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<td><strong>Organization:</strong></td>
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<tr>
<td><strong>Submitter Role:</strong></td>
<td>Applicant</td>
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<td><strong>Submission Date:</strong></td>
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PART ONE

EL SEGUNDO ENERGY CENTER PROJECT,
DOCKET NO. 00-AFC-14C, CONDITION OF CERTIFICATION
COMPLIANCE-7, 2018 ANNUAL COMPLIANCE REPORT,
DOCKET NO. 00-AFC-14C
March 28, 2019

Mr. Joseph Douglas
Compliance Project Manager
Docket No. 07-AFC-6C
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

RE: EL SEGUNDO ENERGY CENTER PROJECT,
DOCKET NO. 00-AFC-14C, CONDITION OF CERTIFICATION
COMPLIANCE-7, 2018 ANNUAL COMPLIANCE REPORT,
DOCKET NO. 00-AFC-14C

Dear Mr. Douglas:

El Segundo Energy Center LLC (Project Owner) submits the attached 2018 Annual Compliance Report in compliance with the AFC Docket No. 00-AFC-14C, Conditions of Certification (COCs) COMPLIANCE-7 for the ESEC Project located at 301 Vista Del Mar, El Segundo, California.

This report covers the operational reporting period January through December 2018. The following documents are included per specific project COCs:

Attachment A: COMPLIANCE-5 and COMPLIANCE-7: Annual Compliance Matrix
Attachment B: COMPLIANCE-7: List of Permits
Attachment C: COMPLIANCE-7 and COMPLIANCE-10: 24-Hour Hotline Message System Log for 2018
Attachment D: BIO-7: Summary of Biological Surveys Conducted in 2018
Attachment E: GEO-4: Seventh Annual Shoreline Monitoring Assessment Report
Attachment F: HAZ-1: List of Hazardous Materials
Attachment G: TLSN-3: Electro Interference Complaints
Attachment H: VIS-2 and VIS-3: Landscape and Seawall Maintenance Activities
Attachment I: VIS-5: Structure Surface Painting and Treatment Maintenance
Attachment J: VIS-6: Lighting Complaints (Units 5, 6, 7 and 8)
Attachment K: VIS-7: Lighting Complaints (Units 3 and 4)
Attachment L: WASTE-3: Waste Management Methods

If you have any questions regarding this submittal, please contact Timothy Sisk at (760) 710-2129.

Sincerely,
El Segundo Power, LLC
By: NRG El Segundo Operations Inc.
    Its Authorized Agent

By: [Signature]
Ken H. Riesz Sr.
Plant Manager


Cc: File
El Segundo Energy Center Project (00-AFC-14C)

California Energy Commission Annual Compliance Report

2018
(January – December 2018)

Submitted by: El Segundo Energy Center LLC
Date Submitted: 3-28-2019
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Attachment A:  COMPLIANCE-5 and COMPLIANCE-7: Annual Compliance Matrix
Attachment B:  COMPLIANCE-7: Notifications Submitted and Permits Obtained in 2018
Attachment C:  COMPLIANCE-7 and COMPLIANCE-10: 24-Hour Hotline Message System Log-2018
Attachment D:  BIO-7: Summary of Biological Surveys Conducted in 2018
Attachment E:  GEO-4: Eighth Year Shoreline Monitoring Assessment Report
Attachment F:  HAZ-1: List of Hazardous Materials
Attachment G:  TLSN-3: Electro Interference Complaints
Attachment H:  VIS-2 and VIS-3: Landscape and Seawall Maintenance Activities
Attachment I:  VIS-5: Structure Surface Painting and Treatment maintenance
Attachment J:  VIS-6: Lighting Complaints (Units 5, 6, 7, and 8)
Attachment K:  VIS-7: Lighting Complaint (Units 3 and 4)
Attachment L:  WASTE-3: Waste Management Methods
1. **Annual Compliance Matrix**

A copy of the Annual Compliance Matrix is provided in Attachment A. Conditions of Certification (COCs) fully satisfied since completion of construction activities are not included. No new compliance activities have been added to the matrix during 2018.

2. **Project Operating Status**

The El Segundo Energy Center (ESEC) project was substantially available during 2018, and ESEC operated January 1 through December 2018 when called upon by CAISO. Average operating status was in combined cycle mode for both power blocks Unit 5 (gas turbine) and Unit 6 (steam turbine) and Unit 7 (gas turbine) and Unit 8 (steam turbine). All ESEC units were unavailable from January 25 through February 1, 2018 for Southern California Edison 220kV transmission maintenance which prevented ESEC from generating and transferring electricity to the electrical grid. ESEC combustion turbine (CT) units 5 and 6 were unavailable from February 25 to March 25, 2018, and units 7 and 8 were unavailable from March 9 through April 9, 2018 due to annual maintenance outages. The ESEC units were periodically unavailable for short periods for routine maintenance and/or repairs to equipment.

3. **List of Documents Submitted to Meet Specific Conditions**

Per COC COMPLIANCE-7, Annual Compliance Report, the following documents are submitted herein as **Attachments A to M** to satisfy specific Conditions of Certifications:

a. COMPLIANCE-5 and COMPLIANCE-7: Annual Compliance Matrix is provided in **Attachment A**.
b. COMPLIANCE-7: Other permits correspondence is provided in **Attachment B**.
c. COMPLIANCE-5 and COMPLIANCE-7: 24-Hour Hotline Message System Log for 2018 is provided in **Attachment C**.
d. BIO-7: Biological surveys conducted in 2018 are provided in **Attachment D**.
e. GEO-4: Quarterly and Sixth Annual Shoreline Monitoring Assessment Reports are provided in **Attachment E**.
f. HAZ-1: List of hazardous materials is provided in **Attachment F**.
g. TLSN-3: Electro interference complaints are provided in Attachment G.
h. VIS-2 and VIS-3: Landscape and seawall maintenance activities are provided in Attachment H.
i. VIS-5: Structure Surface Painting and Treatment Maintenance activities are provided in Attachment I.
j. VIS-6: Lighting complaints related to Units 5, 6, 7, and 8 are provided in Attachment J.
k. VIS-7: Lighting complaints related to facility Units 3 and 4 are provided in Attachment K.
l. WASTE-3: Waste management methods are provided in Attachment L.
m. WASTE RES-5: Annual Water Use Summary Report is provided in Attachment M.

4. **Cumulative List of Post-Certification Changes Approved by the CEC or Cleared by the CPM**

   a. Petition to Amend Ammonia Delivery Method, Permitted Ammonia Flow Rate and Project Name Change, dated April 2012. CEC Approved Amendment was docketed by the CEC on August 17, 2012.
   
   b. Petition to Amend Air Quality Conditions of Certification, submitted October 3, 2014. CEC Order 15-0114-2 - Approving Clarification to Turbine Startup/Restarts was docketed on January 22, 2015.
   
   c. Petition to Modify Steam Turbine Weatherization Enclosures, dated December 23, 2015. CEC Approved the Amendment was docketed October 28, 2016.
   
   d. Petition to Amend for Gas Turbine Upgrade Modifications, dated August 15, 2017. CEC staff issued Notice of Determination approving the Amendment, which was docketed on December 6, 2017.

5. **List of Submittal Deadlines Missed During Reporting Period**

   ESEC did not miss any deadline submittal requirements during 2018.

6. **List of any filings with, or permits issued by, other governmental agencies during the year**

   A list of filings with, or permits issued by, other governmental agencies is provided in Attachment B. The ESEC operates within the El
El Segundo Generating Station (ESGS) facility. The ESGS is operated by El Segundo Power, LLC (ESP), and hence some permits listed are issued to ESP. Some permits obtained or serviced by the ESGS facilitate operation of the ESEC.

7. **Projection of Project Compliance Activities Scheduled for 2018**

- AQ-2: Annual Calibration of Ammonia Flow Meters
- AQ-3: Annual Calibration of Temperature Gauges
- AQ-4: Annual Calibration of Differential Pressure Gauges
- AQ-5: Annual NH3 Slip Test
- AQ-7: Annual VOC Source Test
- AQ-C8: Quarterly Operations Report
- AQ-26: Annual Calibration of inlet NOx Analyzer
- BIO-7: Conduct periodic biological surveys
- GEO-4: Quarterly Shoreline Monitoring Assessments
- VIS-2: Perimeter Landscape Maintenance Activities
- VIS-3: Seawall Maintenance Activities
- VIS-5: Structure Surface Painting and Treatment Maintenance
- WASTE RES-5: Report Annual Water Use

8. **Additions to on-site compliance file**

Files are maintained on regular basis as operational COCs are implemented. This primarily consists of the AQ-C8 quarterly operational reports, AQ-7 annual and tri-annual source test results, GEO-4 quarterly beach survey reports, BIO-7 designated biologist surveys, VIS-2 landscaping maintenance log, VIS-3 seawall maintenance, and VIS-5 equipment painting log.

Files maintained for routine annual activities (not required to be attached to this Annual Compliance Report submittal) are available for review upon request.
9. Evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date

ESEC submitted the Unplanned Facility Closures/On-Site Contingency Plan for to the CEC on June 24, 2013, in compliance with COMPLAINCE-12. ESEC has not received any comments from the CEC as of March 28, 2019. ESEC has evaluated the plan and updated relevant station procedures and emergency evacuation route maps. ESEC reviewed equipment warranties and insurance coverage for the project and found the description still relevant. The updated Unplanned Closure Plan has been updated and will be submitted to the CPM under separate cover letter.

10. List of complaints, notices of violation, official warnings, citations received during year, a description of the resolution of any resolved matters, and the status of any unresolved matters

Messages received on the 24-hour hotline system concerning noise complaints between January 1 and December 31, 2018 are documented on the log provided in Attachment C. There were several telemarketing calls that were received by the 24-hour hotline number in 2018. However, there were no calls logged into the 24-hour hotline number that related to the ESEC Project.

ESEC has not received any notices of violation, official warnings or citations related to the operation of the ESEC during this reporting year.
ATTACHMENT A

COMPLIANCE-5 and COMPLIANCE-7: Annual Compliance Matrix

Condition Verification Summary:
Condition requires ESEC to submit, as part of the Annual Compliance Report, an updated compliance matrix showing the status of all conditions of certification. Satisfied conditions do not need to be included.

ESEC Submission:
An operational phase compliance matrix is provided herein.
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<td>Quarterly</td>
<td>NA</td>
<td>NA</td>
<td>22-Jan-15</td>
<td>In Progress</td>
</tr>
<tr>
<td>AQ 61</td>
<td>Quarterly Resource Board Meetings</td>
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<td>Quarterly</td>
<td>NA</td>
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<td>AQ 62</td>
<td>Quarterly Resource Board Submittals</td>
<td>Y</td>
<td>Quarterly</td>
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<td>NA</td>
<td>22-Jan-15</td>
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<td>AQ 63</td>
<td>Quarterly Resource Board Meetings</td>
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<td>AQ 64</td>
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<td>AQ 65</td>
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<td>NA</td>
<td>22-Jan-15</td>
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<td>AQ 77</td>
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<td>Quarterly</td>
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<td>AQ 79</td>
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<td>Quarterly</td>
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<td>AQ 82</td>
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<td>AQ 83</td>
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<td>Quarterly</td>
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<td>AQ 84</td>
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<td>AQ 85</td>
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<td>AQ 86</td>
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<td>Technical Area</td>
<td>ICC No.</td>
<td>Condition Short Description</td>
<td>Submittal Action</td>
<td>Deliverable?</td>
<td>Action Days</td>
<td>Submittal Timing</td>
<td>Expected Submittal Date</td>
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<tr>
<td>---------------</td>
<td>---------</td>
<td>-----------------------------</td>
<td>------------------</td>
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<tr>
<td>1.1</td>
<td>1</td>
<td><em>Required Prior to Start of Construction</em></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>2.1.1</td>
<td>1</td>
<td>Notify the Division of State Lands of all new or amended lease agreements</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
</tr>
<tr>
<td>2.1.2</td>
<td>2</td>
<td>Notify the Division of State Lands of new or amended lease agreements</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
</tr>
<tr>
<td>2.2</td>
<td>3</td>
<td>Maintain lease rights with State Lands Commission and provide copies of new or amended agreements to CPM</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
</tr>
<tr>
<td>2.3</td>
<td>4</td>
<td>Report monthly compliance to the State Lands Commission and provide reports of any violations of contract</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
</tr>
<tr>
<td>2.4</td>
<td>5</td>
<td>Provide a report of noise complaints received in that time period, and the status of resolution of each complaint, including all those not yet resolved</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
</tr>
<tr>
<td>2.5</td>
<td>6</td>
<td>Participate in the Monterey Bay National Marine Sanctuary Monitoring Program</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
</tr>
<tr>
<td>2.6</td>
<td>7</td>
<td>Participate in the Monterey Bay National Marine Sanctuary Monitoring Program</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
</tr>
<tr>
<td>2.7</td>
<td>8</td>
<td>Provide a report of pesticide usage to the Monterey Bay National Marine Sanctuary Monitoring Program</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
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<tr>
<td>2.8</td>
<td>9</td>
<td>Document and report complaints of noise complaints</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
</tr>
<tr>
<td>2.9</td>
<td>10</td>
<td>Document and report complaints of noise complaints</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
</tr>
<tr>
<td>3.1</td>
<td>1</td>
<td>Notify the Division of State Lands in the event of any violations of contract</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
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<tr>
<td>3.2</td>
<td>2</td>
<td>Participate in the Monterey Bay National Marine Sanctuary Monitoring Program</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
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<tr>
<td>3.3</td>
<td>3</td>
<td>Document and report complaints of noise complaints</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
</tr>
<tr>
<td>3.4</td>
<td>4</td>
<td>Document and report complaints of noise complaints</td>
<td>Y</td>
<td></td>
<td>10</td>
<td></td>
<td>10 days after beginning</td>
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</tbody>
</table>
### ATTACHMENT B

**COMPLIANCE-7: List of Filings and Permits Obtained**
List of Filings with Other Governmental Agencies Attached

<table>
<thead>
<tr>
<th>Date of Filing or Issued</th>
<th>Permit Number</th>
<th>Permit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly</td>
<td>NPDES Permit No. CA0001147</td>
<td>Monthly Discharge Monitoring Reports</td>
</tr>
<tr>
<td>Quarterly</td>
<td>NPDES Permit No. CA0001147</td>
<td>Quarterly Discharge Monitoring Reports</td>
</tr>
<tr>
<td>Semi-annual</td>
<td>NPDES Permit No. CA0001147</td>
<td>Semi-annual Discharge Monitoring Report</td>
</tr>
<tr>
<td>Annual</td>
<td>NPDES Permit No. CA0001147</td>
<td>Annual Discharge Monitoring Report</td>
</tr>
<tr>
<td>Issued: 2-12-15</td>
<td>NPDES Permit No. CA0001147</td>
<td>Individual NPDES Permit for discharge of industrial waste water to El Segundo Power LLC. Includes storm water discharge from El Segundo Energy Center Site.</td>
</tr>
<tr>
<td>Effective: 4-1-15</td>
<td></td>
<td></td>
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<tr>
<td>5 year Permit.</td>
<td></td>
<td></td>
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<tr>
<td>Issued: 11-25-14</td>
<td>115663</td>
<td>El Segundo Power, LLC Title V Permit Expires 12-2-2019</td>
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<tr>
<td>(Issued annually January 1st)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issued: 7-1-18</td>
<td>CERS No. 10401328</td>
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<td>12-6-17</td>
<td>00-AFC-14C TN#221912</td>
<td>Notice of Determination - Turbine Upgrade</td>
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<tr>
<td>1-17-18</td>
<td>115663</td>
<td>Title V Minor Permit Revision-Permit to Operate for Turbine Upgrade</td>
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</tbody>
</table>
ATTACHMENT C

COMPLIANCE-7 and COMPLIANCE-10: 24-Hour Hotline Message System Log - 2018

Condition Verification Summary:
Condition requires ESEC to provide a list of complaints, notices of violation, official warnings, citations received during year, a description of the resolution of any resolved matters, and the status of any unresolved matters in the Annual Compliance Report.

ESEC Submission:
All messages received via e-mail or on the 24-Hour Hotline Message System between January 1 and December 31, 2018 are documented in the log provided herein. There were no calls on the 24-Hour Hotline Message System relating to the ESEC project in 2018.
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Complaint Log Number</th>
<th>Complainant</th>
<th>COC</th>
<th>Complaint</th>
<th>Resolution</th>
<th>Corrective Action Completion Date</th>
</tr>
</thead>
</table>

ATTACHMENT D

BIO-7: Summary of Biological Surveys Conducted in 2018

**Condition Verification Summary:**
Condition requires ESEC to consult a designated biologist concerning biological resources and report as necessary during project operation and submit record summaries in the Annual Compliance Report.

**ESEC Submission:**
Copies of all biological survey reports completed during 2018 are provided herein. No biological impacts were reported related to the operation of the ESEC.
March 30, 2018

Steve Odabashian
NRG El Segundo Operations Inc.
301 Vista del Mar
El Segundo, California 90245
(310) 615-6331

Progress Report
El Segundo Energy Center, Designated Biologist
P.O. 4501812194

Dear Mr. Odabashian,

The following is a summary of the biological survey conducted March 5, 2018 as part of the Condition of Certification BIO-7 for the El Segundo Energy Center Project. Condition BIO-7 outlines the duties of the Designated Biologist (myself). Among other things, the Designated Biologist advises the Construction/Operation Manager on biological resource conditions, conducts mitigation, monitoring and biological compliance efforts, and marks and inspects sensitive areas. In short, the Designated Biologist works with El Segundo Plant staff to ensure that the El Segundo Energy Center Project operates according to the biological resources Conditions of Certification.

The purpose of the survey was to ensure the continued protection of sensitive resources. The survey was conducted by MBC Biological Monitors Jennifer Rankin and Alyssa Eszlinger. Monitors surveyed the areas around the units, the western road and seaward side of the berm at the South Parking Lot (along 45th Street).

Results

Two abandoned nests are still visible in the cable rack along the wall adjacent to the administration buildings (Figure 1). The abandoned nests were first observed during the December 26th 2017 monitoring event. Neither nest showed signs of recent activity, including old or fresh fecal matter, and there were no birds nearby during the survey. The nests were situated approximately 15-20 feet apart from each other. An updated photograph of the better constructed of the two nests is shown in Figure 2.

Monitors observed two American crows (Corvus brachyrhynchos) roosting on a lamp post in the south parking lot. A few small song birds identified as finches were observed in the trees lining 45th Street. Spittlebug egg cases were seen in approximately five percent of plants during the walk through, otherwise the monitors noted that the trees and bushes all looked healthy.
Discussion

No plants or birds listed as threatened or endangered by the federal or state governments were observed during the survey. Two nests were observed, but neither appeared active or showed evidence of recent or old fecal matter. There was no evidence that mammals are using the project site (i.e., no tracks, scat, fur, etc.). The roadways, parking lots and vegetated areas within the plant were very clean and housekeeping measures appear to be successful.

Please let me know if you have any questions or comments.

Sincerely,

MBC Aquatic Sciences

Shane Beck
Principal Scientist / Designated Biologist
Figure 1. Cable rack and location of the two nests.

Figure 2. Abandoned nest.
May 11, 2018

Steve Odabashian
NRG El Segundo Operations Inc.
301 Vista del Mar
El Segundo, California 90245
(310) 615-6331

Progress Report
El Segundo Energy Center, Designated Biologist
P.O. 4501812194

Dear Mr. Odabashian,

The following is a summary of the biological survey conducted April 9, 2018 as part of the Condition of Certification BIO-7 for the El Segundo Energy Center Project. Condition BIO-7 outlines the duties of the Designated Biologist (myself). Among other things, the Designated Biologist advises the Construction/Operation Manager on biological resource conditions, conducts mitigation, monitoring and biological compliance efforts, and marks and inspects sensitive areas. In short, the Designated Biologist works with El Segundo Plant staff to ensure that the El Segundo Energy Center Project operates according to the biological resources Conditions of Certification.

The purpose of the survey was to ensure the continued protection of sensitive resources. The survey was conducted by MBC Biological Monitors Jennifer Rankin and Alyssa Eszlinger. Monitors surveyed the areas around the units, the western road and seaward side of the berm at the South Parking Lot (along 45th Street).

Results

Two abandoned nests are still visible in the cable rack along the wall adjacent to the administration buildings (Figure 1). The abandoned nests were first observed during the December 26th 2017 monitoring event. Neither nest showed signs of recent activity, including old or fresh fecal matter, and there were no birds nearby during the survey. The nests were situated approximately 15-20 feet apart from each other. No new photos were taken of the nests as there has been no activity.

Monitors observed two rock doves (Columba livia) that had been roosting on the northern most unit, one whimbrel (Numenius phaeopus) in the shrubbery that flew towards the beach, and three house finches (Carpodacus mexicanus) in the bushes.
Discussion

There were no plants or birds listed as threatened or endangered by the federal or state governments that were observed during the survey. No active nests were observed onsite. There was no evidence that mammals are using areas within the facility grounds (i.e., no tracks, scat/droppings, fur, etc.). The roadways, parking lots and vegetated areas within the plant were very clean and housekeeping measures appear to be successful.

Please let me know if you have any questions or comments.

Sincerely,

MBC Aquatic Sciences

Shane Beck
Principal Scientist / Designated Biologist
Figure 1. Cable rack and location of the two nests.
June 20, 2018

Steve Odabashian
NRG El Segundo Operations Inc.
301 Vista del Mar
El Segundo, California 90245
(310) 615-6331

Progress Report
El Segundo Energy Center, Designated Biologist
P.O. 4501812194

Dear Mr. Odabashian,

The following is a summary of the biological survey conducted May 17, 2018 as part of the Condition of Certification BIO-7 for the El Segundo Energy Center Project. Condition BIO-7 outlines the duties of the Designated Biologist (myself). Among other things, the Designated Biologist advises the Construction/Operation Manager on biological resource conditions, conducts mitigation, monitoring and biological compliance efforts, and marks and inspects sensitive areas. In short, the Designated Biologist works with El Segundo Plant staff to ensure that the El Segundo Energy Center Project operates according to the biological resources Conditions of Certification.

The purpose of the survey was to ensure the continued protection of sensitive resources. The survey was conducted by MBC Biological Monitors Jennifer Rankin and Amanda Ramshaw. Monitors surveyed the areas around the units, the western road and seaward side of the berm at the South Parking Lot (along 45th Street).

Results

Two abandoned nests are still visible in the cable rack along the wall adjacent to the administration buildings (Figure 1). The abandoned nests were first observed during the December 26th, 2017 monitoring event. Neither nest showed signs of recent activity, including old or fresh fecal matter (Figures 2 & 3), and there were no birds nearby during the survey. The nests were situated approximately 15-20 feet apart from each other.

Monitors observed one American crow (*Corvus brachyrhynchos*), some American robins (*Turdus migratorius*), and some passerines that were unable to be clearly identified as they flew through the area. Monitors noted that the landscaping and foliage seem to be growing in and healthy (Figure 4).
Discussion

There were no plants or birds listed as threatened or endangered by the federal or state governments that were observed during the survey. No active nests were observed onsite. There was no evidence that mammals are using areas within the facility grounds (i.e., no tracks, scat/droppings, fur, etc.). The roadways, parking lots and vegetated areas within the plant were very clean and housekeeping measures appear to be successful.

Please let me know if you have any questions or comments.

Sincerely,

MBC Aquatic Sciences

Shane Beck
Principal Scientist / Designated Biologist
Figure 1. Cable rack and location of the two nests.

Figure 2. Old nest.
Figure 3. Old nest.

Figure 4. Healthy landscaping.
October 9, 2018

Steve Odabashian
El Segundo Operations Inc.
301 Vista del Mar
El Segundo, California 90245
(310) 615-6331

Progress Report
El Segundo Energy Center, Designated Biologist
P.O. 4501812194

Dear Mr. Odabashian,

The following is a summary of the biological survey conducted October 2, 2018 as part of the Condition of Certification BIO-7 for the El Segundo Energy Center Project. Condition BIO-7 outlines the duties of the Designated Biologist (myself). Among other things, the Designated Biologist advises the Construction/Operation Manager on biological resource conditions, conducts mitigation, monitoring and biological compliance efforts, and marks and inspects sensitive areas. In short, the Designated Biologist works with El Segundo Plant staff to ensure that the El Segundo Energy Center Project operates according to the biological resources Conditions of Certification.

The purpose of the survey was to ensure the continued protection of sensitive resources. The survey was conducted by MBC Biological Monitors Jennifer Rankin and Shannon Eminhizer. Monitors surveyed the areas around the units, the western road and seaward side of the berm at the South Parking Lot (along 45th Street).

Results

Since surveys performed since December 26, 2017, MBC monitors have been checking two abandoned nests in the cable rack along the wall adjacent to the administration buildings (Figure 1). The better-constructed nest now has an egg inside of it that was not present during the last survey conducted on May 17, 2018 (Figure 2 and Figure 4).

The nest with the egg in it still appears to be in the same state of construction, as during previous surveys when compared to photographs. The nest itself is situated in the section of the rack labeled as W00PT9003 E 00CT9003 and is approximately six inches in diameter, primarily constructed of twigs with other items such as twine and feathers as well. There was no sign of fresh or old fecal matter on the nest or surrounding it, however, the monitors did not want to disturb the nesting area and made observations from a distance of one foot. It was unclear if the egg is viable or if the nest is truly active, there
were no birds seen tending the nest during the survey. But the egg did appear clean, and not dusted or dirty as though it were sitting without tend. The more poorly constructed nest was still present but abandoned, and is situated two rack sections to the east, or approximately 15-20 feet from the nest with the egg (Figure 3).

Monitors observed one small raptor, from a distance identified as an American kestrel (*Falco sparverius*) perched on the top of a concrete light post located near the seawall in the southern end of the plant footprint, by the vegetated area (Figure 5). One house finch (*Carpodacus mexicanus*) and other passerines were observed in a tree along 45th Street. Scat from a small mammal was observed on the pavement of the ramp leading to the south, visitor parking lot; based on the size and lack of certain contents like berries or fur it was expected to either be cat or raccoon scat.

**Discussion**

There were no plants or birds listed as threatened or endangered by the federal or state governments that were observed during the survey. One of the two nests MBC has been monitoring now has an egg, but it is still unclear whether or not the nest is active. MBC will try to schedule the last biological monitoring survey for 2018 in December to check on the activity of the nest. The second nest has been inactive since its original observation. There was evidence that small mammals, possibly racoons or cats have been present within the grounds based on scat observations. The roadways, parking lots and vegetated areas within the plant were very clean and housekeeping measures appear to be successful.

Please let me know if you have any questions or comments.

Sincerely,

**MBC Aquatic Sciences**

Shane Beck  
Principal Scientist / Designated Biologist
Figure 1. Cable rack and location of the two nests.

Figure 2. Original picture of the better constructed nest.
Figure 3. Original of poorly constructed adjacent nest.

Figure 4. Better constructed nest with egg.
Figure 5. Raptor perched on light post near the vegetated area.
Dear Mr. Odabashian,

The following is a summary of the biological survey conducted December 10, 2018 as part of the Condition of Certification BIO-7 for the El Segundo Energy Center Project. Condition BIO-7 outlines the duties of the Designated Biologist (myself). Among other things, the Designated Biologist advises the Construction/Operation Manager on biological resource conditions, conducts mitigation, monitoring and biological compliance efforts, and marks and inspects sensitive areas. In short, the Designated Biologist works with El Segundo Plant staff to ensure that the El Segundo Energy Center Project operates according to the biological resources Conditions of Certification.

The purpose of the survey was to ensure the continued protection of sensitive resources. The survey was conducted by MBC Biological Monitors Jennifer Rankin and Shannon Eminhizer. Monitors surveyed the areas around the units, the western road and seaward side of the berm at the South Parking Lot (along 45th Street).

Results

Since December 26, 2017, MBC monitors have been checking two nests in the cable rack along the wall adjacent to the administration buildings (Figure 1). The better-constructed nest was found to have an egg during the October 2, 2018 survey that was not there previously. During the December 2018 survey monitors observed that the egg had been broken but remained in the nest (Figure 2). Due to the absence of any discernable fecal matter, there was no evidence that the nest had contained a live hatchling or constant parental tending at any point.

The nest with the egg in it still appears to be in the same state of construction, as during previous surveys when compared to photographs. The nest itself is situated in the section of the rack labeled as W00PT9003 E 00CT9003 and is approximately six inches in diameter, primarily constructed of twigs with other items such as twine and feathers as
The second, more poorly constructed nest, was still present but abandoned, and is situated two rack sections to the east, or approximately 15-20 feet from the nest with the egg (Figure 3).

The only wildlife observed during the December survey was one small raptor, seen from a distance and identified as an American kestrel (*Falco sparverius*) perched on the top of a concrete light post (Figure 4).

**Discussion**

There were no plants or birds listed as threatened or endangered by the federal or state governments that were observed during the survey. One of the two nests MBC has been monitoring possesses a broken egg, with no further signs of activity. The second nest has been inactive since its original observation. The roadways, parking lots and vegetated areas within the plant were very clean and housekeeping measures appear to be successful. This survey marks the last of 2018 for biological monitoring.

Please let me know if you have any questions or comments.

Sincerely,

MBC Aquatic Sciences

Shane Beck
Principal Scientist / Designated Biologist
Figure 1. Cable rack and location of the two nests.

Figure 2. Nest with cracked egg (image taken from a video of nest and egg area).
Figure 3. Poorly constructed nest, adjacent to that shown in Figure 2.

Figure 4. American kestrel perched on light post near the vegetated area.
ATTACHMENT E

GEO-4: Annual Shoreline Monitoring Assessment Report

Condition Verification Summary:
Condition requires ESEC to submit, as part of the Annual Compliance Report, the results of the 10 Year Shoreline Monitoring Assessment and access erosion on the beach area assessment to the Energy Commission, California Coastal Commission, and the City of El Segundo. The tenth annual report shall contain the final report.

ESEC Submission:
ESEC conducted the Shoreline Monitoring Assessment quarterly during 2018. The Quarterly and Eighth Annual Shoreline Monitoring Assessment Report is provided herein.
To: Steven Odabashian and George Piantka  
From: Chia-Chi Lu  
Date: March 20, 2018  
RE: First Quarterly El Segundo Beach Monitoring Survey in 2018  
CC: Scott Seipel and Srie Coustar

A beach monitoring program, as required by the California Energy Commission, was implemented to assess any potential impacts on the beach conditions at El Segundo Beach for the El Segundo Energy Center Project. The beach monitoring program primarily focuses on beach profile surveys of various onshore/offshore shore-normal transects every few hundred feet four (4) times per year. The program also includes the submittal of annual report documenting the conducted four surveys and variation of shoreline conditions at El Segundo Beach. This beach monitoring program that commenced in 2011 is in the eighth year.

The first quarterly survey of this beach monitoring program in 2018 was conducted on March 8 and 9 respectively. The March 2018 survey was based on the following procedures:

- Applied the previously established survey baseline and transect locations for the shore-normal beach profile survey. In total, 15 transect lines were selected from South Dockweiller Beach to El Porto, as illustrated in Figure 1. Transect locations spacing in several hundred feet are at historic transect lines that were previously used by the County of Los Angeles and the Corps of Engineers.

- Conducted a wading survey on March 8, 2018 using a Leica TCR404 Total Station, extending from the bike path to the surf zone. In addition, six sediment samples were also collected along three transects at the MLLW and MHW positions, respectively.

- Collected the offshore bathymetry soundings on March 9, 2018 extending from the surf zone that overlapped the wading survey limit to approximately 4,000 feet offshore. Horizontal positions and soundings were acquired using the Trimble GPS receiver and the Innerspace Depth Sounder, respectively.

- Performed data processing to merge the wading and hydrographic survey data and generated beach profiles for the 15 survey transects.

The repetitive surveyed beach profiles at the selected 15 transects for this quarterly survey along with the December 2017 survey are shown in Figures 2 to 16. The March 2018 survey compared to the December 2017 survey exhibits an eroded beach condition that typically results from the
seasonal change of winter weather pattern. Six sand samples (two sediment samples per location) were also collected at three different locations on March 8, 2018, as also identified in Figure 1. At each location, one sand sample was collected on the foreshore face at the approximate Mean High Water (MHW) position and the other in the surf zone near the Mean Lower Low Water (MLLW) elevation. The collected sand samples were forwarded to a soil-testing laboratory for analysis of the sediment grain size distribution. Table 1 summarizes the grain size characteristics of individually sampled sediments, while Figures 17 to 22 respectively illustrate the deduced grain size distributions for the collected sand samples.

Table 1. Summary of Sediment Characteristics for samples collected on March 8, 2018

<table>
<thead>
<tr>
<th>Sampling Location</th>
<th>Reference Elevation</th>
<th>Soil Type</th>
<th>D50 (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 0+00</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.33</td>
</tr>
<tr>
<td>Sta. 0+00</td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
<td>0.32</td>
</tr>
<tr>
<td>Sta. 30+00</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.24</td>
</tr>
<tr>
<td>Sta. 30+00</td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
<td>0.24</td>
</tr>
<tr>
<td>Sta. 62+10</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.21</td>
</tr>
<tr>
<td>Sta. 62+10</td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
<td>0.23</td>
</tr>
</tbody>
</table>

Figure 1. Surveyed Transect and Sediment Sampling Locations
Figure 2. Surveyed Beach Profile at Station 0+00

Figure 3. Surveyed Beach Profile at Station 4+00
Figure 4. Surveyed Beach Profile at Station 8+00

Figure 5. Surveyed Beach Profile at Station 12+50
Figure 6. Surveyed Beach Profile at Station 15+00

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Figure 15. Surveyed Beach Profile at Station 52+50
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Figure 18. Grain Size Distribution at Sta. 0+00 MLLW Line
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A beach monitoring program, as required by the California Energy Commission, was implemented to assess any potential impacts on the beach conditions at El Segundo Beach for the El Segundo Energy Center Project. The beach monitoring program primarily focuses on beach profile surveys of various onshore/offshore shore-normal transects every few hundred feet four (4) times per year. The program also includes the submittal of annual report documenting the conducted four surveys and variation of shoreline conditions at El Segundo Beach. This beach monitoring program that commenced in 2011 is in the eighth year.

The second quarterly survey of this beach monitoring program in 2018 was conducted between May 23 and May 25. The May 2018 survey was based on the following procedures:

- Applied the previously established survey baseline and transect locations for the shore-normal beach profile survey. In total, 15 transect lines were selected from South Dockweiller Beach to El Porto, as illustrated in Figure 1. Transect locations spacing in several hundred feet are at historic transect lines that were previously used by the County of Los Angeles and the Corps of Engineers.

- Conducted a wading survey on May 23 & 25, 2018 using a Leica TCR404 Total Station, extending from the bike path to the surf zone. In addition, six sediment samples were also collected along three transects at the MLLW and MHW positions, respectively.

- Collected the offshore bathymetry soundings on May 24, 2018 extending from the surf zone that overlapped the wading survey limit to approximately 4,000 feet offshore. Horizontal positions and soundings were acquired using the Trimble GPS receiver and the Innerspace Depth Sounder, respectively.

- Performed data processing to merge the wading and hydrographic survey data and generated beach profiles for the 15 survey transects.

The repetitive surveyed beach profiles at the selected 15 transects for this quarterly survey along with the December 2017 survey are shown in Figures 2 to 16. The May 2018 survey compared to
A beach monitoring program, as required by the California Energy Commission, was implemented to assess any potential impacts on the beach conditions at El Segundo Beach for the El Segundo Energy Center Project. The beach monitoring program primarily focuses on beach profile surveys of various onshore/offshore shore-normal transects every few hundred feet four (4) times per year. The program also includes the submittal of annual report documenting the conducted four surveys and variation of shoreline conditions at El Segundo Beach. This beach monitoring program that commenced in 2011 is in the eighth year.

The third quarterly survey of this beach monitoring program in 2018 was conducted on September 5 and 7, respectively. The September 2018 survey was based on the following procedures:

- Applied the previously established survey baseline and transect locations for the shore-normal beach profile survey. In total, 15 transect lines were selected from South Dockweiller Beach to El Porto, as illustrated in Figure 1. Transect locations spacing in several hundred feet are at historic transect lines that were previously used by the County of Los Angeles and the Corps of Engineers.

- Collected the offshore bathymetry soundings on September 5, 2018 extending from the surf zone that overlapped the wading survey limit to approximately 4,000 feet offshore. Horizontal positions and soundings were acquired using the Trimble GPS receiver and the Innerspace Depth Sounder, respectively.

- Conducted a wading survey on September 7, 2018 using a Leica TCR404 Total Station, extending from the bike path to the surf zone. In addition, six sediment samples were also collected along three transects at the MLLW and MHW positions, respectively.

- Performed data processing to merge the wading and hydrographic survey data and generated beach profiles for the 15 survey transects.

The three repetitive surveyed beach profiles at the selected 15 transects in 2018 along with the December 2017 survey are shown in Figures 2 to 16. The September 2018 survey shows the continuous recovery from winter/early spring eroded beach condition. Six sand samples (two
sediment samples per location) were respectively collected at three different locations on September 7, 2018, as also identified in Figure 1. At each location, one sand sample was collected on the foreshore face at the approximate Mean High Water (MHW) position and the other in the surf zone near the Mean Lower Low Water (MLLW) elevation. The collected sand samples were forwarded to a soil-testing laboratory for analysis of the sediment grain size distribution. Table 1 summarizes the grain size characteristics of individually sampled sediments, while Figures 17 to 22 respectively illustrate the deduced grain size distributions for the collected sand samples.

Table 1. Summary of Sediment Characteristics for samples collected on September 7, 2018

<table>
<thead>
<tr>
<th>Sampling Location</th>
<th>Reference Elevation</th>
<th>Soil Type</th>
<th>D50 (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 0+00</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.33</td>
</tr>
<tr>
<td>Sta. 0+00</td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
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<tr>
<td>Sta. 30+00</td>
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</tr>
<tr>
<td>Sta. 62+10</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.27</td>
</tr>
<tr>
<td>Sta. 62+10</td>
<td>MLLW</td>
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<td>0.22</td>
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![Figure 1. Surveyed Transect and Sediment Sampling Locations](image)
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the March 2018 survey shows the recovery from winter/early spring eroded beach condition. Six sand samples (two sediment samples per location) were respectively collected at three different locations on May 23 & 25, 2018, as also identified in Figure 1. At each location, one sand sample was collected on the foreshore face at the approximate Mean High Water (MHW) position and the other in the surf zone near the Mean Lower Low Water (MLLW) elevation. The collected sand samples were forwarded to a soil-testing laboratory for analysis of the sediment grain size distribution. Table 1 summarizes the grain size characteristics of individually sampled sediments, while Figures 17 to 22 respectively illustrate the deduced grain size distributions for the collected sand samples.

Table 1. Summary of Sediment Characteristics for samples collected on May 23 & 25, 2018

<table>
<thead>
<tr>
<th>Sampling Location</th>
<th>Reference Elevation</th>
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<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.22</td>
</tr>
<tr>
<td>Sta. 30+00</td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
<td>0.20</td>
</tr>
<tr>
<td>Sta. 62+10</td>
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<tr>
<td>Sta. 62+10</td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
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Figure 22. Grain Size Distribution at Sta. 62+10 MLLW Line
El Segundo Energy Center LLC  
NRG Energy, Inc. 

Quarterly Beach Survey for El Segundo Generating Station

To: Steven Odabashian and George Piantka  
From: Chia-Chi Lu  
Date: December 24, 2018  
RE: Fourth Quarterly El Segundo Beach Monitoring Survey in 2018  
CC: Scott Seipel and Srie Coustar

A beach monitoring program, as required by the California Energy Commission, was implemented to assess any potential impacts on the beach conditions at El Segundo Beach for the El Segundo Energy Center Project. The beach monitoring program primarily focuses on beach profile surveys of various onshore/offshore shore-normal transects every few hundred feet four (4) times per year. The program also includes the submittal of annual report documenting the conducted four surveys and variation of shoreline conditions at El Segundo Beach. This beach monitoring program that commenced in 2011 is in the eighth year.

The fourth quarterly survey of this beach monitoring program in 2018 was conducted on December 3 and 4, respectively. The December 2018 survey was based on the following procedures:

- Applied the previously established survey baseline and transect locations for the shore-normal beach profile survey. In total, 15 transect lines were selected from South Dockweiller Beach to El Porto, as illustrated in Figure 1. Transect locations spacing in several hundred feet are at historic transect lines that were previously used by the County of Los Angeles and the Corps of Engineers.

- Collected the offshore bathymetry soundings on December 3, 2018 extending from the surf zone that overlapped the wading survey limit to approximately 4,000 feet offshore. Horizontal positions and soundings were acquired using the Trimble GPS receiver and the Innerspace Depth Sounder, respectively.

- Conducted a wading survey on December 4, 2018 using a Leica TCR404 Total Station, extending from the bike path to the surf zone. In addition, six sediment samples were also collected along three transects at the MLLW and MHW positions, respectively.

- Performed data processing to merge the wading and hydrographic survey data and generated beach profiles for the 15 survey transects.

The four repetitive surveyed beach profiles at the selected 15 transects in 2018 along with the December 2017 survey are shown in Figures 2 to 16. The December 2018 survey shows the eroded beach condition directly resulting from the winter storm event in the end of November. Six sand
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1.0 INTRODUCTION

El Segundo Beach is located in the Santa Monica Bay between Dockweiler Beach to the north and El Porto Beach to the south, as shown in Figure 1. El Segundo, which means “the second one” in Spanish, received its name after it became the site of the second Standard Oil refinery in 1911. At the present time, the shorefront facilities in the El Segundo shoreline segment include the Chevron Refinery and the El Segundo Generating Station (ESGS) that is presently owned by NRG Energy, Inc. To meet the projected consumer power demands in Los Angeles County, NRG has initiated the El Segundo Energy Center (ESEC) project to replace the power generating capacity with minimal environmental impacts at its existing facility (CEC, 2005 & 2010). Consequently, the California Energy Commission (CEC) requested a beach monitoring program to assess the potential shoreline evolution, if any, resulting from the completion of the redevelopment. The specific tasks required for this monitoring program include the following items:

1) Perform a historical data research including aerial photos, past beach nourishments and shoreline changes to document historical background at El Segundo Beach;

2) Conduct beach profile surveys of various onshore/offshore shore-normal transects every few hundred feet four times per year and submittal of an annual report documenting the findings during each one-year period;

3) Collect sand samples at various locations on beach for laboratory testing to characterize the physical property of the sand material;

4) Obtain ground and oblique photographs at set positions periodically to provide any visual observations of shoreline change; and

5) Document shoreline response of temporary erosion and subsequent recovery during and after a major storm, if occurs.

This prepared annual report summarizes the findings in Year 8 of the beach monitoring program, which covers the period between January 2018 and December 2018. A comprehensive report to summarize the findings over the entire 10-year period as well as any recommendations for further actions will be prepared and submitted after the completion of this ten-year beach monitoring program.
2.0 HISTORICAL BACKGROUND

2.1 Historical Beach Conditions

Beach conditions at El Segundo, and similarly along much of the Santa Monica coastline, have been altered by human intervention including various beach fills to widen the naturally narrow beaches, beach encroachment due to coastal development, and construction of harbors and other coastal structures, such as jetties and groins, for navigation and shore protection. Table 1 presents a summary of the documented historical beach activities that occurred in the El Segundo and the neighboring Dockweiler Beach areas in the past.

Prior to any significant human intervention in the 1930s, El Segundo Beach and its adjacent Dockweiler Beach that is located immediately upcoast were comprised of a narrow and continuous shoreline backed by coastal bluffs, as illustrated in Figure 2. Two oil piers that were built to support the oil pipelines for the operation of the Chevron Oil refinery were the only two major coastal structures located at El Segundo Beach (see Figure 2). Substantial beach alteration began in 1938 when the first beach nourishment activity commenced along Dockweiler Beach as a result of the construction of the Hyperion Treatment Facility (see in Figure 1). Dockweiler Beach was widened with 1.8 million cubic yards (mcy) of sand material dredged from the construction of the Hyperion facility (see the 1938 photo in Figure 2). However, El Segundo Beach, located immediately downdrift of Dockweiler Beach, was minimally impacted by the sand placement at Dockweiler Beach. The sand entrapment by a sheet pile groin located near the southeast end of Dockweiler Beach precluded the placed sand moving downcoast into El Segundo Beach.

In 1947, an additional fill associated with the Hyperion development occurred, during which approximately 7.5 mcy of sand was again placed on Dockweiler Beach (NCI, 2016). Development of the Scattergood Power Plant also contributed additional 2.6 mcy of sand to this littoral system in 1951 and 1956. The upcoast sheet-pile groin was also replaced by a rubble-mound groin as shown in Figure 3 (i.e., the 1954 aerial photo). As the nourished beach was continuously widened, the rubble-mound groin could only partially entrap the alongshore transported sand. Consequently, beach sand was able to bypass the groin, continued the alongshore movement, and entered into El Segundo Beach. Shoreline advance at El Segundo Beach thus occurred (see the 1954 and 1959 aerial photos in Figure 3). In 1960, additional 3.2 mcy of sand material were placed on Dockweiler Beach during the construction of Marina del Rey, which further widened Dockweiler Beach and also advanced shoreline at El Segundo Beach, as illustrated in Figure 4 (see the 1960 aerial photo).
Table 1. Historical Activities at El Segundo Beach and Dockweiler Beach

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1887</td>
<td>Ballona Creek twin timber jetties</td>
<td>Ballona Creek</td>
</tr>
<tr>
<td>1938</td>
<td>1,800,000 cy fill from Hyperion facility</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>Prior 1930</td>
<td>Oil Pier Construction</td>
<td>El Segundo Beach</td>
</tr>
<tr>
<td>1938</td>
<td>Two 600-foot rubble mound jetties at Ballona Creek</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1946</td>
<td>Two rubble mound jetties at Ballona Creek extended to 1,350 feet</td>
<td>Ballona Creek</td>
</tr>
<tr>
<td>1947</td>
<td>7,650,000 cy fill from Hyperion facility</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1951</td>
<td>Construction of DWP Power Plant</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1951</td>
<td>240,000 cy fill from DWP power plant</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1951</td>
<td>Rubble mound groin at Deauville Street</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1951</td>
<td>Rubble mound groin at Gillis Street</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1956</td>
<td>2,400,000 cy from DWP power plant</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1959</td>
<td>Ballona Creek north jetty extended to 2,000 feet</td>
<td>Ballona Creek</td>
</tr>
<tr>
<td>1960-62</td>
<td>3,200,000 cy fill from Marina del Rey</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1965</td>
<td>2,330-foot detached rubble mound breakwater (at Marina del Rey entrance channel)</td>
<td>Marina del Rey</td>
</tr>
<tr>
<td>1969</td>
<td>390,000 cy bypass from Marina del Rey</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1975</td>
<td>10,000 cy bypass from Marina del Rey</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1981</td>
<td>217,000 cy bypass from Marina del Rey</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1983-84</td>
<td>650-foot rubble mound Chevron Groin</td>
<td>El Segundo Beach</td>
</tr>
<tr>
<td>1984</td>
<td>620,000 cy fill from unknown source</td>
<td>Dockweiler Beach &amp; El Segundo Beach</td>
</tr>
<tr>
<td>1987</td>
<td>35,000 cy bypass from Marina del Rey</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1988</td>
<td>155,000 cy fill from Hyperion facility</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>1988</td>
<td>550,000 cy fill from Hyperion Facility</td>
<td>El Segundo Beach</td>
</tr>
<tr>
<td>1989</td>
<td>150,000 cy fill from Hyperion Facility</td>
<td>El Segundo Beach</td>
</tr>
<tr>
<td>Unknown</td>
<td>Rubble mound groin near RV Park</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>Unknown</td>
<td>Rubble mound groin near Scattergood facility</td>
<td>Dockweiler Beach</td>
</tr>
<tr>
<td>2012</td>
<td>150,000 cy from Marina del Rey Maintenance Dredging</td>
<td>Nearshore Region at Dockweiler Beach</td>
</tr>
<tr>
<td>2012</td>
<td>Nearshore and on-beach sand placement from Marina del Rey (83,000 &amp; 75,000 cy,  respectively in volume)</td>
<td>Redondo Beach</td>
</tr>
<tr>
<td>2016-2017</td>
<td>Nearshore placement of 388,000 cy</td>
<td>Dockweiller Beach</td>
</tr>
</tbody>
</table>


As years went by without any additional beach replenishment activity and the alongshore transported sand was continuously entrapped by the presence of the groin, less sand was moved into El Segundo Beach than sand being moved downcoast from wave impingement. The artificially advanced beach at El Segundo began to gradually retreat. Aerial photos taken in 1965 and 1970, shown in Figure 4, demonstrate this gradual retreating trend at El Segundo Beach. Eventually, the beach at El Segundo reached a narrow-width state in the early 1980s as illustrated in Figure 5.
Historical meteorological records indicate that southern California experienced a period of severe winter storms in the late 1970s and 1980s. These winter storms that respectively occurred in 1978, during the 1982-83 El Nino season, and in 1988 resulted in extensive damage to public infrastructures and private coastal development. Specifically, the 1983 extreme storm waves destroyed the marine terminal pier and damaged the oil pipelines. A 650-foot rubble mound groin (i.e. the Chevron Groin) was consequently constructed in 1983-84 at the destroyed oil pier location to protect the repaired Chevron pipeline facility. In addition, a riprap revetment was built downcoast of the newly constructed groin along the backshore of the entire El Segundo Beach to protect the landward infrastructure. Approximately 0.62 mcy of sand were dredged from an offshore source to replenish the depleted beach and to supplement the anticipated sand deficiency due to the sand entrapping effect induced by the newly constructed groin.

However, the Chevron Groin continued to have an eroding impact on the downdrift beach and El Segundo Beach remained in a beach-depleted state, as illustrated in Figure 5 (see aerial photo taken in 1988). In 1988-1989, El Segundo Beach received two separate beach fills with a combined sand volume of 0.7 mcy from the additional Hyperion development. Figure 5 also shows the pre-fill beach conditions in 1988 as well as the post-fill beach conditions two years later in 1991. Nevertheless, the beach returned to its narrow state within a couple of years. Figure 6 illustrates the once-again depleted beach condition in 1994.

2.2 Present-Day Beach Conditions

Seasonal changes in the wave climate and the occurrence of strong El Nino winter storms are the primary causes for fluctuations in beach width. The shoreline within the project site, even in a sand-limited state, still experiences seasonal changes in beach width as winter sand profiles are typically more depleted than summer profiles. Although El Segundo Beach exhibits typical seasonal changes, the sand-limited beach conditions remain relatively invariant since the early 1990s after the last beach replenishment was conducted in 1989. Figures 6 to 11 show the site conditions that were observed in different periods between 1994 and 2018. The Chevron Groin essentially entraps the majority of the downdrift-transported sand and limits the updrift sand supply to El Segundo Beach. Therefore, the narrow beach conditions persist within El Segundo Beach although the shoreline exhibits a repetitive pattern of seasonal retreat in the winter and subsequent recovery in the summer. Even during the summer months, the width from the revetment to the water line is only approximately 100 feet within the narrowest sub-segment.
3.0 REGIONAL OCEANOGRAPHIC CONDITIONS

3.1 Water Levels

Water levels at El Segundo Beach are primarily affected by four oceanographic factors: 1) astronomical tides, 2) El Nino Southern Oscillation (ENSO) events, 3) long-term changes in sea level, and 4) storm-induced surge during individual storm events. Astronomical tides in the Southern California Bight are of the mixed, semi-diurnal type, with two highs and two lows of unequal height occurring each lunar day (the duration of which averages 24.4 hours). The largest water level excursion typically occurs as the tide falls from higher high to lower low water, a process that generally requires 7 to 8 hours. Table 2 summarizes the tidal datums that were derived from the measurements at the Santa Monica Pier during the epoch period from 1983 to 2001 (NOAA, 2016). The extreme high and low water levels that were historically recorded are also presented in the table.

El Nino-Southern Oscillation (ENSO) events represent global-scale climatic variations with a duration of two to several years. These are characterized by a decrease in atmospheric pressure in the eastern tropical Pacific Ocean, a decrease in the easterly trade winds, and an increase in sea level on the west coast of North and South America. It is expected that elevated water levels that result from ENSO events may be expected every four to seven years, with four or five strong events each century (Flick and Badan-Dangon, 1989).

<table>
<thead>
<tr>
<th>Datum or Level</th>
<th>Elevation (ft, MLLW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Measured Water Level</td>
<td>+8.5</td>
</tr>
<tr>
<td>Mean Higher High Water (MHHW)</td>
<td>+5.4</td>
</tr>
<tr>
<td>Mean High Water (MHW)</td>
<td>+4.7</td>
</tr>
<tr>
<td>Mean Tide Level (MTL)</td>
<td>+2.8</td>
</tr>
<tr>
<td>Mean Sea Level (MSL)</td>
<td>+2.8</td>
</tr>
<tr>
<td>Mean Low Water (MLW)</td>
<td>+0.9</td>
</tr>
<tr>
<td>North America Vertical Datum–1988 (NAVD)</td>
<td>+0.2</td>
</tr>
<tr>
<td>Mean Lower Low Water (MLLW)</td>
<td>0.0</td>
</tr>
<tr>
<td>Minimum Measured Water Level</td>
<td>-2.8</td>
</tr>
</tbody>
</table>

*Note: tidal gage at Santa Monica Pier*

Long-term changes in the elevation of sea level relative to the land can be engendered by two independent factors: 1) global or eustatic changes in sea level, which might result from influences such as global warming, and 2) local changes in the elevation of the land, which might result from subsidence or uplift. A trendline analysis of yearly Mean Sea Level (MSL) data recorded at the Santa
Monica Pier from 1933 to 2017 indicates that the MSL upward trend is approximately 0.00501 ft/yr (NOAA, 2018), as illustrated in Figure 12.

Storm surge is the super-elevation of the water level that results from the reduced barometric pressure (the so-called “inverted barometer effect”) and wind stress during storm events. Unlike the Atlantic and Gulf Coasts where storm surges can attain high amplitudes on the relatively wide, shallow, and gentle slopes of the Continental Shelf, surges on the Southern Pacific Coast are comparatively small.

The added probability of experiencing more severe winter storms during the El Nino periods increases the likelihood of coincident storm waves and higher storm surge. The record water level of +8.5 feet, MLLW, observed at the Santa Monica Pier in November 1982 includes storm surge and seasonal sea level rise (Flick and Cayan, 1984).

3.2 Regional Wave Climate

Local seas and swell incidents at the El Segundo shoreline are produced primarily by six basic meteorological patterns: 1) extratropical storm swells in the northern hemisphere (northwest or west swells); 2) wind swells generated by northwest winds in the outer coastal waters (wind swells); 3) westerly local seas (west seas); 4) southeasterly local seas (southeast sea); 5) storm swells of tropical storms or hurricanes off the Mexican coast; and 6) southerly swells originating in the southern hemisphere (southerly swells).

**Northwest or West Swells:** Low pressure centers, which develop along the polar front, are the source of the predominant wave action along the entire coast during the winter half of the year. Storm swells are generated at some distance from the El Segundo coastline in the North Pacific. In general, the modal deep water approach direction of these waves to Southern California is between 275° and 285°. The wave period typical ranges between 12 to 18 seconds. This swell pattern has been responsible for causing most of the coastal damage along the Southern California shoreline in the past, including the coastal infrastructure located at El Segundo Beach.

**Wind Swells:** The predominant wave actions along the El Segundo coast during the spring and summer months are due to the prevailing northwest winds north and west of the Southern California coastal waters. Waves traveling at a variance to the mean wind direction reach El Segundo Beach with periods on the order of 6 to 10 seconds. Moderate northwesters will produce breaker heights of 4 to 6 feet while stronger events can generate 6 to 9 foot waves along the shoreline.

**West Seas:** Westerly winds exhibit a pronounced seasonal and diurnal variation. The summer sea breezes, which average about 15 knots, usually set in during
the late morning and peak in the mid-afternoon. In winter months, sea breeze conditions are limited to a few hours during early afternoon with wind speed on the order of 10 knots.

Southeast Seas: The El Segundo coastline may be vulnerable under storm conditions prior to frontal passage winds blowing in a counterclockwise rotation from the southeast to southwest along the coast, but turning toward the south-southeast to south a short distance offshore. Local seas generally have a peak energy between 6 and 8 seconds with wave heights of 4 to 8 feet.

Tropical Storm Swells: Tropical cyclones form regularly along the inter-tropical convergence zone west of Mexico from early July to late October. On the average, about 15 to 20 hurricanes can be expected each year, and most take a westerly track. Swells generated by these storms will have little or no effect on Southern California; however, those that take a northwest track lengthen the effective fetch over which the generated swells travel toward Southern California. As a result, larger waves may be experienced at El Segundo Beach.

Southerly Swells: From the months of April through October, and to a lesser extent the remainder of the year, large South Pacific storm systems traversing the ocean between south latitude 40° and 60° from Australia to South America send swells northward to the west coast of Central and North America. The approach directions to Southern California range from about 215° for storms near New Zealand to 170° for South American storm systems. Wave heights in deep water are usually low on the order of one to three feet. The periods range from 18 to 22 seconds. Since this wave pattern occurs mostly during the summer months when the El Segundo Beach is seasonal wide, the impact from these distant wave swells is generally insignificant.

3.3 Local Wave Climate in The 2018 Monitoring Year

Monthly plots of wave rose, which characterize wave conditions that occurred during this monitoring period from January 2018 to December 2018, are presented in Figures 13 to 15. Wave data were obtained from the Coastal Data Information Program (CDIP) buoy (#028) located in the Santa Monica Bay (CDIP, 2018). The deepwater buoy is located at 33° 51.27’ N (Latitude) and 118° 37.97’ W (Longitude) in a water depth of approximately 1,191 feet. These figures show the gradual shift of the prevailing wave pattern from westerly to southerly swells as the season transitions from the winter (e.g., March) to summer (e.g., June) months. The reverse trend of shifting back to the prevailing west swells occurs as November arrives (see Figure 15). Figures 16 to 19 graphically present the recorded significant wave heights for the entire year of 2018. The wave climate pattern observed during the Year 8 monitoring period is relatively similar to the previous seven years.
4.0 BEACH MONITORING PROGRAM

A beach monitoring program, as required by the California Energy Commission, was implemented to assess any potential changes of the beach conditions at El Segundo Beach as a consequence of the El Segundo Energy Center (ESEC) project. This beach monitoring program primarily focuses on beach profile surveys of various onshore/offshore shore-normal transects every few hundred feet four (4) times per year and submittal of an annual report documenting the conducted surveys and variation of shoreline conditions at El Segundo Beach. In addition, the program includes sand sampling and testing on a semi-yearly basis at three designated locations within the upcoast, downcoast, and project beach areas. It is noted that the sediment samples were collected on a quarterly basis in the eighth year. The annual report also includes photographs taken from pre-selected positions along El Segundo Beach, and shoreline response during and after a major storm, if observed.

In total, 15 transect lines were selected from South Dockweiller Beach to El Porto, as illustrated in Figure 20. Transect locations spacing in several hundred feet are at historic transect lines that were previously used by the County of Los Angeles and the US Army Corps of Engineers-Los Angeles District (USACE-LAD). These transects will be used for all subsequent monitoring surveys.

4.1 Survey Methods

4.1.1 Establishment of Baseline

Individual survey markers were located or reestablished for the 15 transects to be monitored for this program, as these transect locations were previously selected by USACE-LAD and County of Los Angeles for their beach profiles surveys. Previously established markers at individual transects were utilized wherever identified in the field. Otherwise, new markers were reestablished so that one marker exists for each individual transect. The location of each historical or newly established marker was determined using the Sokkia Locus GPS receiver that was referenced to the US Coast and Geodetic Survey Monument T767. The Sokkia GPS receiver is capable of accurately determining the coordinates and elevation of a given point. It is noted that the historical baseline within this shoreline segment was originally established in the 1930s when the first comprehensive beach profile survey was conducted. The historical baseline is much further landward of the existing bicycle path along the South Dockweiler Beach and El Segundo Beach, where the presently selected survey markers are located. The cross-shore distance between the historical baseline and the survey marker at each individual transect is presented in Table 3.

4.1.2 Wading Surveys

The beach and foreshore were surveyed using an electronic Leica TRC404 Total Station and a survey rodman. The Total Station was used to determine the position and elevation at each location occupied by the rodman. The wading
survey extended from the back beach, through the foreshore, and to the surf zone. The instrument was set up over a given survey marker and oriented using a nearby marker. The transect orientation was marked with temporary range stakes. The rodman walked across the beach stopping incrementally as required to document the beach profile. A 6-foot prism rod was held vertically and the location of the rod was determined and logged using the Total Station. A 14-foot extendable prism rod was used within the surf zone to ensure the overlap of data collection between the wading and nearshore hydrographic surveys.

Table 3. Surveyed Beach Profile Stations

<table>
<thead>
<tr>
<th>Beach</th>
<th>Survey Transect</th>
<th>Cross-shore Distance (ft)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Dockweiler Beach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0+00</td>
<td>191.9</td>
<td></td>
</tr>
<tr>
<td>4+00</td>
<td>219.0</td>
<td></td>
</tr>
<tr>
<td>8+00</td>
<td>224.2</td>
<td></td>
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<tr>
<td>12+50</td>
<td>256.8</td>
<td></td>
</tr>
<tr>
<td>15+00</td>
<td>257.4</td>
<td></td>
</tr>
<tr>
<td>El Segundo Beach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22+50</td>
<td>247.0</td>
<td></td>
</tr>
<tr>
<td>27+50</td>
<td>242.4</td>
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<td>32+50</td>
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<td>42+50</td>
<td>192.7</td>
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<tr>
<td>El Porto Beach</td>
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<td></td>
</tr>
<tr>
<td>47+50</td>
<td>32.9</td>
<td></td>
</tr>
<tr>
<td>52+50</td>
<td>33.1</td>
<td></td>
</tr>
<tr>
<td>62+10</td>
<td>14.3</td>
<td></td>
</tr>
</tbody>
</table>

*. Cross-shore distance between historical baseline (landward) and survey markers along the bicycle path

4.1.1 Nearshore Bathymetric Surveys

Nearshore bathymetry was acquired with a digital acoustic echo sounder operated from a 16-foot shallow-draft inflatable survey vessel. The data collection extended from the surf zone seaward to a point approximately 4,000 feet from the baseline. Position data was obtained using the Trimble GPS receiver; raw sounding data was collected using the Inner-space Depth Sounder. The position and sounding data was merged and logged onto a laptop computer running the Hypack Hydrographic Survey Software. The Hypack software with the instant navigation data was used by the helmsman to steer the vessel along each transect. A dynamic motion sensor, which provides real-time corrections to the echo sounder for wave-induced vessel heave, also was utilized. This tool improves the resolution of the sonar system, particularly in areas of localized vertical relief.
At each transect, the survey vessel was maneuvered to the offshore end using the Hypack navigation data. Data logging began when the vessels reached the starting location of each transect and soundings were logged on a near-continuous basis until the vessel reached the surf zone. At the conclusion of data collection, the transducer draft and speed of sound was confirmed with a bar check and sound velocity profiler.

4.2 Surveyed Beach Profiles

Four (4) beach profile surveys are to be annually performed during this 10-year monitoring program. The repetitive surveys were conducted on a quarterly basis. The dates of individual surveys conducted so far for this beach monitoring program are provided in Table 4. The 34 surveyed beach profiles for the first 8 years of this beach monitoring program are shown in Figures 21 to 35, while the four surveyed profiles that were conducted in 2018 are illustrated in Figures 36 to 43. These figures also show the December 2017 survey for the comparison purpose.

### Table 4. Survey Dates in Years 1 to 8 (2011 to 2018)

<table>
<thead>
<tr>
<th>Survey No.</th>
<th>Survey Dates</th>
<th>Survey No.</th>
<th>Survey Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>February 8 &amp; 9, 2011</td>
<td>18</td>
<td>February 2 &amp; 5, 2015</td>
</tr>
<tr>
<td>2</td>
<td>April 27 &amp; 28, 2011</td>
<td>19</td>
<td>May 21 &amp; 22, 2015</td>
</tr>
<tr>
<td>4</td>
<td>October 26 &amp; 27, 2011</td>
<td>21</td>
<td>November 5 &amp; 6, 2015</td>
</tr>
<tr>
<td>10</td>
<td>April 25 &amp; 26, 2013</td>
<td>27</td>
<td>March 7 &amp; 8, 2017</td>
</tr>
<tr>
<td>12</td>
<td>November 1 &amp; 6, 2013</td>
<td>29</td>
<td>August 14 &amp; 17, 2017</td>
</tr>
<tr>
<td>13</td>
<td>February 26 &amp; 27, 2014</td>
<td>30</td>
<td>December 7 &amp; 8, 2017</td>
</tr>
<tr>
<td>14</td>
<td>March 13, &amp; 14, 2014</td>
<td>31</td>
<td>March 8 &amp; 9, 2018</td>
</tr>
<tr>
<td>15</td>
<td>April 18 &amp; 25, 2014</td>
<td>32</td>
<td>May 23 ~ 25, 2018</td>
</tr>
<tr>
<td>16</td>
<td>July 21 &amp; 23, 2014</td>
<td>33</td>
<td>September 5 &amp; 7, 2018</td>
</tr>
<tr>
<td>17</td>
<td>Oct. 30 &amp; Nov. 3, 2014</td>
<td>34</td>
<td>December 3 &amp; 4, 2018</td>
</tr>
</tbody>
</table>
4.3 Sediment Sampling

Six sand samples (two sediment samples per location) were respectively collected at three different locations for each quarterly survey in 2018, as identified in Figure 20. At each location, one sand sample was collected on the foreshore face at the approximate Mean High Water (MHW) position and the other in the surf zone near the Mean Lower Low Water (MLLW) elevation. The collected sand samples were sent to a soil-testing laboratory for analysis of the sediment grain size distribution. Table 5 summarizes the median grain size ($D_{50}$) characteristics of individually sampled sediments, while Figures A-1 to A-24 graphically illustrate the deduced grain size distributions for the collected sand samples.

4.4 Ground and Oblique Photographs

Ground and oblique photographs at El Segundo Beach were also taken periodically during the Year 8 beach monitoring period. Ground photographs were taken at two designated locations, one in the upcoast sub-segment and the other in the downcoast area, as identified in Figure 20. Figures 44 to 47 show ground photographs taken at these two locations on four different dates. In addition, oblique photographs of El Segundo Beach were periodically taken from the upper level of the plant facility. Figures 48 to 53 present the monthly snapshots of shoreline conditions towards both the upcoast and downcoast directions at El Segundo Beach from January 2018 to December 2018.

Table 5. Median Grain Sizes ($D_{50}$) of Collected Sand Samples in 2018

<table>
<thead>
<tr>
<th>Sampling Location</th>
<th>Sampling Location</th>
<th>Soil Type</th>
<th>Mar.</th>
<th>May</th>
<th>Sep.</th>
<th>Dec.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 0+00</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.33</td>
<td>0.26</td>
<td>0.33</td>
<td>0.53*</td>
</tr>
<tr>
<td></td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
<td>0.32</td>
<td>0.33</td>
<td>0.33</td>
<td>0.26</td>
</tr>
<tr>
<td>Sta. 30+00</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.24</td>
<td>0.22</td>
<td>0.26</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
<td>0.24</td>
<td>0.20</td>
<td>0.20</td>
<td>0.24</td>
</tr>
<tr>
<td>Sta. 62+10</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.21</td>
<td>0.28</td>
<td>0.27</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
<td>0.23</td>
<td>0.20</td>
<td>0.22</td>
<td>0.37</td>
</tr>
</tbody>
</table>

*: with a significant portion of gravel

5.0 INTERPRETIVE ANALYSIS

Beaches within the project site experience long-term shoreline evolution resulting from the sand balance within its littoral system as well as seasonal changes in beach width due to variant wave climate in the summer and winter seasons. The surveyed beach profiles shown in Figures 36 to 43 typify the seasonal variation of beach conditions at South Dockweiler Beach, El Segundo Beach, and El Porto. Winter sand profiles are typically more depleted than summer profiles, as sands
are carried offshore beyond the surf zone during the winter months and stored in a bar formation. During the summer months, the beach widens and reforms as sands from the offshore bar return. This phenomenon is the consequence of seasonal wave climate. The offshore sand movement is induced by the stormy high waves in the winter, while the reverse trend occurs due to the low-height longer-period swells that are commonly observed in the summer months.

The results of the sediment sampling analysis also indicate the seasonal cross-shore sand movement, as seen in Table 5. The coarse sediments were identified during the December sampling as compared to the finer sands collected at the same locations in May. As the fine materials are moved seaward during the winter months, the remaining sands on beach tend to be coarse. Conversely, nearshore fine sands that are moved back to the beach during the summer months result in a finer sand grain size distribution.

Figure 54 shows the distance from the bicycle path (South Dockweiler Beach & El Segundo Beach) or the parking lot (El Porto) seaward to the MSL position at three respective beaches. The widest beach that was observed in the period between the summer and fall season typifies the summer profiles. The beach profiles surveyed in December 2018 are the narrowest for the 2018 monitoring year. The most depleted beach condition directly results from a major storm arriving the southern California prior to the survey conducted in early December (see Figure 19). The figure of the MSL position illustrates a slightly retreating trend at South Dockweiler Beach and El Porto in the past eight years, but a relatively stable condition at El Segundo Beach. Figure 55 delineates seasonal variation at the MSL position between the winter and summer surveys.

6.0 REFERENCE


Coastal Data Information Program (CDIP), 2018. http://cdip.ucsd.edu/?ximg=search&xsearch=028&xsearch_type=Station_ID


Figure 1

Site Map

Source: Google Earth (November 2011)
Figure 2

Oblique Photo Taken in 1930

Aerial Photo Taken in 1938

Source: USACE-LAD

Beach Conditions at Dockweiler /El Segundo Beaches in 1930s
Beach Conditions at El Segundo in 1960, 1965 & 1970

Source: USACE-LAD
Beach Conditions at El Segundo in 1984, 1988 & 1991

Source: USACE-LAD

Figure 5
Figure 6

Beach Conditions at El Segundo in 1994, 2002 & 2003

Source: Google Earth
Beach Conditions at El Segundo in 2004, 2005 & 2007

Source: Google Earth
Beach Conditions at El Segundo in 2008, 2009 & 2011

Source: Google Earth
Beach Conditions at El Segundo in 2011, 2012 & 2013

Source: Google Earth
Figure 10

Beach Conditions at El Segundo in 2014 to 2016

Source: Google Earth
Figure 11

Beach Conditions at El Segundo in 2016 to 2018

Source: Google Earth
Figure 12
Mean Sea Level Trend at Santa Monica Pier

Note: Sea level data from 1933 to 2017

Source:
http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9410840
Wave Conditions from January to April in 2018

Note: Wave roses generated from Santa Monica Bay (#028) buoy operated by CDIP
Wave Conditions from May to August in 2018

Note: Wave roses generated from Santa Monica Bay (#028) buoy operated by CDIP
Wave Conditions from September to December in 2018

Note: Wave roses generated from Santa Monica Bay (#028) buoy operated by CDIP
Wave Conditions from January to March in 2018

Note: Wave roses generated from Santa Monica Bay (#028) buoy operated by CDIP
Wave Conditions from April to June in 2018

Note: Wave roses generated from Santa Monica Bay (#028) buoy operated by CDIP
Wave Conditions from July to September in 2018

Note: Wave roses generated from Santa Monica Bay (#028) buoy operated by CDIP
Figure 19

Wave Conditions from October to December in 2018

Note: Wave roses generated from Santa Monica Bay (#028) buoy operated by CDIP
Surveyed Beach Profiles at Station 0+00
Figure 22

Surveyed Beach Profiles at Station 4+00
Surveyed Beach Profiles at Station 8+00

Entire Set of Beach Profiles

Sta. 8+00

Enlarged Partial Beach Profiles

Sta. 8+00

Surveyed Beach Profiles at Station 8+00
Surveyed Beach Profiles at Station 12+50

Entire Set of Beach Profiles
Sta. 12+50

Enlarged Partial Beach Profiles
Sta. 12+50

Surveyed Beach Profiles at Station 12+50
Entire Set of Beach Profiles

Sta. 15+00

Enlarged Partial Beach Profiles

Sta. 15+00

Surveyed Beach Profiles at Station 15+00

Figure 25
Figure 26

Surveyed Beach Profiles at Station 22+50

Entire Set of Beach Profiles
Sta. 22+50

Enlarged Partial Beach Profiles
Sta. 22+50
Figure 27

Surveyed Beach Profiles at Station 27+50

Entire Set of Beach Profiles

Sta. 27+50

Enlarged Partial Beach Profiles

Sta. 27+50

Surveyed Beach Profiles at Station 27+50
Figure 28

Surveyed Beach Profiles at Station 30+00

Entire Set of Beach Profiles

Sta. 30+00

Seaward Distance from Beach Monitoring Baseline (ft)

Elevation (ft, MLLW)

Partially Listed Beach Profiles

Sta. 30+00

Seaward Distance from Beach Monitoring Baseline (ft)

Elevation (ft, MLLW)

Surveyed Beach Profiles at Station 30+00
Surveyed Beach Profiles at Station 32+50

**Entire Set of Beach Profiles**
Sta. 32+50

**Enlarged Partial Beach Profiles**
Sta. 32+50
Entire Set of Beach Profiles
Sta. 37+50

Enlarged Partial Beach Profiles
Sta. 37+50

Surveyed Beach Profiles at Station 37+50

Figure 30
Entire Set of Beach Profiles
Sta. 40+00

Enlarged Partial Beach Profiles
Sta. 40+00

Surveyed Beach Profiles at Station 40+00

Figure 31
Entire Set of Beach Profiles

Sta. 42+50

Surveyed Beach Profiles at Station 42+50
Figure 33

Entire Set of Beach Profiles
Sta. 47+50

Enlarged Partial Beach Profiles
Sta. 47+50

Surveyed Beach Profiles at Station 47+50
Figure 34

Surveyed Beach Profiles at Station 52+50

Entire Set of Beach Profiles

Sta. 52+50

Enlarged Beach Profiles

Sta. 52+50

Surveyed Beach Profiles at Station 52+50
Surveyed Beach Profiles at Stations 0+00 & 4+00 in 2018
Surveyed Beach Profiles at Stations 8+00 & 12+50 in 2018
Surveyed Beach Profiles at Stations 15+00 & 22+50 in 2018
Figure 39

Surveyed Beach Profiles at Stations 27+50 & 30+00 in 2018
Surveyed Beach Profiles at Stations 32+50 & 37+50 in 2018
Surveyed Beach Profiles at Stations 40+00 & 42+50 in 2018
Surveyed Beach Profiles at Stations 47+50 & 52+50 in 2018
Surveyed Beach Profiles at Station 62+10 in 2018
Ground Photos at Location A (Looking Upcoast)

- Photo taken on 2/8/18
- Photo taken on 5/25/18
- Photo taken on 9/7/18
- Photo taken on 12/4/18
Ground Photos at Location A (Looking Downcoast)

Photo taken on 3/8/18

Photo taken on 5/25/18

Photo taken on 9/7/18

Photo taken on 12/4/18
Figure 46

Surveyed Beach Profiles at Station 24+00
Surveyed Beach Profiles at Station 4+00
Surveyed Beach Profiles at Station 0+00
Surveyed Beach Profiles at Station 8+00
Surveyed Beach Profiles at Station 12+20
Surveyed Beach Profiles at Station 18+60
Surveyed Beach Profiles at Station 24+00

Ground Photos at Location B (Looking Upcoast)

Photo taken on 3/8/18
Photo taken on 5/25/18
Photo taken on 9/7/18
Photo taken on 12/4/18

NOBLE CONSULTANTS, INC
Ground Photos at Location B (Looking Downcoast)
El Segundo Beach Conditions (Looking Upcoast)

Photo taken on 1/22/18
Photo taken on 2/12/18
Photo taken on 3/19/18
Photo taken on 4/16/18
El Segundo Beach Conditions (Looking Upcoast)

Photo taken on 5/14/18

Photo taken on 6/18/18

Photo taken on 7/23/18

Photo taken on 8/14/18
El Segundo Beach Conditions (Looking Upcoast)

Photo taken on 9/24/18

Photo taken on 10/18/18

Photo taken on 11/14/18

Photo taken on 12/31/18
El Segundo Beach Conditions (Looking Downcoast)

Photo taken on 1/22/18

Photo taken on 2/12/18

Photo taken on 3/19/18

Photo taken on 4/16/18
El Segundo Beach Conditions (Looking Downcoast)

Photo taken on 5/14/18

Photo taken on 6/18/18

Photo taken on 7/23/18

Photo taken on 8/14/18
El Segundo Beach Conditions (Looking Downcoast)
Seasonal Variation of Mean Sea Level Positions

**South Dockweiler Beach**

- Sta 0+00
- Sta 4+00
- Sta 8+00
- Sta 12+50
- Sta 15+00

**El Segundo Beach**

- Sta 22+50
- Sta 27+50
- Sta 30+00
- Sta 32+50
- Sta 37+50
- Sta 40+00
- Sta 42+50

**El Porto**

- Sta 47+50
- Sta 52+50
- Sta 62+10

Survey date

Survey Date

Survey date
Sand Grain Size Distribution at Sta. 0+00 MHW Line (March 2018)
Sand Grain Size Distribution at Sta. 0+00 MLLW Line (March 2018)
Sand Grain Size Distribution at Sta. 30+00 MHW Line (March 2018)
Sand Grain Size Distribution at Sta. 30+00 MLLW Line (March 2018)
**Figure A-5**

Sand Grain Size Distribution at Sta. 62+10 MHW Line (March 2018)

---

**Grain Size Distribution**

Client: Noble Consultants, Inc.  
Project Name: El Segundo Beach Monitoring Program  
Project Number: 13556-00  
Address: Los Angeles County

---

**Figure No. C-5**

<table>
<thead>
<tr>
<th>BOREHOLE</th>
<th>Classification</th>
<th>LL</th>
<th>PL</th>
<th>PI</th>
<th>Cc</th>
<th>Cu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 62+10 MHW- March 2018</td>
<td>POORLY GRADED SAND(SP)</td>
<td>0.93</td>
<td>1.45</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>BOREHOLE</th>
<th>D90</th>
<th>D50</th>
<th>D30</th>
<th>D10</th>
<th>%Gravel</th>
<th>%Sand</th>
<th>%Silt</th>
<th>%Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 62+10 MHW- March 2018</td>
<td>0.228</td>
<td>0.212</td>
<td>0.163</td>
<td>0.157</td>
<td>0.0</td>
<td>98.8</td>
<td>1.2</td>
<td></td>
</tr>
</tbody>
</table>
Sand Grain Size Distribution at Sta. 62+10 MLLW Line (March 2018)

Figure A-6

STONEY-MILLER CONSULTANTS, INC.

Client: Noble Consultants, Inc.
Project Name: El Segundo Beach Monitoring Program
Project Number: 13556-00
Address: Los Angeles County

GRAIN SIZE DISTRIBUTION

- **BOREHOLE Classification**: LL, PL, PI, Cc, Cu
- **Sta. 62+10 MLLW-March 2018**: POORLY GRADED SAND(SP)

- **Percentage**: 0.91, 1.59

<table>
<thead>
<tr>
<th>BOREHOLE</th>
<th>D10</th>
<th>D50</th>
<th>D30</th>
<th>D10 %Gravel</th>
<th>%Sand</th>
<th>%Silt</th>
<th>%Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 62+10 MLLW-March 2018</td>
<td>0.253</td>
<td>0.23</td>
<td>0.191</td>
<td>0.159</td>
<td>2.9</td>
<td>95.5</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Figure No. C-6
Sand Grain Size Distribution at Sta. 0+00 MHW Line (May 2018)
Sand Grain Size Distribution at Sta. 0+00 MLLW Line (May 2018)
Sand Grain Size Distribution at Sta. 30+00 MHW Line (May 2018)
Sand Grain Size Distribution at Sta. 30+00 MLLW Line (May 2018)

Figure A-10

STONEY-MILLER CONSULTANTS, INC.

Client: Noble Consultants, Inc.
Project Name: El Segundo Beach Monitoring Program
Project Number: 13556-00
Address: Los Angeles County

GRAIN SIZE DISTRIBUTION

BOREHOLE Classification LL PL PI Cc Cu
STA 30+00 MLLW- May 2018 POORLY GRADED SAND(SP) 0.93 1.46

BOREHOLE D60 D50 D30 D10 %Gravel %Sand %Silt %Clay
STA 30+00 MLLW- May 2018 0.222 0.206 0.177 0.152 0.0 99.9 0.1

Figure No. C-1
Sand Grain Size Distribution at Sta. 62+10 MHW Line (May 2018)
Sand Grain Size Distribution at Sta. 62+10 MLLW Line (May 2018)
Sand Grain Size Distribution at Sta. 0+00 MHW Line (September 2018)
Sand Grain Size Distribution at Sta. 0+00 MLLW Line (September 2018)
Sand Grain Size Distribution at Sta. 30+00 MHW Line (September 2018)
Sand Grain Size Distribution at Sta. 30+00 MLLW Line (September 2018)
Grain Size Distribution at Sta. 62+10 MHW Line (September 2018)
Sand Grain Size Distribution at Sta. 62+10 MLLW Line (September 2018)
Sand Grain Size Distribution at Sta. 0+00 MHW Line (December 2018)
### Grain Size Distribution

**Client:** Noble Consultants, Inc.  
**Project Name:** El Segundo Beach Monitoring Program  
**Project Number:** 13556-00  
**Address:** Los Angeles County

<table>
<thead>
<tr>
<th>GRAIN SIZE IN MILLIMETERS</th>
<th>COBBLES</th>
<th>GRAVEL</th>
<th>SAND</th>
<th>SILT OR CLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>course</td>
<td>fine</td>
<td>course</td>
<td>medium</td>
</tr>
</tbody>
</table>

**BOREHOLE**  
<table>
<thead>
<tr>
<th>Classification</th>
<th>LL</th>
<th>PL</th>
<th>PI</th>
<th>Cu</th>
<th>Cu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 0+00 MLLW-December 2018</td>
<td>0.88</td>
<td>1.98</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOREHOLE</th>
<th>D60</th>
<th>D50</th>
<th>D30</th>
<th>D10</th>
<th>%Gravel</th>
<th>%Sand</th>
<th>%Silt</th>
<th>%Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 0+00 MLLW-December 2018</td>
<td>0.301</td>
<td>0.284</td>
<td>0.201</td>
<td>0.152</td>
<td>98.1</td>
<td>1.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Sand Grain Size Distribution at Sta. 0+00 MLLW Line (December 2018)**
Sand Grain Size Distribution at Sta. 30+00 MHW Line (December 2018)
Grain Size Distribution at Sta. 30+00 MLLW Line (December 2018)
Sand Grain Size Distribution at Sta. 62+10 MHW Line (December 2018)
# Grain Size Distribution

**Client:** Noble Consultants, Inc.  
**Project Name:** El Segundo Beach Monitoring Program  
**Project Number:** 13556-00  
**Address:** Los Angeles County

### U.S. Sieve Opening in Inches

<table>
<thead>
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<th>U.S. Sieve</th>
<th>Opening</th>
</tr>
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<tbody>
<tr>
<td>5</td>
<td>1/4</td>
</tr>
<tr>
<td>4</td>
<td>1/2</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2.15</td>
<td>1 1/4</td>
</tr>
<tr>
<td>1.5</td>
<td>1 1/2</td>
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### U.S. Sieve Numbers

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<th>Number</th>
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<th>90</th>
<th>100</th>
<th>120</th>
<th>150</th>
<th>180</th>
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<tr>
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<td>3</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### Hydrometer

**Grain Size Distribution**

<table>
<thead>
<tr>
<th>Grain Size in Millimeters</th>
<th>COBBLES</th>
<th>GRAVEL</th>
<th>SAND</th>
<th>SILT OR CLAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>coarse</td>
<td>fine</td>
<td>coarse</td>
<td>fine</td>
</tr>
</tbody>
</table>

### Borehole Classification

<table>
<thead>
<tr>
<th>Borehole</th>
<th>Classification</th>
<th>LL</th>
<th>PL</th>
<th>ML</th>
<th>OC</th>
<th>Cu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 62+10 MLLW-December 2018</td>
<td>1.52</td>
<td>3.40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Grain Size Distribution Data

<table>
<thead>
<tr>
<th>Borehole</th>
<th>D90</th>
<th>D50</th>
<th>D30</th>
<th>D10</th>
<th>% Gravel</th>
<th>% Sand</th>
<th>% Silt</th>
<th>% Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 62+10 MLLW-December 2018</td>
<td>0.421</td>
<td>0.372</td>
<td>0.281</td>
<td>0.124</td>
<td>0.1</td>
<td>90.7</td>
<td>9.0</td>
<td></td>
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</tbody>
</table>

---

Sand Grain Size Distribution at Sta. 62+10 MLLW Line (December 2018)
samples (two sediment samples per location) were respectively collected at three different locations on December 4, 2018, as also identified in Figure 1. At each location, one sand sample was collected on the foreshore face at the approximate Mean High Water (MHW) position and the other in the surf zone near the Mean Lower Low Water (MLLW) elevation. The collected sand samples were forwarded to a soil-testing laboratory for analysis of the sediment grain size distribution. Table 1 summarizes the grain size characteristics of individually sampled sediments, while Figures 17 to 22 respectively illustrate the deduced grain size distributions for the collected sand samples.

Table 1. Summary of Sediment Characteristics for samples collected on December 4, 2018

<table>
<thead>
<tr>
<th>Sampling Location</th>
<th>Reference Elevation</th>
<th>Soil Type</th>
<th>D50 (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta. 0+00</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.53</td>
</tr>
<tr>
<td>Sta. 0+00</td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
<td>0.26</td>
</tr>
<tr>
<td>Sta. 30+00</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.31</td>
</tr>
<tr>
<td>Sta. 30+00</td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
<td>0.24</td>
</tr>
<tr>
<td>Sta. 62+10</td>
<td>MHW</td>
<td>Poorly Graded Sand</td>
<td>0.34</td>
</tr>
<tr>
<td>Sta. 62+10</td>
<td>MLLW</td>
<td>Poorly Graded Sand</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Figure 1. Surveyed Transect and Sediment Sampling Locations
Figure 2. Surveyed Beach Profile at Station 0+00

Figure 3. Surveyed Beach Profile at Station 4+00
Figure 4. Surveyed Beach Profile at Station 8+00

Figure 5. Surveyed Beach Profile at Station 12+50
Figure 6. Surveyed Beach Profile at Station 15+00

Figure 7. Surveyed Beach Profile at Station 22+50
Figure 8. Surveyed Beach Profile at Station 27+50

Figure 9. Surveyed Beach Profile at Station 30+00
Figure 10. Surveyed Beach Profile at Station 32+50

Figure 11. Surveyed Beach Profile at Station 37+50
Figure 12. Surveyed Beach Profile at Station 40+00

Figure 13. Surveyed Beach Profile at Station 42+50
Figure 14. Surveyed Beach Profile at Station 47+50

Figure 15. Surveyed Beach Profile at Station 52+50
Figure 16. Surveyed Beach Profile at Station 62+10
Figure 17. Grain Size Distribution at Sta. 0+00 MHW Line
Figure 18. Grain Size Distribution at Sta. 0+00 MLLW Line
Figure 19. Grain Size Distribution at Sta. 30+00 MHW Line
Figure 20. Grain Size Distribution at Sta. 30+00 MHW Line
Figure 21. Grain Size Distribution at Sta. 62+10 MHW Line
Figure 22. Grain Size Distribution at Sta. 62+10 MLLW Line
ATTACHMENT F

HAZ-1: List of Hazardous Materials

Condition Verification Summary:
Condition requires ESEC to provide to the Energy Commission, as part of its Annual Compliance Report, a list of hazardous Materials designated as regulated substances as set forth in Title 40, CFR Part 355, Subpart J section 355.50 Appendix A. This list shall also include maximum quantities of these substances at the facility. Copies of the list should also be provided to the City of El Segundo Fire Department (CESFD) and the City of Manhattan Beach Fire Department (CMBFD).

ESEC Submission:
ESEC has complied the following list of hazardous Materials designated as regulated substances as set forth in Title 40, CFR Part 355, Subpart J section 355.50. This list also includes maximum quantities of these substances at the facility. Copies of this list have also been provided to the CESFD and the CMBFD.

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Chemical Name</th>
<th>Threshold Planning Quantity (pounds)</th>
<th>Quantity Stored On Site (pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7664-41-7</td>
<td>Ammonia</td>
<td>500</td>
<td>1,000*</td>
</tr>
<tr>
<td>7664-93-9</td>
<td>Sulfuric Acid</td>
<td>1,000</td>
<td>15,300**</td>
</tr>
</tbody>
</table>

* Based on 800 gallons of 19% aqueous ammonia.
** Based on total capacity of wet lead-acid batteries on-site.
ATTACHMENT G

TLSN-3: Complaint Report/Resolution Form Log for Electro Interference Complaints

Condition Verification Summary:
Condition requires ESEC to summarize all line-related complaints and include in the Annual Compliance Report.

ESEC Submission:
No complaints were received in 2018 related to the electrical power lines either on or off site.
ATTACHMENT H

VIS-2: Landscape maintenance activities; and
VIS-3: Seawall Maintenance Activities

VIS-2 Condition Verification Summary:
VIS-2 condition requires ESEC to report landscape maintenance activities, including replacement of dead vegetation, for the previous year of operation in this Annual Compliance Report.

ESEC Submission:
ESEC conducted the following landscape maintenance activities during 2018:

<table>
<thead>
<tr>
<th>Activity Date</th>
<th>Activity Description</th>
<th>Functional Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly</td>
<td>Weed eradication</td>
<td>Southern berm, tank farm Area, Vista Del Mar, East Slope, and Bike Path/Seawall</td>
</tr>
<tr>
<td>Throughout the year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarterly Inspection</td>
<td>Groundcover Maintenance</td>
<td>Southern berm, tank farm Area, East Slope</td>
</tr>
<tr>
<td>and replacement as needed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarterly Inspection</td>
<td>Replacement of dead shrubs</td>
<td>Southern berm, tank farm Area, Vista Del Mar, East Slope, and Bike Path/Seawall</td>
</tr>
<tr>
<td>and replacement as needed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarterly Inspection</td>
<td>Tree pruning</td>
<td>South berm, tank farm Area, and Vista Del Mar</td>
</tr>
<tr>
<td>and replacement as needed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quarterly Inspection</td>
<td>Tree replacement</td>
<td>Southern berm, tanks Farm Area, East Slope, Vista Del Mar</td>
</tr>
<tr>
<td>and replacement as needed.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ATTACHMENT H (Continued)

VIS-3: Seawall Maintenance Activities

Condition Verification Summary:
VIS-3 condition requires ESEC provide a wall maintenance status report in the Annual Compliance Report. There were no graffiti incidents during 2018. The anti-graffiti coating works well for enabling easy removal and maintenance.

ESEC Submission:
ESEC inspects the seawall for graffiti and general conditions on a weekly basis. ESEC conducted no graffiti removal activities in 2018:

<table>
<thead>
<tr>
<th>Activity Date</th>
<th>Activity Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly throughout year</td>
<td>Trash cleanup and graffiti inspection.</td>
</tr>
<tr>
<td>Periodic inspection for graffiti</td>
<td>Graffiti removal as needed.</td>
</tr>
</tbody>
</table>


Condition of Certification

VIS-2 & VIS-3

Landscape & Seawall Maintenance Activities