results of latest external DMR QA or WP study are available and are acceptable.	N
7. Satisfactory refrigeration in use.	N
8. Certified contract laboratory(s) being used:	S

**LABORATORY:**

**OVERALL RATING: S**

INSPECTED ITEM	EVAL
Laboratory Name: <b>Weck Lab</b>  Visited? <b>No</b> Address: 14859 East Clark Ave., City of Industry, CA 91745 Phone: 626-336-2139 Parameters: <b>O&amp;G, total suspended solids, total settleable solids, turbidity, salinity</b>	
9. EPA-approved analytical procedures are identified on contract lab report.	S
10. Holding times are being met by onsite and/or contract laboratory. a. pH measured in situ or within 15 minutes of sample collection. b. Residual chlorine measured in situ or within 15 minutes of sample collection.	S S
11. Other:	N
<b>Notes:</b> <i>This section was rated "satisfactory" because all checklist items reviewed were rated satisfactory.</i>	

**Carlsbad Desalination Plant Photo**  
Inspected by: Dat Quach



Photo 1: View of the Facility's cooling water intake bar racks and intake structure.



Photo 2: View of the “discharge pond” and tunnels leading to the Pacific Ocean.



Photo 3: RO Filters.



Photo 4: Solids disposal.