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California Energy Commission
**DOCKETED**
**12-AFC-02**
TN # 69182
JAN 17 2013

January 16, 2013

**VIA EMAIL**

Ms. Felicia Miller, Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

**Re: Huntington Beach Energy Project (12-AFC-02)**
**Responses to Staff's Data Requests, Set 1 (AQ-11; BIO-23 through BIO-26)**

Dear Ms. Miller:

On behalf of Applicant AES Southland Development, LLC, please find enclosed herein for docketing, Applicant's responses to Staff's Data Requests AQ-11 and BIO-23 through BIO-26. Applicant will serve via email all parties to this proceeding pursuant to the enclosed Proof of Service.

Should you have any questions regarding this submittal, please do not hesitate to contact me.

Respectfully submitted,

Melissa A. Foster

MAF:jmw
Enclosure
cc: Proof of Service

**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA**
**1516 NINTH STREET, SACRAMENTO, CA 95814**
**1-800-822-6228 – WWW.ENERGY.CA.GOV**

***APPLICATION FOR CERTIFICATION FOR THE HUNTINGTON BEACH ENERGY PROJECT***

**Docket No. 12-AFC-02**
**PROOF OF SERVICE**
**(Revised 12/24/12)**

**SERVICE LIST:**

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***Huntington Beach**
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**COMMISSION DOCKET UNIT**
California Energy Commission – Docket Unit
Attn: Docket No. 12-AFC-02
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.ca.gov

**OTHER ENERGY COMMISSION PARTICIPANTS (LISTED FOR CONVENIENCE ONLY):**

***After docketing, the Docket Unit will provide a copy to the persons listed below. Do not send copies of documents to these persons unless specifically directed to do so.***

*indicates change

ANDREW McALLISTER
Commissioner and Presiding Member

KAREN DOUGLAS
Commissioner and Associate Member

Raoul Renaud
Hearing Adviser

**OTHER ENERGY COMMISSION PARTICIPANTS (LISTED FOR CONVENIENCE ONLY) (cont.):**

Eileen Allen
Commissioners' Technical
Adviser for Facility Siting

David Hungerford
Adviser to Commissioner McAllister

Patrick Saxton
Adviser to Commissioner McAllister

Galen Lemei
Adviser to Commissioner Douglas

Jennifer Nelson
Adviser to Commissioner Douglas

Felicia Miller
Project Manager

Kevin W. Bell
Staff Counsel

## DECLARATION OF SERVICE

I, Judith M. Warmuth, declare that on January 16, 2013, I served and filed copies of the attached **Applicant's Responses to Staff's Data Requests, Set 1 (AQ-11; BIO-23 through BIO-26)** dated January 16, 2013. This document is accompanied by the most recent Proof of Service list, which I copied from the web page for this project at:
http://www.energy.ca.gov/sitingcases/huntington_beach_energy/index.html.

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, as appropriate, in the following manner:

**(*Check one*)**

**For service to all other parties and filing with the Docket Unit at the Energy Commission:**

☒ I e-mailed the document to all e-mail addresses on the Service List above and personally delivered it or deposited it in the US mail with first class postage to those parties noted above as "hard copy required"; **OR**

☐ Instead of e-mailing the document, I personally delivered it or deposited it in the US mail with first class postage to all of the persons on the Service List for whom a mailing address is given.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated: January 16, 2013

Judith M. Warmuth

Judith M. Warmuth

# Huntington Beach Energy Project

(12-AFC-02)

# Data Responses, Set 1B

## (Responses to Data Requests 11 and 23–26)

Submitted to

**California Energy Commission**

Prepared by

**AES Southland Development, LLC**

With Assistance from

CH2MHILL®
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

January 17, 2013

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**Attachments**

DR11-1 Facilities Removed from Cumulative Impact Assessment
DR11-2 Facilities Included in Cumulative Impact Assessment
DR11-3 Summary of Dispersion Modeling Parameters and Results

# Introduction

Attached are AES Southland Development, LLC's (AES or the Applicant) updated responses to the California Energy Commission (CEC) Data Request, Set 1B regarding the Huntington Beach Energy Project (HBEP) (12-AFC-02) Application for Certification (AFC). This submittal includes responses to the following data requests: 11 and 23–26.

The responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as the CEC presented them and are keyed to the Data Request numbers.

New or revised graphics or tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 36 would be numbered Table DR36-1. The first figure used in response to Data Request 42 would be Figure DR42-1, and so on. Figures or tables from the HBEP AFC that have been revised have "R1" following the original number, indicating revision 1.

Additional tables, figures, or documents submitted in response to a data request (for example, supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of each discipline-specific section and are not sequentially page-numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

# Air Quality

## BACKGROUND

## CUMULATIVE MODELING ANALYSIS

Applicant states in the AFC they are working with South Coast Air Quality Management District (SCAQMD) to complete all the background information for the cumulative air impact analysis, and are currently trying to identify other applicable sources from SCAQMD to get a complete cumulative air impact analysis.

## DATA REQUEST

11. Please provide the cumulative modeling and impact analysis, including HBEP and the other projects approved by staff.

**Response:**

As presented in Attachment DR10-1[1], additional information was requested from the SCAQMD to complete the assessment of the potential cumulative impact sources included within six (6) miles of HBEP. Based on the detailed permit application data received from the SCAQMD, additional facilities were removed from the cumulative assessment if the applications were administrative changes only, the permitted sources did not result in an increase in emissions, it was concluded that the emissions increase would be less than significant (e.g., less than a 5 ton increase), or it was determined the location of the permitted source was beyond 6 miles from HBEP. Attachment DR11-1 provides a summary of the facilities removed from the list of potential cumulative sources. The complete package of SCAQMD permit application materials received is included on a supplemental CD.

Table DR11-1 presents a final list of the facilities that have been included in the HBEP cumulative impact modeling assessment. Attachment DR11-2 provides a summary of the information used to develop the list of facilities included in the cumulative impact assessment.

TABLE DR11-1
**HBEP Cumulative Impact Sources**

| Facility ID | Facility Name | Number of Sources | Permit Application Number(s) | Description |
|---|---|---|---|---|
| 17301 | Orange County Sanitation District | 4 | 486760, 486792, 486793, 494460 | Addition of a boiler and three IC engines. |
| 29110 | Orange County Sanitation District | 8 | 455670, 455671, 455673, 474766, 474767, 474768, 474769, 474770 | Addition of three emergency diesel ICEs. Permit modification for five existing emergency diesel ICEs. |
| 167066 | Arlon Graphics LLC | 1 | 534234 | Addition of recuperative thermal oxidizer and change in conditions for existing oxidizer. |

## Cumulative Air Quality Impact Analysis

The cumulative air quality impact analysis was conducted using the model settings and receptor grid approach outlined in the AFC, with the exception of the receptor grid. The spatial extent of the receptor grid was reduced from 50 km to 10 km because the maximum impacts for the HBEP dispersion modeling analysis were within

[1] In response to Data Request #10 in the Data Response Set 1A submittal on November 2, 2012.

10 km. Receptors within the cumulative facility fence lines were also removed from the model setup because they would not be representative of ambient conditions.

## Modeling Parameters

The emission and exhaust parameters used to estimate the cumulative impacts are presented in Table DR11-2. Because specific locations for each cumulative emission source were not available, all sources at a facility were modeled as though they were at the center of the facility. Also, because emission rates for $PM_{2.5}$ were not available for the cumulative sources, it was conservatively assumed that $PM_{2.5}$ emission rates were equal to those of $PM_{10}$. The source parameters were based on the following data sources. A summary of the dispersion modeling inputs and output is also included in Attachment DR11-3.

**Huntington Beach Energy Project:**

- Source parameters and emission rates were based on the operating scenario, which includes start-up and shutdown emissions, resulting in the maximum predicted impacts presented in Table 5.1-29 of the AFC.
- The hourly $NO_2$ concentrations in AFC Table 5.1-29 conservatively assumed a complete conversion of $NO_x$ to $NO_2$. However, the 1-hour $NO_2$ concentrations for the cumulative impacts were modeled using the Plume Volume Molar Ratio Method (PVMRM) as discussed in Section 5.1.6.3 of the AFC.

**Orange County Sanitation District (Facility ID 17301):**

- Source parameters and emission rates were based on permitted source data received from the SCAQMD on October 24, 2012, and November 2, 2012, with additional data provided by the SCAQMD on November 29, 2012.
- The annual emissions from the three digester gas ICEs were based on the daily maximum permitted allowances for the engines.
- The short-term $NO_x$ emissions from the permitted boiler were modeled at 15 ppm, based on the permit limit beginning in 2015.

**Orange County Sanitation District (Facility ID 29110):**

- Source parameters and emission rates were based on permitted source data received from the SCAQMD on October 25, 2012, with additional data provided by the SCAQMD on November 29, 2012.
- The permit applications for the five emergency diesel ICEs (permitted February 27, 2008) are for a change in conditions only (increasing annual operating hours for each engine from 30 to 50 hours). Therefore, there was no increase in short-term emissions from these sources and the annual emissions modeled reflect only the increase in total emissions.
- As stack parameters were unavailable for the three emergency diesel ICEs (permitted April 12, 2006), it was assumed these were equivalent to the five emergency diesel ICEs previously described.

**Arlon Graphics, LLC (Facility ID 167066):**

- Source parameters and emission rates were based on permitted source data received from the SCAQMD on October 24, 2012, with additional data provided by the SCAQMD on December 5, 2012.
- Permit application numbers 532302 and 534234 are for new construction of a recuperative thermal oxidizer (RTO) and reductions to the permit limits of an existing RTO. The result of these permits is a net increase of emissions of CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$, and a net decrease in emissions of $NO_x$. Therefore, only the increase in short-term and annual emissions were modeled using the stack parameters of the new RTO.

TABLE DR11-2
**Summary of Modeled Emission Rates and Source Parameters**

| Source Description | Easting (m) | Northing (m) | Base Elevation (m) | Stack Height (ft) | Temperature (°F) | Exit Velocity (ft/s) | Stack Diameter (ft) | Emissions (lb/hr)[a] | | | | | | | Emissions (tpy)[a] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1-hr NOx | 1-hr CO | 1-hr $SO_2$ | 3-hr $SO_2$ | 8-hr CO | 24-hr $SO_2$ | 24-hr $PM_{10}/PM_{2.5}$ | Annual NOx | Annual $PM_{10}/PM_{2.5}$ |
| **Orange County Sanitation District (Facility ID 17301)** | | | | | | | | | | | | | | | | |
| Boiler | 412725 | 3728250 | 7.7 | 42 | 360 | 30.5 | 1.5 | 0.22 | 0.90 | 0.13 | 0.13 | 0.90 | 0.13 | 0.056 | 1.60 | 0.60 |
| Digester Gas ICEs (3) | 412725 | 3728250 | 7.7 | 62 | 500 | 58.7 | 2.5 | 23.01 | 55.05 | 2.25 | 2.25 | 55.1 | 2.25 | 2.25 | 67.2 | 6.57 |
| **Orange County Sanitation District (Facility ID 29110)** | | | | | | | | | | | | | | | | |
| Emergency Diesel ICEs (8)[b] | 411100 | 3722400 | 1.6 | 28 | 597 | 111.3 | 1.3 | — | — | — | 1.19 | 20.6 | 0.15 | 0.32 | 5.38 | 0.17 |
| **Arlon Graphics, LLC (Facility ID 167066)** | | | | | | | | | | | | | | | | |
| RTO | 414875 | 3730325 | 13.5 | 25 | 195 | 80.3 | 4.3 | 0 | 0.34 | 0.002 | 0.002 | 0.34 | 0.002 | 0.017 | 0 | 0.073 |

[a]Emissions are presented as totals for each source type.
[b]Sources identified as emergency diesel ICEs are permitted for 50 hr/yr of maintenance and testing. Therefore, it is assumed that the simultaneous testing of all ICEs and a startup cycle for all six turbines at HBEP would not occur.

## Modeling Results

The maximum modeled cumulative $NO_2$, CO, $SO_2$, and $PM_{2.5}$ concentrations combined with the background concentrations do not exceed the ambient air quality standards (AAQS). The results of the cumulative modeling analysis also assumes that the contribution to background air quality that results from the existing Huntington Beach Generating Station emissions would remain the same in the future. However, as noted in the AFC, the existing Huntington Beach Generating Station boiler units will be removed after completion of HBEP construction. Therefore, the cumulative sources are not expected to cause or contribute to the violation of a standard, and the $NO_2$, CO, $SO_2$, and $PM_{2.5}$ impacts will be less than significant.

For $PM_{10}$, the background concentrations exceed the AAQS without the cumulative sources, with the exception of the federal 24-hour standard. As a result, the impact of the cumulative sources plus background also exceeds the AAQS and the operation of the cumulative sources would further contribute to an existing violation of the state standards absent mitigation. As discussed in the AFC, HBEP emissions will be fully offset consistent with SCAQMD Rules 1303 and 1304 using the SCAQMD internal offset bank. Therefore the $PM_{10}$ impacts will be mitigated to a less-than-significant level.

TABLE DR11-3
**Cumulative Impacts Analysis—Maximum Modeled Impacts Compared to the Ambient Air Quality Standards**

| Pollutant | Averaging Time | Maximum Modeled Concentration (µg/m$^3$) | Background Concentration (µg/m$^3$)[a] | Total Predicted Concentration (µg/m$^3$) | State Standard (µg/m$^3$) | Federal Standard (µg/m$^3$) |
|---|---|---|---|---|---|---|
| $NO_2$ | 1-hour[b] | 28.4 | 152 | 180 | 339 | — |
| | federal 1-hour[b, c] | 28.4 | 111 | 139 | — | 188 |
| | annual | 1.05 | 24.8 | 25.9 | 57 | 100 |
| $SO_2$ | 1-hour | 2.19 | 26.2 | 28.4 | 655 | — |
| | federal 1-hour[d] | 2.19 | 17 | 19.2 | — | 196 |
| | 3-hour | 3.62 | 17.3 | 20.9 | — | 1,300 |
| | 24-hour | 0.73 | 10.5 | 11.2 | 105 | 365 |
| CO | 1-hour | 161 | 3,436 | 3597 | 23,000 | 40,000 |
| | 8-hour | 46.7 | 2,519 | 2566 | 10,000 | 10,000 |
| $PM_{10}$ | 24-hour | 2.81 | 56 | 58.8 | 50 | 150 |
| | annual | 0.45 | 23.5 | 24.0 | 20 | — |
| $PM_{2.5}$ | 24-hour[c] | 2.81 | 22.7 | 25.5 | — | 35 |
| | annual | 0.45 | 10.4 | 10.9 | 12 | 15 |

[a]Background concentrations were the highest concentrations monitored during 2008 through 2010, unless otherwise noted.

[b]The hourly $NO_2$ concentrations in the AFC Table 5.1-29 conservatively assumed a complete conversion of NOx to $NO_2$. However, the 1-hour $NO_2$ concentrations for the cumulative impacts were modeled using PVMRM. The PVMRM is a refined approach that results in a less conservative estimate.

[c]Total predicted concentrations for the federal 1-hour $NO_2$ standard and 24-hour $PM_{2.5}$ standard are the respective maximum modeled concentrations combined with the 3-year average of 98$^{th}$ percentile background concentrations.

[d]Total predicted concentrations for the federal 1-hour $SO_2$ standard is the maximum modeled concentrations combined with the 3-year average of 99$^{th}$ percentile background concentrations.

# Attachment DR11-1
# Facilities Removed from Cumulative Impact Assessment

| HUNTINGTON BEACH CITY, WATER DEPT - Facility 24427 Sources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Application Number | Permit Number | Permit Issued Date | Permit Status | Equipment Type | Equipment Description | Application Date | Application Status | Reason for Exclusion from Analysis |
| 532000 | G19503 | 7/26/2012 | ACTIVE | Basic | I C E (50-500 HP) N-EM STAT NAT GAS ONLY | 2/3/2012 | PERMIT TO OPERATE GRANTED | Permitted source did not result in an increase in emissions. See correspondence with SCAQMD. |

CH2MHILL® TELEPHONE CONVERSATION RECORD

**Call To**: Ray Ronquillo, Engineer, South Coast Air Quality Management District

**Phone No.**: (909) 396-3049 **Date:** 11/28/12

**Call From:** Beth Storelli **Time:** 4:25pm

**Message Taken By: Beth Storelli**

**Subject:** Source Information

**Project No.: 458993.01.01**

**Notes**:

I asked Ray about the following source:

Control #70458 HUNTINGTON BEACH CITY, WATER DEPT - Facility 24427

- Form 400 indicates that this is a replacement for an existing engine, confirm with engineer that old engine (Waukesha VHP5790) was retired, and that new engine has fewer emissions. If not, need permit application for emissions and exhaust parameters.

Ray responded that he believes the old engine has been retired and that newer engines should have fewer emissions.

| WEST NEWPORT OIL COMPANY - Facility 42775 Sources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Application Number | Permit Number | Permit Issued Date | Permit Status | Equipment Type | Equipment Description | Application Date | Application Status | Reason for Exclusion from Analysis |
| 536895 | | | ACTIVE | Basic | BOILER (5-20 MMBTU/HR) NAT GAS ONLY | 5/17/2012 | PERMIT TO OPERATE GRANTED | Information unavailable at time of analysis. Based on equipment description, assumed permitted source did not result in an increase in emissions greater than 5 tons/yr. |
| 509314 | | | | Basic | BOILER (5-20 MMBTU/HR) COMB GAS-LPG | 3/24/2010 | APPLICATION CHANGED FROM CLASS I - III | Information unavailable at time of analysis. Based on equipment description, assumed permitted source did not result in an increase in emissions greater than 5 tons/yr. |
| 512550 | | | | Basic | FACILITY PERMIT AMEND-RECLAIM/TITLE V | 7/1/2010 | ASSIGNED TO ENGINEER - CLASS III | Information unavailable at time of analysis. Based on equipment description, assumed administrative change only. |

| OXY USA INC - Facility 169754 Sources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Application Number | Permit Number | Permit Issued Date | Permit Status | Equipment Type | Equipment Description | Application Date | Application Status | Reason for Exclusion from Analysis |
| 538851 | | | | Basic | HEATER/FURNACE ( | 6/19/2012 | ASSIGNED TO ENGINEER - CLASS I | Information unavailable at time of analysis. Based on equipment description, assumed permitted source did not result in an increase in emissions greater than 5 tons/yr. |
| 533146 | | | | Basic | BOILER (5-20 MMBTU/HR) NAT GAS ONLY | 3/6/2012 | ASSIGNED TO ENGINEER - CLASS I | Information unavailable at time of analysis. Based on equipment description, assumed permitted source did not result in an increase in emissions greater than 5 tons/yr. |
| 529234 | | | ACTIVE | Basic | HEATER/FURNACE ( | 11/8/2011 | PERMIT TO OPERATE GRANTED | Administrative change only |
| 529223 | | | ACTIVE | Basic | I C E (50-500 HP) EM ELEC GEN-DIESEL | 11/8/2011 | PERMIT TO OPERATE GRANTED | Administrative change only |
| 529225 | | | ACTIVE | Basic | I C E (50-500 HP) EM FIRE FGHT-DIESEL | 11/8/2011 | PERMIT TO OPERATE GRANTED | Administrative change only |
| 529224 | | | ACTIVE | Basic | I C E (50-500 HP) EM FIRE FGHT-DIESEL | 11/8/2011 | PERMIT TO OPERATE GRANTED | Administrative change only |
| 529226 | | | ACTIVE | Basic | I C E (50-500 HP) EMERG OTHER, DIESEL | 11/8/2011 | PERMIT TO OPERATE GRANTED | Administrative change only |
| 529240 | | | ACTIVE | Basic | I C E (50-500 HP) N-EM STAT DIESEL | 11/8/2011 | PERMIT TO OPERATE GRANTED | Administrative change only |
| 529236 | | | ACTIVE | Control | FLARE, OTHER | 11/8/2011 | PERMIT TO OPERATE GRANTED | Information unavailable at time of analysis. Based on same application date and status of other sources, assumed administrative change only. |
| 529235 | | | ACTIVE | Control | TAIL GAS INCINERATOR | 11/8/2011 | PERMIT TO OPERATE GRANTED | Administrative change only |
| 534354 | | | | Basic | MICRO-TURBINE NOT NAT GAS,METHANOL OR LPG | 3/27/2012 | ASSIGNED TO ENGINEER - CLASS I | Information unavailable at time of analysis. Based on equipment description, assumed permitted source did not result in an increase in emissions greater than 5 tons/yr. |
| 529232 | | | ACTIVE | Basic | NATURAL GAS DRYING | 11/8/2011 | PERMIT TO OPERATE GRANTED | Administrative change only |
| 529229 | | | ACTIVE | Basic | NATURAL GAS DRYING | 11/8/2011 | PERMIT TO OPERATE GRANTED | Administrative change only |

| YAKULT U.S.A., INC. - Facility 168160 Sources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Application Number | Permit Number | Permit Issued Date | Permit Status | Equipment Type | Equipment Description | Application Date | Application Status | Reason for Exclusion from Analysis |
| 524509 | | | | Basic | BOILER (5-20 MMBTU/HR) NAT GAS ONLY | 6/24/2011 | APPLICATION CHANGED FROM CLASS I - III | Information unavailable at time of analysis. Based on equipment description, assumed permitted source did not result in an increase in emissions greater than 5 tons/yr. |
| 524510 | | | | Basic | BOILER (5-20 MMBTU/HR) NAT GAS ONLY | 6/24/2011 | APPLICATION CHANGED FROM CLASS I - III | Information unavailable at time of analysis. Based on equipment description, assumed permitted source did not result in an increase in emissions greater than 5 tons/yr. |

| | |
|---|---|
| **From:** | Maria Rubio |
| **To:** | Storelli, Elizabeth/SAC |
| **Subject:** | RE: CH2M Hill Records Request - update |
| **Date:** | Thursday, January 03, 2013 1:34:32 PM |

---

Hi Beth,

Thank you! I have not received the files yet. I sent out the Third Reminder. I will notify you as soon as I here from them.

---

**From:** Elizabeth.Storelli@ch2m.com [mailto:Elizabeth.Storelli@ch2m.com]
**Sent:** Thursday, January 03, 2013 9:13 AM
**To:** Maria Rubio
**Subject:** RE: CH2M Hill Records Request - update

Hi Maria,

I hope you had a nice holiday break. Can you please provide me with an update on the status of our remaining data requests?

Outstanding requests:
Control #s: 70235, 70236, 70238, 70231

Thank you,

Beth Storelli

CH2M HILL
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833
Office 916.286.0259
elizabeth.storelli@ch2m.com

---

**From:** Maria Rubio [mailto:mrubio@aqmd.gov]
**Sent:** Wednesday, December 05, 2012 4:12 PM
**To:** Storelli, Elizabeth/SAC
**Subject:** RE: CH2M Hill Records Request - update

Hi Beth,

All your request are still with the engineer I will send a second reminder.

---

**From:** Elizabeth.Storelli@ch2m.com [mailto:Elizabeth.Storelli@ch2m.com]
**Sent:** Wednesday, December 05, 2012 3:56 PM
**To:** Maria Rubio

**Subject:** RE: CH2M Hill Records Request - update

Hi Maria,

I thought I would check in on the status of our last few data requests.

As of 11/14 (3 weeks ago), it looks like PRR #70235, 70236, 70238, 70231 were with the engineer.

Do you have any update on when these may be available to us? We are starting to close in on our project due date.

Thank you,

Beth Storelli

CH2M HILL
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833
Office 916.286.0259
elizabeth.storelli@ch2m.com

---

**From:** Maria Rubio [mailto:mrubio@aqmd.gov]
**Sent:** Wednesday, November 14, 2012 10:09 AM
**To:** Storelli, Elizabeth/SAC
**Subject:** RE: CH2M Hill Records Request - update

Hi Elizabeth,

For PRR #70458 I still need to work on it.I have 15 requests ahead of yours.

PRR #70235, 70236, 70238, 70231 are with the engineer.

PRR #70236 This facility is a Title V. I have routed for most current facility permit.

I will forward emails for Control 70237 & 70230.

Maria

---

**From:** Elizabeth.Storelli@ch2m.com [mailto:Elizabeth.Storelli@ch2m.com]
**Sent:** Wednesday, November 14, 2012 9:24 AM
**To:** Maria Rubio
**Subject:** CH2M Hill Records Request - update

Hi Maria,

In order to ensure that we are both on the same page, below is a summary of the information that I am still waiting on. Can you please confirm that you have submitted requests to the engineers for the following:

| Control # | Application # |
|---|---|
| 70458 | 532000 |
| 70235 | 536895, 509314, 512550 |
| 70236 | 517842, 516030, 516026 – 29, 533625 |
| 70237 - I was sent a completion letter, but I only received the routing slip (attached) | |
| 70238 | 524509, 524510 |
| 70231 | 538851, 533146, 534354 |
| 70230 – For App #: 514139 all I received was the attached, do you have additional information? | |

I have also attached a tracker that I created to keep track of everything you have sent me, if that is more helpful.

Thank you and please don't hesitate to call if you have any questions!

Beth Storelli

CH2M HILL
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833
Office 916.286.0259
elizabeth.storelli@ch2m.com

| BETA OFFSHORE - Facility 166073 Sources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Application Number | Permit Number | Permit Issued Date | Permit Status | Equipment Type | Equipment Description | Application Date | Application Status | Reason for Exclusion from Analysis |
| 517842 | | | ACTIVE | Basic | I C E (50-500 HP) N-EM STAT DIESEL | 1/18/2011 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 517841 | | | ACTIVE | Basic | I C E (50-500 HP) N-EM STAT DIESEL | 1/18/2011 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 517840 | | | ACTIVE | Basic | I C E (50-500 HP) N-EM STAT DIESEL | 1/18/2011 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 517839 | | | ACTIVE | Basic | I C E (50-500 HP) N-EM STAT DIESEL | 1/18/2011 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 517838 | | | ACTIVE | Basic | I C E (50-500 HP) N-EM STAT DIESEL | 1/18/2011 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516030 | | | | Basic | I C E (>500 HP) N-EM STAT DIESEL | 11/2/2010 | PERMIT TO CONSTRUCT GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516026 | | | | Basic | I C E (>500 HP) N-EM STAT DIESEL | 11/2/2010 | APPLICATION CHANGED FROM CLASS I - III | Location of the permitted sources is beyond 6 miles from HBEP |
| 516027 | | | | Basic | I C E (>500 HP) N-EM STAT DIESEL | 11/2/2010 | APPLICATION CHANGED FROM CLASS I - III | Location of the permitted sources is beyond 6 miles from HBEP |
| 516028 | | | | Basic | I C E (>500 HP) N-EM STAT DIESEL | 11/2/2010 | APPLICATION CHANGED FROM CLASS I - III | Location of the permitted sources is beyond 6 miles from HBEP |
| 516029 | | | | Basic | I C E (>500 HP) N-EM STAT DIESEL | 11/2/2010 | APPLICATION CHANGED FROM CLASS I - III | Location of the permitted sources is beyond 6 miles from HBEP |
| 516024 | | | ACTIVE | Basic | I C E (50-500 HP) EM ELEC GEN-DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516034 | | | ACTIVE | Basic | I C E (50-500 HP) N-EM STAT DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516037 | | | ACTIVE | Basic | I C E (50-500 HP) N-EM STAT DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516020 | | | ACTIVE | Basic | I C E (>500 HP) EM ELEC GEN DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516021 | | | ACTIVE | Basic | I C E (>500 HP) EM ELEC GEN DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516022 | | | ACTIVE | Basic | I C E (>500 HP) EM ELEC GEN DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516023 | | | ACTIVE | Basic | I C E (>500 HP) EM ELEC GEN DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516025 | | | ACTIVE | Basic | I C E (>500 HP) N-EM STAT DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516045 | | | ACTIVE | Control | FLARE, OTHER | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516047 | | | ACTIVE | Control | FLARE, OTHER | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 531455 | | | ACTIVE | Basic | TURBINE ENGINE (<=50 MW) N G/P G-DIESEL | 1/24/2012 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516038 | | | ACTIVE | Basic | TURBINE ENGINE (<=50 MW) N G/P G-DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516039 | | | ACTIVE | Basic | TURBINE ENGINE (<=50 MW) N G/P G-DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516040 | | | ACTIVE | Basic | TURBINE ENGINE (<=50 MW) N G/P G-DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516041 | | | ACTIVE | Basic | TURBINE ENGINE (<=50 MW) N G/P G-DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516043 | | | ACTIVE | Basic | TURBINE ENGINE (<=50 MW) N G/P G-DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516044 | | | ACTIVE | Basic | TURBINE ENGINE (<=50 MW) N G/P G-DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 516046 | | | ACTIVE | Basic | TURBINE ENGINE (<=50 MW) N G/P G-DIESEL | 11/2/2010 | PERMIT TO OPERATE GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |
| 533625 | | | | Basic | FACILITY PERMIT AMEND-RECLAIM/TITLE V | 3/8/2012 | ASSIGNED TO ENGINEER - CLASS III | Location of the permitted sources is beyond 6 miles from HBEP |
| 531454 | | | | Basic | FACILITY PERMIT AMEND-RECLAIM/TITLE V | 1/24/2012 | ASSIGNED TO ENGINEER - CLASS III | Location of the permitted sources is beyond 6 miles from HBEP |
| 517837 | | | | Basic | FACILITY PERMIT AMEND-RECLAIM/TITLE V | 1/18/2011 | BANKING/ PLAN GRANTED | Location of the permitted sources is beyond 6 miles from HBEP |

| CHEVRON PRODUCTS COMPANY - Facility 800302 Sources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Application Number | Permit Number | Permit Issued Date | Permit Status | Equipment Type | Equipment Description | Application Date | Application Status | Reason for Exclusion from Analysis |
| 540059 | | | | Control | AFTERBURNER, DIRECT FLAME | 6/29/2012 | ASSIGNED TO ENGINEER - CLASS III | Application cancelled |
| 514139 | | | | Control | AFTERBURNER, DIRECT FLAME | 8/31/2010 | ASSIGNED TO ENGINEER - CLASS III | Administrative change only |
| 514138 | | | | Basic | Title V Permit Revision | 8/31/2010 | BANKING/ PLAN GRANTED | Administrative change only |
| 501915 | | | | Basic | Title V Permit Revision | 8/26/2009 | BANKING/ PLAN GRANTED | Permitted source did not result in emissions of cumulative modeled pollutants |

# Attachment DR11-2
# Facilities Included in Cumulative Impact Assessment

| ORANGE COUNTY SANITATION DISTRICT - Facility 17301 Sources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Application Number | Permit Number | Permit Issued Date | Permit Status | Equipment Type | Equipment Description | Application Date | Application Status | Reference of data for Analysis / Reason for Exclusion from Analysis |
| 486760 | G2955 | 5/22/2009 | ACTIVE | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 8/12/2008 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder and direct correspondence with SCAQMD. |
| 486792 | G2956 | 5/22/2009 | ACTIVE | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 8/12/2008 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder and direct correspondence with SCAQMD. |
| 486793 | G2957 | 5/22/2009 | ACTIVE | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 8/12/2008 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder and direct correspondence with SCAQMD. |
| 494460 | | | | Basic | BOILER (5-20 MMBTU/HR) NAT & PROC GAS | 12/30/2008 | PERMIT TO CONSTRUCT GRANTED | Data obtained from SCAQMD Permit and Application. |
| 491468 | G1549 | 2/19/2009 | ACTIVE | Basic | UNSPECIFIED EQUIP/PROCESS (SCH C) | 10/30/2008 | PERMIT TO OPERATE GRANTED | Source not included in analysis. Temporary research unit, permit expired on 11/30/2009 |
| 520795 | | | | Basic | Title V Permit Revision | 6/12/2009 | BANKING/ PLAN GRANTED | Source not included in analysis. Administrative change only. |
| 514393 | | | | Basic | Title V Permit Revision | 2/6/2009 | BANKING/ PLAN GRANTED | Source not included in analysis. Administrative change only. |

**From:** Gaurang Rawal
**To:** Storelli, Elizabeth/SAC
**Subject:** FW: Stack Parameters data request - follow-up email
**Date:** Thursday, November 29, 2012 9:02:50 AM
**Attachments:** SCAQMD_Info Request CGS 11_29_2012.xlsx

---

Hi Beth,

Attached is the requested info.
One plant (ID 17301) has 3-identical engines and the other plant (ID 29110) has five identical engines.
Hope, this information will be helpful.

Regards,

Gaurang Rawal

---

**From:** Ahn, Terry [mailto:tahn@ocsd.com]
**Sent:** Thursday, November 29, 2012 8:52 AM
**To:** Gaurang Rawal
**Cc:** Kogan, Vlad
**Subject:** RE: Stack Parameters data request - follow-up email

Hi Gaurang,

The data in the attached file comes from the AB2588 HRA reports we submitted to SCAQMD in 2008.

If you need anything else please let me know.

Terry

---

**From:** Gaurang Rawal [mailto:grawal@aqmd.gov]
**Sent:** Thursday, November 29, 2012 8:36 AM
**To:** Ahn, Terry
**Subject:** FW: Stack Parameters data request - follow-up email

Terry,

Just a follow up to our conversation this morning. Below is the requested info. Thanks for your prompt attention and assistance.

Gaurang
9909) 396-2543

---

**From:** Elizabeth.Storelli@ch2m.com [mailto:Elizabeth.Storelli@ch2m.com]

**Sent:** Wednesday, November 28, 2012 4:46 PM
**To:** Gaurang Rawal
**Subject:** Stack Parameters data request - follow-up email

Hi Gaurang,

Thank you for speaking with me this evening. As I mentioned, we are working on a cumulative air quality analyses on the area surrounding our client's project site in Huntington Beach. We have gone through SCAQMD's FIND database as well as submitted and received information through your Public Records Request process.

We have a few outstanding pieces of information that we still need regarding facilities that you are the engineer on. Can you please provide us with the following infomration:

1. Orange County Sanitation District Facility (ID: 17301): Can you please provide the stack parameters (height(ft), diameter(ft), temp(F), velocity(FPs)) for dispersion modeling for the following Application #s: 486760, 486792, 486793
2. Orange County Sanitation District Facility District Facility (ID: 29110) Can you please provide the stack parameters (height(ft), diameter(ft), temp(F), velocity(FPs)) for dispersion modeling for the following Application #: 480908

Please feel free to call if you have any additional questions.

Thank you,

Beth Storelli

CH2M HILL
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833
Office 916.286.0259
elizabeth.storelli@ch2m.com

## OCSD CGS Engines Source Parameters

| POINT SOURCES | Stack Height | | Exhaust Temperature | | Exhaust Flow rate | | Exhaust Velocity | | Stack Diameter | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (feet) | (m) | (°F) | (°K) | ($ft^3$/min) | ($m^3$/sec) | (ft/min) | (m/s) | (feet) | (m) |
| 3 CGS Engines - Facility ID. 017301 | 62.0 | 18.90 | 500.0 | 533.2 | 17,274.0 | 8.2 | 3519.03 | 17.88 | 2.5 | 0.76 |
| 5 CGS Engines - Facility ID. 029110 | 59.0 | 17.98 | 600.0 | 588.71 | 22088.43 | 10.42 | 4499.82 | 22.86 | 2.5 | 0.76 |

SCAQMD PERMIT PROCESSING SYSTEM (PPS)

# AEIS DATA SHEET

Company Name : ORANGE COUNTY SANITATION DISTRICT

Facility ID : 17301

Equipment Address : 10844 ELLIS AVE
FOUNTAIN VALLEY CA 92708

Application Number : 486760

Equipment B-Cat : 056057

Estimated Completion Date : 01/16/09

Equipment C-Cat :

Equipment Type : Basic

Equipment Description : I C E (>500 HP) NAT & DIGESTER GAS

| Emittants | Emissions R1 LB/HR | Emissions R2 LB/HR |
|---|---|---|
| CO | 18.35 | 18.35 |
| NOX | 7.67 | 7.67 |
| PM10 | 0.75 | 0.75 |
| ROG | 5.75 | 5.75 |
| SOX | 0.75 | 0.75 |

**Applicable Rules**

| | | |
|---|---|---|
| 1110.2 | 02/01/2008 | Emissions from Gaseous-and Liquid-fueled Engines |
| 401 | 11/09/2001 | Visible Emissions |
| 402 | 05/07/1976 | Nuisance |

| | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
|---|---|---|---|---|---|---|---|
| Daily Start Times : | 00:00 | 00:00 | 00:00 | 00:00 | 00:00 | 00:00 | 00:00 |
| Daily Stop Times : | 24:00 | 24:00 | 24:00 | 24:00 | 24:00 | 24:00 | 24:00 |

User's Initials : GR01 Date: 01/16/09 Supervisor's Name : CDT Review Date : 5/26/09

# FACILITY PERMIT TO OPERATE
# ORANGE COUNTY SANITATION DISTRICT

9. THE TOTAL HEAT INPUT OF GASEOUS FUEL, OR FUEL BLEND, BURNED IN THIS ENGINE SHALL NOT EXCEED 28.5 MM BTU PER HOUR. A LOG SHALL BE KEPT INDICATING THE TOTAL HEATING VALUE OF FUEL GAS, OR FUEL BLEND, BURNED IN THIS ENGINE BASED ON THE RECORDED FLOW RATE (SCFM) AND THE LATEST MONTHLY BTU CONTENT READING.
[RULE 1303 (b) (1) AND 1303 (b) (2)-MODELING AND EMISSIONS OFFSET]

10. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 218, 431.1 AND 1110.2.
[RULE 218, 431.1 AND 1110.2]

11. THIS EQUIPMENT SHALL BE OPERATED IN SUCH A MANNER THAT THE FOLLOWING EMISSION RATES ARE NOT EXCEEDED.

| AIR CONTAMINANT | |
|---|---|
| CARBON MONOXIDE | 590 PPMV AT 15% O2 |
| PARTICULATES (PM10) | 0.0087 GRAINS/ DSCF |
| ROG OR TNMHC (AS CARBON) | 209 PPMV AT 15% O2 |

[RULE 1303 (a) (1), 1303(b) (1) AND 1303 (b) (2)-BACT, MODELING AND EMISSIONS OFFSET]

12. THE COMBINED EMISSIONS FROM THE THREE (3) CGS ENGINES, USING CALENDAR MONTHLY EMISSIONS DIVIDED BY 30, SHALL NOT EXCEED THE FOLLOWING:

| AIR CONTAMINANT | LBS/DAY |
|---|---|
| CARBON MONOXIDE | 1321 |
| NITROGEN OXIDES (AS NO2) | 368 |
| PARTICULATES (PM10) | 36 |
| ROG OR TNMHC (AS CH4) | 276 |
| SULFUR DIOXIDE | 36 |

[RULE 1303 (b) (2)-EMISSIONS OFFSET]

13. THE OPERATOR SHALL INSTALL AND MAINTAIN A CONTINUOUS EMISSION MONITORING SYSTEM (CEMS), OR AN ALTERNATIVE SYSTEM, AS APPROVED BY THE EXECUTIVE OFFICER, TO MEASURE THE ENGINE EXHAUST FOR NOx AND O2 CONCENTRATIONS ON A DRY BASIS, EXCEPT DURING SHUTDOWN FOR MAINTENANCE OF THE SYSTEM. IN ADDITION, THE CEMS SHALL CONVERT THE ACTUAL NOx TO MASS EMISSION RATES; AND RECORD THE ACTUAL AND CORRECTED ENGINE NOx CONCENTRATION AT 15% O2 AND MASS EMISSION RATES ON AN HOURLY AND DAILY BASIS.
[RULE 218, RULE 1110.2]

14. THE OPERATOR SHALL CONDUCT PERFORMANCE TESTS ANNUALLY. WRITTEN NOTICE OF THE PERFORMANCE TEST SHALL BE PROVIDED TO THE AQMD AT LEAST 7 DAYS PRIOR TO THE TEST SO THAT AN OBSERVER MAY BE PRESENT. A COMPLETE FINAL REPORT OF THE TEST (LBS/HR, PPMVD AT 15% O2, LBS/MMBTU, ETC.) SHALL BE PROVIDED TO THE AQMD WITHIN 45 DAYS AFTER TESTING. ALL TEST RUNS REQUIRED BY AQMD SHALL BE REPORTED. THE TESTS SHALL INCLUDE BUT NOT BE LIMITED TO, A TEST OF THE FUELS BURNED AND ENGINE EXHAUST FOR:

A. TOTAL NON-METHANE HYDROCARBONS (EXHAUST ONLY).
B. CARBON MONOXIDE (EXHAUST ONLY)
C. TOTAL PARTICULATE MATTER (EXHAUST ONLY).
D. OXIDES OF NITROGEN (EXHAUST ONLY).

TOTAL NON-METHANE ORGANICS (EXHAUST & INLET DIGESTER GAS)
SPECIATED TRACE ORGANICS (EXHAUST, DIGESTER GAS)
TOTAL PARTICULATES (EXHAUST)
OXIDES OF NITROGEN (EXHAUST)
CARBON MONOXIDE (EXHAUST)
OXYGEN
DIGESTER GAS BTU (HHV), AND TOTAL SULFUR CONTENT (AS H2S, PPMV)

THE REPORT SHALL PRESENT THE EMISSIONS DATA IN PARTS PER MILLION (PPMV) ON A DRY BASIS, POUNDS PER HOUR, AND LBS/MMBTU.
[RULE 217, RULE 404, RULE 1146, RULE 1303(A) (1), 1303 (B) (1), 1303(B) (2) - BACT, MODELING AND OFFSET, 1401]

10. MONITORING AND TESTING OF THE BOILER SHALL BE PERFORMED ACCORDING TO RULE 1146.
[RULE 1146]

11. EMISSIONS RESULTING FROM THIS EQUIPMENT SHALL NOT EXCEED THE FOLLOWING:

| POLLUTANT | POUNDS PER HOUR |
|---|---|
| CO | 0.90 (0.43 WITH NATURAL GAS) |
| NOx | 0.44 (0.17 WITH NATURAL GAS) |
| PM10 | 0.056 |
| ROG | 0.083 |
| SOx | 0.13 |

[RULE 404, 431.1, 1303(a) (1)-BACT, 1303(b) (2) - OFFSET]

12. THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH APPLICABLE REQUIREMENTS OF 40 CFR 63 SUBPART DDDDD.
[40 CFR 63 SUBPART DDDDD]

13. ALL RECORDS REQUIRED BY THIS PERMIT SHALL BE KEPT AND MAINTAINED FOR A MINIMUM OF FIVE YEARS AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
[RULE 3004 (a) (1)]

**Periodic Monitoring:**

14. THE OPERATOR SHALL DETERMINE COMPLIANCE WITH THE EMISSION LIMIT(S) IN CONDITION N0. 11, AT LEAST ONCE EVERY FIVE YEARS USING AQMD-APPROVED TEST METHOD. THE TEST SHALL BE CONDUCTED WHEN THE EQUIPMENT IS OPERATING UNDER NORMAL CONDITIONS. THE OPERATOR SHALL COMPLY WIT H ALL GENERAL TESTING, REPORTING, AND RECORDKEEPING REQUIREMENTS IN SECTIONS E AND K OF THIS PERMIT.
[RULE 1303 – OFFSET, 3004 (a) (4)]

South Coast Air Quality Management District

**FORM 400-E-9**

**Engineer Report**

| Data | A/N: |
|---|---|

GIVEN

RATING: 10,500,000 btu/hr.

HHV: 600 btu/cu. ft.

FUEL USAGE:

17500 cu.ft./hr.

420000 cu.ft./day

12600 cu.ft./mo.

OPERATING SCHEDULE:

24 hrs./day

7 days/wk.

30 days/mo.

52 wks./yr.

364 dys./yr.

DS?

Calculations

| | EF | EF | HOURLY | DAILY | 30 DAY AVE. | 30 DAY NSR | ANNUAL |
|---|---|---|---|---|---|---|---|
| | lbs/mmcf | lb./mmbtu | lbs./hr. | lbs./day | lbs./day | lbs./day | lbs./yr. |
| ROG | 7 | 0.0122 | 0.1281 | 3.0744 | 3.1062 | 3 | 1119.0816 |
| NOx | 30 | 0.0349 | 0.3665 | 8.7960 | 8.8869 | 9 | 3201.7440 |
| SOx | 40 ppm | 0.0628 | 0.6594 | 15.8256 | 15.9891 | 16 | 5760.5184 |
| CO | 100 ppm | 0.0708 | 0.7434 | 17.8416 | 18.0260 | 18 | 6494.3424 |
| PM | 7.5 | 0.0130 | 0.1365 | 3.2760 | 3.3099 | 3 | 1192.4640 |
| PM10 | 7.5 | 0.0130 | 0.1365 | 3.2760 | 3.3099 | 3 | 1192.4640 |

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South Coast Air Quality Management District

# FORM 400-PS
# PLOT PLAN AND STACK INFORMATION FORM

Mail Application To:
SCAQMD
P.O. Box 4944
Diamond Bar, CA 91765
Tel: (909) 396-3385
www.aqmd.gov

This form must be accompanied by a completed Application for a Permit to Construct/Operate -Form 400A and Form 400-CEQA

**Permit to be Issued to** (Business name of operator to appear on permit):
Orange County Sanitation District

**Address where the equipment will be operated** (for equipment which will be moved to various location in AQMD's jurisdiction, please list the initial location site):
10844 Ellis Avenue, Fountain Valley, CA. 92708 ◉ Fixed Location ○ Various Locations

## SECTION A: LOCATION DATA

**Plot Plan**
Please attach a site map for the project. Identify and locate the proposed equipment on the property. A copy of the appropriate Thomas Brothers page that shows the location, or a drawing or sketch that show the major street and identifies the location of the equipment is acceptable.

**Location of School Nearby**
Is the facility located within a 1/4 mile radius (1,320 feet) of the outer boundary of a school?
○ Yes ◉ No. If yes, please provide name(s) of school(s) below.

| School Name | School Address | Distance from stack or equipment vent to the outer boundary of the school. |
|---|---|---|
| | | |

Note: Per Section 42301.9 of the California Health and Safety Code, a "school" means any public or private school used for purposes of the education of more than 12 children in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in

**Population Density**
◉ Urban (area of dense population) ○ Rural (area of sparse population)

**Zoning Classification**
◉ Mixed Use Residential Commercial Zone (M-U) ○ Service and Professional Zone (C-S) ○ Medium Commercial (C-3)
○ Heavy Commercial (C-4) ○ Commercial Manufacturing (C-M)

## SECTION B: EMISSION RELEASE PARAMETERS -STACKS, VENTS

**Stack Data**
Stack Height: 42.00 feet (height above ground level)* What is the height of the closest building nearest the stack ? 30.00 feet
Stack Inside Diameter: 18.000 inches Stack Flow: 3230.00 acfm Stack Temperature: 360.00 °F
Rain Cap Present: ○ Yes ◉ No Stack Orientation: ◉ Vertical ○ Horizontal
* If the stack height is less than 2.5 times the closest building height (H), please provide information on any building within 5xH distance from the stack(attach additional sheet if necessary

| Building #/name: Digester No. 8 | Building #/name: Digester No. 11 |
|---|---|
| Building Height: 30.00 feet | Building Height: 30.00 feet |
| Building Width: 90.00 feet | Building Width: 110.00 feet |
| Building Length: 90.00 feet | Building Length: 110.00 feet |

**Receptor Distance from equipment stack or roof vents/openings**
Distance to nearest residence 700.00 feet or 213 m meters | Distance to nearest business 1100.0 feet or 335 meters

**Building Information**
Are the emissions released from vents and/or openings from the building? ○ Yes ◉ No
If yes, please provide:
Building height above ground level: _____ ft. | Building dimensions: _____ length ft. _____ width ft. or _____ Total square footage of building where the source of the emissions is located.

## SECTION C: APPLICANT CERTIFICATION STATEMENT

I hereby certify that all information contained herein and information submitted with this application is true and correct.

| SIGNATURE OF PREPARER: | TITLE OF PREPARER: Regulatory Specialist | PREPARER'S TELEPHONE NUMBER: (714) 593-7082<br>PREPARER'S E-MAIL ADDRESS: tahn@ocsd.com |
|---|---|---|

| CONTACT PERSON FOR INFORMATION ON THIS EQUIPMENT: Terry Ahn<br>E-MAIL ADDRESS: tahn@ocsd.com | CONTACT PERSON'S TELEPHONE NUMBER: (714) 593-7082<br>FAX NUMBER: (714) 962-8379 | DATE SIGNED: 12/15/08 |
|---|---|---|

**CONFIDENTIAL INFORMATION**

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items as confidential, please complete the following steps:
(a) Make a copy of any page containing confidential information blanked out. Label this page "public copy."
(b) Label the original page "confidential." Circle all confidential items on the page.
(c) Prepare a written justification for the confidentiality of each confidential item. Append this to the confidential copy.

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| ORANGE COUNTY SANITATION DISTRICT - Facility 29110 Sources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Application Number | Permit Number | Permit Issued Date | Permit Status | Equipment Type | Equipment Description | Application Date | Application Status | Reference of data for Analysis / Reason for Exclusion from Analysis |
| 480908 | G2958 | 5/22/2009 | ACTIVE | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 4/2/2008 | PERMIT TO OPERATE GRANTED | Source not included in analysis. Change in permitting conditions for existing unit, not resulting in an increase in emissions. See correspondence with SCAQMD. |
| 480909 | G2959 | 5/22/2009 | ACTIVE | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 4/2/2008 | PERMIT TO OPERATE GRANTED | Source not included in analysis. Change in permitting conditions for existing unit, not resulting in an increase in emissions. See correspondence with SCAQMD. |
| 480911 | G2964 | 5/22/2009 | ACTIVE | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 4/2/2008 | PERMIT TO OPERATE GRANTED | Source not included in analysis. Change in permitting conditions for existing unit, not resulting in an increase in emissions. See correspondence with SCAQMD. |
| 480912 | G2966 | 5/22/2009 | ACTIVE | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 4/2/2008 | PERMIT TO OPERATE GRANTED | Source not included in analysis. Change in permitting conditions for existing unit, not resulting in an increase in emissions. See correspondence with SCAQMD. |
| 480916 | G2967 | 5/22/2009 | ACTIVE | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 4/2/2008 | PERMIT TO OPERATE GRANTED | Source not included in analysis. Change in permitting conditions for existing unit, not resulting in an increase in emissions. See correspondence with SCAQMD. |
| 474766 | F95584 | 2/27/2008 | ACTIVE | Basic | I C E (>500 HP) EM ELEC GEN DIESEL | 10/19/2007 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder. |
| 474767 | F95585 | 2/27/2008 | ACTIVE | Basic | I C E (>500 HP) EM ELEC GEN DIESEL | 10/19/2007 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder. |
| 474768 | F95586 | 2/27/2008 | ACTIVE | Basic | I C E (>500 HP) EM ELEC GEN DIESEL | 10/19/2007 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder. |
| 474769 | F95587 | 2/27/2008 | ACTIVE | Basic | I C E (>500 HP) EM ELEC GEN DIESEL | 10/19/2007 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder. |
| 474770 | F95588 | 2/27/2008 | ACTIVE | Basic | I C E (>500 HP) EM ELEC GEN DIESEL | 10/19/2007 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder. |
| 540708 | | | | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 7/18/2012 | ASSIGNED TO ENGINEER - CLASS III | Source not included in analysis. Change in permitting conditions for existing unit, not resulting in an increase in emissions. See correspondence with SCAQMD. |
| 540709 | | | | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 7/18/2012 | ASSIGNED TO ENGINEER - CLASS III | Source not included in analysis. Change in permitting conditions for existing unit, not resulting in an increase in emissions. See correspondence with SCAQMD. |
| 540710 | | | | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 7/18/2012 | ASSIGNED TO ENGINEER - CLASS III | Source not included in analysis. Change in permitting conditions for existing unit, not resulting in an increase in emissions. See correspondence with SCAQMD. |
| 540711 | | | | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 7/18/2012 | ASSIGNED TO ENGINEER - CLASS III | Source not included in analysis. Change in permitting conditions for existing unit, not resulting in an increase in emissions. See correspondence with SCAQMD. |
| 540712 | | | | Basic | I C E (>500 HP) NAT & DIGESTER GAS | 7/18/2012 | ASSIGNED TO ENGINEER - CLASS III | Source not included in analysis. Change in permitting conditions for existing unit, not resulting in an increase in emissions. See correspondence with SCAQMD. |
| 526135 | G18570 | 6/7/2012 | ACTIVE | Basic | UNSPECIFIED EQUIP/PROCESS (SCH B) | 8/4/2011 | PERMIT TO OPERATE GRANTED | Source not included in analysis. Information unavailable at time of analysis. Based on equipment description assumed permitted source did not result in an increase in emissions. |
| 455673 | F81556 | 4/12/2006 | ACTIVE | Basic | I C E (50-500 HP) EM ELEC GEN-DIESEL | 4/12/2006 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder for Appl #416969 and direct correspondence with SCAQMD. |
| 455671 | F81555 | 4/12/2006 | ACTIVE | Basic | I C E (50-500 HP) EM ELEC GEN-DIESEL | 4/12/2006 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder for Appl #416969 and direct correspondence with SCAQMD. |
| 455670 | F81554 | 4/12/2006 | ACTIVE | Basic | I C E (50-500 HP) EM ELEC GEN-DIESEL | 4/12/2006 | PERMIT TO OPERATE GRANTED | Data obtained from SCAQMD Engineering Application folder for Appl #416969 and direct correspondence with SCAQMD. |
| 499431 | | | | Basic | Title V Permit Revision | 3/5/2009 | BANKING/ PLAN GRANTED | Source not included in analysis. Administrative change only. |

**From:** Gaurang Rawal
**To:** Storelli, Elizabeth/SAC
**Subject:** RE: Stack Parameters data request - follow-up email
**Date:** Thursday, January 03, 2013 10:07:25 AM

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Good Morning, Beth, and wish you a Happy and Prosperous New Year.

Yes, the engines listed below (also known as CGS by OC- Central Generation System) have been permitted since 1995. There are only 5 such identical engines at the site. Over the years, each engine's permit may have been revised for various reasons (e.g. alteration/modification, change of permit conditions, compliance with new rule emissions limits, administrative change, etc), there by new permit issued under a new application and permit # .

Hope, this answers your questions. If you have any questions, pl call me.

Gaurang Rawal
(909) 396-2543

---

**From:** Elizabeth.Storelli@ch2m.com [mailto:Elizabeth.Storelli@ch2m.com]
**Sent:** Thursday, January 03, 2013 9:44 AM
**To:** Gaurang Rawal
**Subject:** RE: Stack Parameters data request - follow-up email

Good Morning Guarang,

I hope you had a nice holiday! I have a few follow-up questions to some of the information you provided in our correspondence below back in November.

For the OC Sanitation District Facility ID# 29110:

1. Can you please confirm that there are only 5 engines (ICE [>500 HP] NAT & DIGESTER GAS) at the facility?
2. Can you please confirm that these 5 engines were originally permitted in 1995?

Reasoning behind our questions:

In reviewing information in SCAQMD FIND, there are 10 applications for ICEs (app #'s 480908, 909, 911, 912 & 916 AND more recently: 540708 through 540712). We are assuming that the 5 most current applications (#'s: 540708 through 540712 ) are just modifications to the already existing engines. Can you please confirm this assumption.

Secondly, we believe that the 5 engines were permitted back in 1995 based on our review of their permits we received through SCAQMD Public Data Request process. Can you please confirm this as well. The date they were permitted is important criteria for whether or not we include them in our modeling.

Please feel free to call me if you have any questions,

Beth Storelli

CH2M HILL
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833
Office 916.286.0259
elizabeth.storelli@ch2m.com

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**From:** Gaurang Rawal [mailto:grawal@aqmd.gov]
**Sent:** Thursday, November 29, 2012 9:03 AM
**To:** Storelli, Elizabeth/SAC
**Subject:** FW: Stack Parameters data request - follow-up email

Hi Beth,

Attached is the requested info.
One plant (ID 17301) has 3-identical engines and the other plant (ID 29110) has five identical engines.
Hope, this information will be helpful.

Regards,

Gaurang Rawal

---

**From:** Ahn, Terry [mailto:tahn@ocsd.com]
**Sent:** Thursday, November 29, 2012 8:52 AM
**To:** Gaurang Rawal
**Cc:** Kogan, Vlad
**Subject:** RE: Stack Parameters data request - follow-up email

Hi Gaurang,

The data in the attached file comes from the AB2588 HRA reports we submitted to SCAQMD in 2008.

If you need anything else please let me know.

Terry

---

**From:** Gaurang Rawal [mailto:grawal@aqmd.gov]
**Sent:** Thursday, November 29, 2012 8:36 AM
**To:** Ahn, Terry
**Subject:** FW: Stack Parameters data request - follow-up email

Terry,

Just a follow up to our conversation this morning. Below is the requested info. Thanks for your prompt attention and assistance.

Gaurang
9909) 396-2543

---

**From:** Elizabeth.Storelli@ch2m.com [mailto:Elizabeth.Storelli@ch2m.com]
**Sent:** Wednesday, November 28, 2012 4:46 PM
**To:** Gaurang Rawal
**Subject:** Stack Parameters data request - follow-up email

Hi Gaurang,

Thank you for speaking with me this evening. As I mentioned, we are working on a cumulative air quality analyses on the area surrounding our client's project site in Huntington Beach. We have gone through SCAQMD's FIND database as well as submitted and received information through your Public Records Request process.

We have a few outstanding pieces of information that we still need regarding facilities that you are the engineer on. Can you please provide us with the following infomration:

1. Orange County Sanitation District Facility (ID: 17301): Can you please provide the stack parameters (height(ft), diameter(ft), temp(F), velocity(FPs)) for dispersion modeling for the following Application #s: 486760, 486792, 486793
2. Orange County Sanitation District Facility District Facility (ID: 29110) Can you please provide the stack parameters (height(ft), diameter(ft), temp(F), velocity(FPs)) for dispersion modeling for the following Application #: 480908

Please feel free to call if you have any additional questions.

Thank you,

Beth Storelli

CH2M HILL
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833
Office 916.286.0259
elizabeth.storelli@ch2m.com

# NSR DATA SUMMARY SHEET

Application No: 474766
Application Type: Change of Conditions
Application Status: PROCESSING
Previous Apps,Dev,Permit #: 134617, 0 - ICE-PPS, NONE

---

Company Name: ORANGE COUNTY SANITATION DISTRICT
Company ID: 29110
Address: 22212 BROOKHURST ST,HUNTINGTON BEACH, CA
RECLAIM: NO
RECLAIM Zone: 01
Air Basin: SC
[illegible]e: 18
Title V: NO

---

Device ID: 0 - ICE-PPS
Estimated Completion Date: 12-30-2007
Heat Input Capacity: 0 Million BTU/hr
Priority Reserve: NONE - No Priority Access Requested
Recommended Disposition: 31 - PERMIT TO OPERATE GRANTED
PR Expiration:
School Within 1000 Feet: NO
Operating Weeks Per Year: 50
Operating Days Per Week: 1
Monday Operating Hours: 00:00 to 01:00
Tuesday Operating Hours: 00:00 to 00:00
Wednesday Operating Hours: 00:00 to 00:00
Thursday Operating Hours: 00:00 to 00:00
Friday Operating Hours: 00:00 to 00:00
[illegible]urday Operating Hours: 00:00 to 00:00
Sunday Operating Hours: 00:00 to 00:00

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Emittant: CO
BACT:
Cost Effectiveness: NO
Source Type: MAJOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 9.81 lbs/hr
Max Daily: 9.81 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 9.81 lbs/hr
Max Daily: 39.24 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 1 lbs/day
Annual Emission: 490.5 lbs/yr
District Exemption: 13~~04(a)(4)-10/12/1995-Emergency Equipm~~ent attachment

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Emittant: NOX
BACT:
Cost Effectiveness: NO
Source Type: MAJOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 45.32 lbs/hr
Max Daily: 45.32 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 45.32 lbs/hr
Max Daily: 181.28 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 7 lbs/day
Annual Emission: 2266 lbs/yr
District Exemption: 1304(a)(4)-10/12/1995-Emergency Equipment

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Emittant: PM10
BACT:
Cost Effectiveness: NO
Source Type: MINOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 0.82 lbs/hr
Max Daily: 3.28 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0.82 lbs/hr
Max Daily: 3.28 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 0 lbs/day
Annual Emission: 164 lbs/yr
District Exemption: None

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SCEC

# ORANGE COUNTY SANITATION DISTRICT PLANT NO. 2 EMERGENCY DIESEL GENERATORS 2004 ENGINEERING SOURCE TEST REPORT

**PREPARED FOR:**
Orange County Sanitation District
Post Office Box 8127
10844 Ellis Avenue
Fountain Valley, California 92728-8127

**EQUIPMENT LOCATION:**
Plant No. 2
Internal Combustion Engine Emergency Diesel-Fired Generators
Huntington Beach Wastewater Treatment Facility
Huntington Beach, California

**TEST DATES:**
June 15-17, 2004

**ISSUE DATE:**
July 15, 2004

**PREPARED BY:**
Mr. Michael W. Bell
SCEC
1582-1 North Batavia Street
Orange, California 92867

Report No: 2061.1014.rpt1

Tested By: Michael W. Bell
Michael W. Bell

Reviewed By: Leslie A. Johnson
Leslie A. Johnson

# TABLE 1.1
# SUMMARY OF RESULTS

| Parameter | Units | CAT 3512 | DD 9163-7305 | DD T163-7K16 |
|---|---|---|---|---|
| Stack Heigh: Above Ground Level [1] | Ft | 24.292 | 32.958 | 27.833 |
| Stack Inside Diameter | In | 11.75 | 12.875 | 15.25 |
| Stack Flow Rate | ACFM | 5,030 | 6,920 | 9,381 |
| Stack Flow Rate @ 68 deg F, 29.92 in Hg | DSCFM | 1,886 | 3,600 | 4,332 |
| Stack Temp | Deg F | 843 | 502 | 597 |
| Stack Moisture Content | % Vol | 7.4 | 4.7 | 7.0 |
| Test Load | KW | 440 | 386 | 1150 |
| Horsepower (Rated @ Full Load) | BHP | 1482 | 1515 | 2935 |
| Horsepower (Estimated Actual Based on KW Output) [2] 44% | BHP | 652 | 547 | 1688 |
| PM Concentration [3] | gr/DSCF | 0.0224 | 0.0169 | 0.0103 |
| PM Mass Emissions [3] | Lb/Hr | 0.36 | 0.52 | 0.38 |
| PM Mass Emissions (Based on Rated BHP) [3] | Gm/BHP-Hr | 0.111 | 0.156 | 0.103 |
| PM Mass Emissions (Based on Estimated Actual BHP) [3] | Gm/BHP-Hr | 0.252 | 0.434 | 0.059 |
| $O_2$ Concentration | % vd | 11.59 | 16.40 | 12.30 |
| $CO_2$ Concentration | % vd | 6.88 | 3.38 | 6.36 |
| $NO_x$ Concentration | ppmvd | 1727 | 550 | 1356 |
| $NO_x$ Mass Emissions | Lb/Hr | 23.33 | 14.18 | 42.08 |
| $NO_x$ Mass Emissions (Based on Rated BHP) | Gm/BHP-Hr | 7.142 | 4.247 | 6.504 |
| $NO_x$ Mass Emissions (Based on Estimated Actual BHP) | Gm/BHP-Hr | 16.233 | 11.762 | 11.308 |
| CO Concentration | ppmvd | 242 | 105 | 79 |
| CO Mass Emissions | Lb/Hr | 1.99 | 1.65 | 1.49 |
| CO Mass Emissions (Based on Rated BHP) | Gm/BHP-Hr | 0.609 | 0.493 | 0.231 |
| CO Mass Emissions (Based on Estimated Actual BHP) | Gm/BHP-Hr | 1.384 | 1.367 | 0.401 |
| TGNMEO Concentration | ppmv | 83.5 | 96.6 | 79.5 |
| TGNMEO Mass Emissions | Lb/Hr | 0.39 | 0.87 | 0.86 |
| TGNMEO Mass Emissions (Based on Rated BHP) | Gm/BHP-Hr | 0.120 | 0.259 | 0.133 |
| TGNMEO Mass Emissions (Based on Estimated Actual BHP) | Gm/BHP-Hr | 0.273 | 0.718 | 0.231 |

[1] Height was measured as best as possible; however ground level was sloped for CAT 3512 and DD 9163-7305 buildings.

[2] Horsepower is estimated based on calculated efficiency of full load generator to horsepower rating. Manufacturer curves should be utilized to more accurately determine horsepower at the test load.

[3] PM data is for the front-half (probe, nozzle and filter components). Additional PM data for the condensable fraction is provided in Appendix A.

Emittant: CO
BACT:
Cost Effectiveness: NO
Source Type: MAJOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 6.03 lbs/hr
Max Daily: 6.03 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 6.03 lbs/hr
Max Daily: 24.12 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 1 lbs/day
Annual Emission: 301.5 lbs/yr
District Exemption: None

---

Emittant: NOX
BACT:
Cost Effectiveness: NO
Source Type: MAJOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 46.74 lbs/hr
Max Daily: 46.74 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 46.74 lbs/hr
Max Daily: 186.96 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 7 lbs/day
Annual Emission: 2337 lbs/yr
District Exemption: None

---

Emittant: PM10
BACT:
Cost Effectiveness: NO
Source Type: MINOR
Emis Increase: 0
Modeling: N/A
Public Notice: N/A
CONTROLLED EMISSION
Max Hourly: 0.64 lbs/hr
Max Daily: 0.64 lbs/day
UNCONTROLLED EMISSION
Max Hourly: 0.64 lbs/hr
Max Daily: 2.56 lbs/day
CURRENT EMISSION
BACT 30 days Avg: 0 lbs/day
Annual Emission: 32 lbs/yr
District Exemption: None

---

**From:** David De Boer
**To:** Storelli, Elizabeth/SAC
**Subject:** RE: CH2M HIll - additional data request
**Date:** Thursday, November 29, 2012 5:25:54 PM
**Attachments:** ENG - Application Folder - 8-20-2010 - Fac ID; 101173 - Appl# 416969 - Permit# - Name; DETROIT DIESEL CORPORATIO.pdf

---

Hi Beth,

This attached should cover the three applications in question.

Sincerely,

David De Boer
Program Supervisor
Planning, Rule Development & Area Sources
Phone: (909) 396-2329
Fax: (909) 396-3306

Please consider the environment before printing this email.

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---

**From:** Elizabeth.Storelli@ch2m.com [mailto:Elizabeth.Storelli@ch2m.com]
**Sent:** Thursday, November 29, 2012 4:31 PM
**To:** David De Boer
**Subject:** CH2M HIll - additional data request

Hi Dave,

Thank you for speaking with me this evening. As I mentioned, we are working on a cumulative air quality analyses on the area surrounding our client's project site in Huntington Beach.

Attached is our original Public Records Request. We did receive the 'ENG Application Folder' for the Appl #'s listed below, but they did not contain some information that we still need. Our Control # was 70234.

Therefore, can you please provide us with the following information for Orange County Sanitation District Facility District Facility (ID: 29110) Application #s: 455673, 455671, 455670:

- Stack parameters (height(ft), diameter(ft), temp(F), velocity(FPs))
- Emissions Data

For clarity, I inserted the table we are trying to populate:

| | | | Stack Parameters | | | | Emissions (lb/hr) | | | | | Annual Emissions (tpy) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Application Number | Permit Number | Equipment Description | Stack Ht (ft) | Diameter (ft) | Temp (F) | Velocity (FPs) | Nox | CO | SO2 | PM10 | PM2.5 | Nox | PM10 | PM2.5 |
| 455673 | F81556 | I C E (50-500 HP) EM ELEC GEN-DIESEL | | | | | | | | | | | | |
| 455671 | F81555 | I C E (50-500 HP) EM ELEC GEN-DIESEL | | | | | | | | | | | | |
| 455670 | F81554 | I C E (50-500 HP) EM ELEC GEN-DIESEL | | | | | | | | | | | | |

Please feel free to call if you have any additional questions.

Thank you,

Beth Storelli

CH2M HILL
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833
Office 916.286.0259
elizabeth.storelli@ch2m.com

SOx:

- Compliance with sulfur content limit of 0.05% by weight is expected and will be a required permit condition.

Rule 1401: This equipment is exempted from requirements of this rule as per (g)(1)(F).

EPA Grant 105 - Operating on a standby basis, emissions from these engines will not exceed the emissions specified in the Grant 105 Memorandum dated 2-16-84.

## DISCUSSION

It has been determined that the equipment will operate in compliance with all the applicable Rules and Regulations of the District.

## RECOMMENDATION

Approve manufacturer's certification subject to the following permit conditions:

## PERMIT CONDITIONS

**Manufacturer Condition**

1. THIS CERTIFIED EQUIPMENT PERMIT FOR THIS EQUIPMENT SHALL NOT RELIEVE THE PERSON CONSTRUCTING, INSTALLING OR OPERATING THE EQUIPMENT AT EACH SPECIFIC SITE FROM THE REQUIREMENT TO OBTAIN ALL NECESSARY PERMIT(S) TO CONSTRUCT AND PERMIT(S) TO OPERATE OR, FROM COMPLIANCE WITH ANY OTHER DISTRICT RULES INCLUDING THE REQUIREMENTS OF REGULATION XIII.

**End User Conditions**

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THIS APPLICATION UNDER WHICH A PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3. A TIMER SHALL BE MAINTAINED TO INDICATE THE ENGINE ELAPSED OPERATING TIME.

4. AN ENGINE OPERATING LOG LISTING THE DATE OF OPERATION, THE ELAPSED TIME, IN HOURS, AND THE REASON FOR OPERATION SHALL BE KEPT AND MAINTAINED ON FILE FOR A MINIMUM OF TWO YEARS AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.

| |
|---|
| **Application# 419969** |
| **Detriot Diesel-Model T1637M36** |
| EPA Certified-DDX-NR9-03-02 |
| Engine Family-3DDXL65.0GTP |
| 2936 BPH/2190 Kw |
| 16cyl, Diesel fuel, T/A |

| | |
|---|---|
| Engine rating (BHP) | 2936 |
| Max. Daily operation (Hrs) | 3.5 |
| Max. Month Operation (Hrs) | 5.5 |
| Average Yearly Operation (Hrs) | 29 |

| | | RHC | NOX | SOx | CO | PM |
|---|---|---|---|---|---|---|
| E.F. (g/BHP-hr | | 1 | 6.9 | 0.184 | 8.5 | 0.4 |
| g/hr | | 2936.0 | 20258.4 | 540.22 | 24956.0 | 1174 |
| lbs/hr | | 6.47 | 44.66 | 1.19 | 55.02 | 2.59 |
| lbs/day-Distributor's Location (30 day avg)* | | 0 | 0 | 0 | 0 | 0 |
| lbs/yr-Distributors Location* | | 0 | 0 | 0 | 0 | 0 |
| **To be debited to end user's location* | | | | | | |

| **End User Emission Increases** | | RHC | NOX | SOx | CO | PM |
|---|---|---|---|---|---|---|
| Gms/hr | | 2936.0 | 20258.4 | 540.2 | 24956.0 | 1174.4 |
| Lbs/hr | | 6.47 | 44.66 | 1.19 | 55.02 | 2.59 |
| Lbs/day (max) | | 23 | 156 | 4 | 193 | 9 |
| Lbs/day (30 day average) | | 1 | 8 | 0 | 10 | 0 |
| Lbs/yr | | 188 | 1295 | 35 | 1596 | 75 |

| ARLON GRAPHICS L.L.C. - Facility 167066 Sources | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Application Number | Permit Number | Permit Issued Date | Permit Status | Equipment Type | Equipment Description | Application Date | Application Status | Reference of data for Analysis / Reason for Exclusion from Analysis |
| 532299 | | | | Basic | TITLE V PERMIT RENEWAL APPLICATION | 7/5/2011 | BANKING/ PLAN GRANTED | Source not included in analysis. Administrative change only. |
| 534234 | | | | Control | REGENERATIVE/RECUPERATIVE OXIDIZER-CERAMIC/HOT ROCK | 3/21/2012 | APPLICATION CHANGED FROM CLASS I - III | Data obtained from direct correspondence with SCAQMD and Title V permit renewal application # 532299 |
| 532302 | | | | Control | REGENERATIVE/RECUPERATIVE OXIDIZER-CERAMIC/HOT ROCK | 2/14/2012 | APPLICATION CHANGED FROM CLASS I - III | Source not included in analysis. Application resulted in net decrease in emissions. See correspondence with SCAQMD. |
| 519602 | | | ACTIVE | Control | REGENERATIVE/RECUPERATIVE OXIDIZER-CERAMIC/HOT ROCK | 3/9/2011 | PERMIT TO OPERATE GRANTED | Source not included in analysis. Administrative change only. See correspondence with SCAQMD. |

CH2MHILL® TELEPHONE CONVERSATION RECORD

**Call To**: Rene Loof, Engineer, South Coast Air Quality Management District

**Phone No.**: (909) 396-2544 **Date:** 12/5/12

**Call From:** Beth Storelli **Time:** 3:40pm

**Message Taken By: Beth Storelli**

**Subject:** Source Information

**Project No.: 458993.01.01**

**Notes**:

I requested the following information from Mr. Loof:

- Need 3 applications for the RTO (thermal oxidizers): 534234, 532302, 519602
- Control # 70237 ARLON GRAPHICS L.L.C. - Facility 167066
    - Appl # 534234
    - Need stack parameters for RTO (application # 534234)

Mr. Loof provided me with the following information:

Application #534234:
Flow: 57,500 scf
Ht: 25 ft
Dia: 52 inches
Temp: 195 F

Application #532302: This application was a change of conditions to make it more of a standby RTO. He had to go back to an application from Nov 29, 1995 (App #: 348436) to provide me with the following information:

Flow: 57,500 scf
Ht: 25 ft
Dia: 52 inches
Temp: 195 F

Application #519602: Mr. Loof did not have this application. According to FIND, this application was for Change of Ownership, so would not be applicable for us. Mr. Loof mentioned that 532302 could have replaced 519602.

If we want the whole application/permits, we would need to go back through the Public Request process.

| Contaminant | C28 RTO 30 day average | C4 coating 30 day average | C4 afterburner 30 day average | Delta |
|---|---|---|---|---|
| ROG* | 0 | 0.216 | 0 | 0 |
| NOx | 19.87 | 1.20 | 23.8 | -2.73 |
| Sox | 0.17 | 0.03 | 0.15 | +0.05 |
| CO | 12.21 | 2.288 | 6.4 | +8.09 |
| PM10 | 1.54 | 0.231 | 1.371 | +0.4 |

*the facility operates under a VOC cap and the operation of the new line will be kept under the facility VOC limit.

**Risk Assessment:**

Application 534232 Device C28 (new RTO)

This equipment passes Tier 2 Screen Risk Assessment for the combustion emissions from the new RTO with the following results:

Tier 2 results:

| MICR | Residential | Commercial |
|---|---|---|
| | ASI | ASI |
| | 1.25E-08 | 1.04 E-08 |
| | Passes | Passes |

The Hazard Index had no cumulative impact that exceeded 1.0 for the target organs for Acute or Chronic.

Application 532302 Device C4 (existing Afterburner)

This equipment is having its exhaust modified to accommodate the new C4 coating line. It is limited to 25,000 cfm and will not see an increased capacity. C4 will be conditioned so that it can only vent two lines at anytime. The modification will not cause an increase in toxic emissions and is exempt from the requirements of Rule 1401 pursuant to 1401(g)(1)(B) "Modifications with no increase in risk."

Application 532300 Device D26 & D27 (existing Prime Coating Line)

This application has been submitted as a change of condition to change the reporting method for triethylamine(TEA) usage. Originally the facility reported total gallons of material that included a diluted concentrated which contained TEA. They are requesting to report only TEA usage. Condition C1.3 will change from 16,560 gallons per month of materials containing TEA to 580 pounds per month of TEA. The content restriction of TEA in B59.3 will be removed. There will be no increase in TEA therefore this change of condition is exempt from the requirements of Rule 1401 pursuant to 1401(g)(1)(B).

Application 534234 Device D30 & D31 (New Vinyl Coating Line C4)

The new coating line will use the following hazardous materials:

| Contaminant | Annual Controlled | Hourly |
|---|---|---|
| Ethylbenzene | 3.0 lbs/yr | 3.434E-04 |
| Xylene | 6,337 | 0.725 |

# Attachment DR11-3
# Summary of Dispersion Modeling Parameters and Results

**ATTACHMENT DR11-3**

# Cumulative Dispersion Modeling Information

Tables presented in this attachment are as follows:


| | |
|---|---|
| Table DR11-3.1 | Cumulative Modeling Parameters - Stack Parameters |
| Table DR11-3.2 | Cumulative Modeling Parameters – Emission Rates |
| Table DR11-3.3 | Cumulative Modeling Results Summary |
| | |
| Figure DR11-3.1 | AERMOD Cumulative Model Setup |
| Figure DR11-3.2 | Cumulative Receptor Grids |

Huntington Beach Energy Project
Attachment DR11-3
Table DR11-3.1
Cumulative Modeling Parameters - Stack Parameters
January 2013

**Point Sources**

| Facility | Source ID | Easting (X) (m) | Northing (Y) (m) | Base Elevation (m) | Stack Height (m) | Temperature (K) | Exit Velocity (m/s) | Stack Diameter (m) |
|---|---|---|---|---|---|---|---|---|
| HBEP (1-hr NO2, CO) | Stack 1 | 409185 | 3723252 | 3.7 | 36.6 | 461 | 15.4 | 5.49 |
| | Stack 2 | 409216 | 3723231 | 3.7 | 36.6 | 461 | 15.4 | 5.49 |
| | Stack 3 | 409245 | 3723210 | 3.7 | 36.6 | 461 | 15.4 | 5.49 |
| | Stack 4 | 409522 | 3723157 | 3.7 | 36.6 | 461 | 15.4 | 5.49 |
| | Stack 5 | 409522 | 3723194 | 3.7 | 36.6 | 461 | 15.4 | 5.49 |
| | Stack 6 | 409522 | 3723230 | 3.7 | 36.6 | 461 | 15.4 | 5.49 |
| HBEP (SO2, 24-hr PM10, 24-hr PM2.5) | Stack 1 | 409185 | 3723252 | 3.7 | 36.6 | 455 | 21.8 | 5.49 |
| | Stack 2 | 409216 | 3723231 | 3.7 | 36.6 | 455 | 21.8 | 5.49 |
| | Stack 3 | 409245 | 3723210 | 3.7 | 36.6 | 455 | 21.8 | 5.49 |
| | Stack 4 | 409522 | 3723157 | 3.7 | 36.6 | 455 | 21.8 | 5.49 |
| | Stack 5 | 409522 | 3723194 | 3.7 | 36.6 | 455 | 21.8 | 5.49 |
| | Stack 6 | 409522 | 3723230 | 3.7 | 36.6 | 455 | 21.8 | 5.49 |
| HBEP (Annual NOx) | Stack 1 | 409185 | 3723252 | 3.7 | 36.6 | 471 | 23.6 | 5.49 |
| | Stack 2 | 409216 | 3723231 | 3.7 | 36.6 | 471 | 23.6 | 5.49 |
| | Stack 3 | 409245 | 3723210 | 3.7 | 36.6 | 471 | 23.6 | 5.49 |
| | Stack 4 | 409522 | 3723157 | 3.7 | 36.6 | 471 | 23.6 | 5.49 |
| | Stack 5 | 409522 | 3723194 | 3.7 | 36.6 | 471 | 23.6 | 5.49 |
| | Stack 6 | 409522 | 3723230 | 3.7 | 36.6 | 471 | 23.6 | 5.49 |
| HBEP (annual PM10, annual PM2.5) | Stack 1 | 409185 | 3723252 | 3.7 | 36.6 | 460 | 16.7 | 5.49 |
| | Stack 2 | 409216 | 3723231 | 3.7 | 36.6 | 460 | 16.7 | 5.49 |
| | Stack 3 | 409245 | 3723210 | 3.7 | 36.6 | 460 | 16.7 | 5.49 |
| | Stack 4 | 409522 | 3723157 | 3.7 | 36.6 | 460 | 16.7 | 5.49 |
| | Stack 5 | 409522 | 3723194 | 3.7 | 36.6 | 460 | 16.7 | 5.49 |
| | Stack 6 | 409522 | 3723230 | 3.7 | 36.6 | 460 | 16.7 | 5.49 |
| OC Sanitation 1 | OC11 | 412725 | 3728250 | 7.7 | 18.9 | 533 | 17.9 | 0.76 |
| | OC12 | 412725 | 3728250 | 7.7 | 12.8 | 455 | 9.3 | 0.46 |
| OC Sanitation 2 | OC22 | 411100 | 3722400 | 1.6 | 8.5 | 587 | 33.9 | 0.39 |
| Arlon Graphics | AG | 414875 | 3730325 | 13.5 | 7.6 | 364 | 24.5 | 1.32 |

Huntington Beach Energy Project
Attachment DR11-3
Table DR11-3.2
Cumulative Modeling Parameters - Emission Rates
January 2013

Emission Rates for 1-hr, 3-hr, 8-hr, and 24-hr Modeling

| Source ID | 1-hr $NO_2$ | | 1-hr CO | | 8-hr CO | | 1-hr $SO_2$ | | 3-hr $SO_2$ | | 24-hr $SO_2$ | | 24-hr $PM_{10}$ | | 24-hr $PM_{2.5}$ | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (g/s) | (lb/hr) | (g/s) | (lb/hr) | (g/s) | (lb/hr) | (g/s) | (lb/hr) | (g/s) | (lb/hr) | (g/s) | (lb/hr) | (g/s) | (lb/hr) | (g/s) | (lb/hr) |
| Stack 1 | 3.21 | 25.5 | 14.5 | 115 | 5.72 | 45.4 | 0.31 | 2.45 | 0.31 | 2.45 | 0.31 | 2.45 | 1.20 | 9.50 | 1.20 | 9.50 |
| Stack 2 | 3.21 | 25.5 | 14.5 | 115 | 5.72 | 45.4 | 0.31 | 2.45 | 0.31 | 2.45 | 0.31 | 2.45 | 1.20 | 9.50 | 1.20 | 9.50 |
| Stack 3 | 3.21 | 25.5 | 14.5 | 115 | 5.72 | 45.4 | 0.31 | 2.45 | 0.31 | 2.45 | 0.31 | 2.45 | 1.20 | 9.50 | 1.20 | 9.50 |
| Stack 4 | 3.21 | 25.5 | 14.5 | 115 | 5.72 | 45.4 | 0.31 | 2.45 | 0.31 | 2.45 | 0.31 | 2.45 | 1.20 | 9.50 | 1.20 | 9.50 |
| Stack 5 | 3.21 | 25.5 | 14.5 | 115 | 5.72 | 45.4 | 0.31 | 2.45 | 0.31 | 2.45 | 0.31 | 2.45 | 1.20 | 9.50 | 1.20 | 9.50 |
| Stack 6 | 3.21 | 25.5 | 14.5 | 115 | 5.72 | 45.4 | 0.31 | 2.45 | 0.31 | 2.45 | 0.31 | 2.45 | 1.20 | 9.50 | 1.20 | 9.50 |
| OC11 | 2.90 | 23.01 | 6.94 | 55.1 | 6.94 | 55.1 | 0.28 | 2.25 | 0.28 | 2.25 | 0.28 | 2.25 | 0.28 | 2.25 | 0.28 | 2.25 |
| OC12 | 0.03 | 0.22 | 0.11 | 0.90 | 0.11 | 0.90 | 0.016 | 0.13 | 0.016 | 0.13 | 0.016 | 0.13 | 0.007 | 0.056 | 0.0071 | 0.056 |
| OC22 | - | - | - | - | 2.60 | 20.6 | - | - | 0.15 | 1.19 | 0.019 | 0.15 | 0.041 | 0.32 | 0.041 | 0.32 |
| AG | - | - | 0.042 | 0.34 | 0.042 | 0.34 | 0.00026 | 0.0021 | 0.00026 | 0.0021 | 0.00026 | 0.0021 | 0.0021 | 0.017 | 0.0021 | 0.017 |

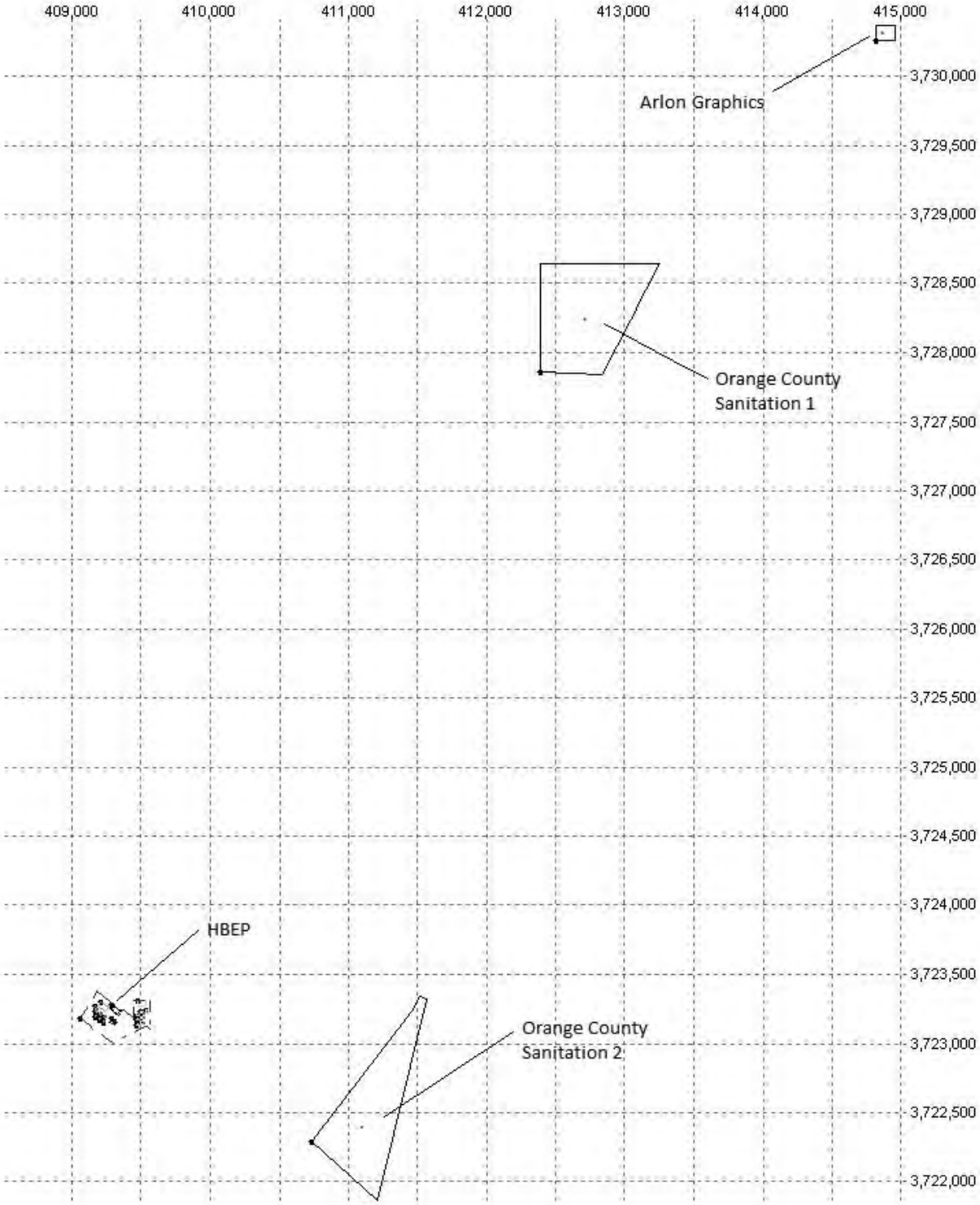
Emission Rates for Annual Modeling

| Source ID | Annual $NO_2$ | | Annual $PM_{10}$ | | Annual $PM_{2.5}$ | |
|---|---|---|---|---|---|---|
| | (g/s) | (tpy) | (g/s) | (tpy) | (g/s) | (tpy) |
| Stack 1 | 1.18 | 40.9 | 0.52 | 18.0 | 0.52 | 18.0 |
| Stack 2 | 1.18 | 40.9 | 0.52 | 18.0 | 0.52 | 18.0 |
| Stack 3 | 1.18 | 40.9 | 0.52 | 18.0 | 0.52 | 18.0 |
| Stack 4 | 1.18 | 40.9 | 0.52 | 18.0 | 0.52 | 18.0 |
| Stack 5 | 1.18 | 40.9 | 0.52 | 18.0 | 0.52 | 18.0 |
| Stack 6 | 1.18 | 40.9 | 0.52 | 18.0 | 0.52 | 18.0 |
| OC11 | 1.93 | 67.2 | 0.19 | 6.57 | 0.19 | 6.57 |
| OC12 | 0.046 | 1.60 | 0.017 | 0.60 | 0.017 | 0.60 |
| OC22 | 0.15 | 5.38 | 0.0049 | 0.17 | 0.0049 | 0.17 |
| AG | - | - | 0.0021 | 0.073 | 0.0021 | 0.073 |

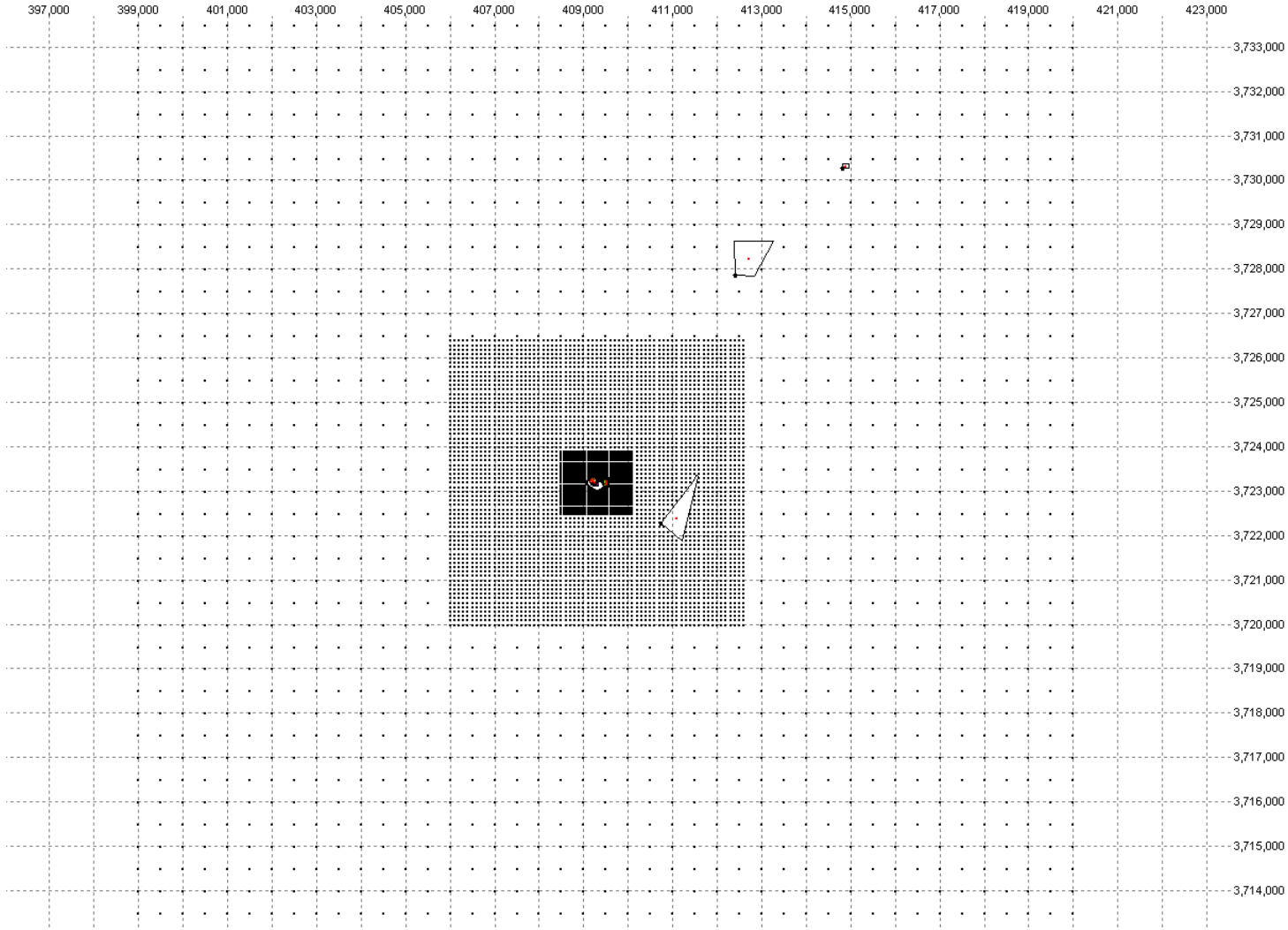
Huntington Beach Energy Project
Attachment DR11-3
Table DR11-3.3
Cumulative Modeling Results Summary
January 2013

| Source Group | Year | $NO_2$ (µg/m$^3$) | | CO (µg/m3) | | $SO_2$ (µg/m3) | | | $PM_{10}$ (µg/m3) | | $PM_{2.5}$ (µg/m3) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1-hr | Annual | 1-hr | 8-hr | 1-hr | 3-hr | 24-hr | 24-hr | Annual | 24-hr | Annual |
| ALL | 2005 | 17.2 | 1.36 | 101 | 39.0 | 2.10 | 3.62 | 0.66 | 2.26 | 0.45 | 2.26 | 0.45 |
| | 2006 | 28.1 | 1.41 | 159 | 46.7 | 2.19 | 3.26 | 0.61 | 1.86 | 0.42 | 1.86 | 0.42 |
| | 2007 | 28.4 | 1.13 | 161 | 33.9 | 2.13 | 2.70 | 0.73 | 2.81 | 0.33 | 2.81 | 0.33 |
| HBEP | 2005 | 17.2 | 0.86 | 101 | 23.8 | 1.41 | 1.19 | 0.58 | 2.24 | 0.44 | 2.24 | 0.44 |
| | 2006 | 28.1 | 0.81 | 159 | 22.4 | 1.55 | 1.25 | 0.47 | 1.83 | 0.41 | 1.83 | 0.41 |
| | 2007 | 28.4 | 0.62 | 161 | 30.9 | 2.13 | 1.56 | 0.72 | 2.80 | 0.32 | 2.80 | 0.32 |
| OC1 | 2005 | 15.9 | 1.13 | 48.2 | 36.0 | 2.10 | 1.66 | 0.61 | 0.58 | 0.13 | 0.58 | 0.13 |
| | 2006 | 16.7 | 1.18 | 50.5 | 26.5 | 2.18 | 1.54 | 0.57 | 0.54 | 0.14 | 0.54 | 0.14 |
| | 2007 | 15.8 | 0.94 | 47.8 | 22.0 | 2.10 | 1.46 | 0.60 | 0.58 | 0.11 | 0.58 | 0.11 |
| OC2 | 2005 | - | 0.32 | - | 39.0 | - | 3.62 | 0.225 | 0.490 | 0.010 | 0.490 | 0.010 |
| | 2006 | - | 0.34 | - | 46.5 | - | 3.26 | 0.173 | 0.376 | 0.011 | 0.376 | 0.011 |
| | 2007 | - | 0.26 | - | 33.9 | - | 2.70 | 0.180 | 0.391 | 0.008 | 0.391 | 0.008 |
| AG | 2005 | - | - | 0.44 | 0.32 | 0.0027 | 0.0025 | 0.0010 | 0.0080 | 0.0033 | 0.0080 | 0.0033 |
| | 2006 | - | - | 0.48 | 0.36 | 0.0030 | 0.0026 | 0.0011 | 0.0090 | 0.0031 | 0.0090 | 0.0031 |
| | 2007 | - | - | 0.58 | 0.30 | 0.0036 | 0.0029 | 0.0010 | 0.0083 | 0.0025 | 0.0083 | 0.0025 |

Huntington Beach Energy Project
Attachment DR11-3
Figure DR11-3.1
January 2013
Cumulative Model Setup



Huntington Beach Energy Project
Attachment DR11-3
Figure DR11-3.2
January 2013
Cumulative Receptor Grids



# Biological Resources

## BACKGROUND

The AFC (Section 5.2.3.3.1) states that the critical load for atmospheric nitrogen deposition into coastal wetlands is difficult to establish because wetlands subject to tidal exchange have open nutrient cycles. It further states that nitrogen loading in wetlands is often affected by sources other than atmospheric deposition. In addition, it states that air pollution controls limit emissions of oxides of nitrogen and that RECLAIM puts a cap on region wide NOx emissions. The section concludes that the HBEP nitrogen deposition impacts are not expected to contribute significantly to nitrogen loading on coastal salt marshes. However, there is no discussion of the relative location of the proposed project and sensitive habitats that could be affected by nitrogen emissions from HBEP nor is there a quantitative analysis of nitrogen deposition impacts.

Background data that could be used in conjunction with nitrogen deposition modeling for the HBEP could be established using available resources such as the California Energy Commission publication *Assessment of Nitrogen Deposition: Modeling and Habitat Assessment* (CEC-500-2006-032, March 2007). However, because no nitrogen deposition modeling was performed for the HBEP, this step is still needed and the qualitative information provided in the AFC does not support the applicant's conclusion that nitrogen deposition from HBEP emissions would have no impacts on coastal salt marshes. Energy Commission staff believes that nitrogen deposition resulting from emissions from the proposed HBEP, namely nitrogen oxides ($NO_x$) and ammonia ($NH_3$) could have negative impacts on biological resources and that a quantitative analysis of such impacts is needed.

Impacts of excessive nitrogen deposition to plant communities include direct toxicity, changes in species composition among native species and enhancement of non-native invasive species. The increased dominance and growth of invasive annual grasses is especially prevalent in low-biomass vegetation communities that are naturally nitrogen-limited, such as salt marshes. Invasive non-native vegetation, enhanced by atmospheric nitrogen deposition, affects these species by outcompeting them for space, sunlight, moisture, and nutrients. The salt marshes fringing estuaries intercept a substantial part of the land-derived nitrogen load and thus protect other components of estuaries from eutrophication; loss of these fringing marshes would therefore have wider consequences. Additionally, southern coastal salt marsh, southern coast live oak woodland, and southern dune scrub located in the vicinity of the project site could potentially be impacted by nitrogen deposition contributed by the HBEP. The anticipated nitrogen emissions may contribute to the ongoing (cumulative) degradation of sensitive species habitat located near the project site.

In order to assess impacts to nitrogen-sensitive biological resources, staff requires additional information on nitrogen deposition as established by proper modeling of nitrogen emissions resulting from the HBEP.

## DATA REQUEST

23. Please quantify the existing baseline total nitrogen deposition rate in the vicinity of the HBEP in kilograms per hectare per year (kg/ha/yr). The geographical extent of the nitrogen deposition mapping should be directed by the results, i.e. extend geographically to where the deposition is considered below any stated threshold of significance for vegetation communities. Conduct a literature review to identify appropriate thresholds. Thresholds for nitrogen deposition by vegetation type are available within the March 2007 California Energy Commission PIER report, titled "Assessment of Nitrogen Deposition: Modeling and Habitat Assessment," available at: http://www.energy.ca.gov/2006publications/CEC-500-2006-032/CEC-500-2006-032.PDF, and the May 2007 California Energy Commission PIER report, titled "Impacts of Nitrogen Deposition on California Ecosystems and Biodiversity, available at:

http://www.energy.ca.gov/2005publications/CEC-500-2005-165/CEC-500-2005-165.PDF. Please include references and guidelines used in your baseline analyses.

**Response:** Based on nitrogen deposition rates presented in the California Energy Commission's *Impacts of Nitrogen Deposition on California Ecosystem and Biodiversity*,[2] the background nitrogen deposition rates in the South Coast Air Basin ranges from 1 or 2 kg-N $ha^{-1}$ $yr^{-1}$ along the coastline to 21 kg-N $ha^{-1}$ $yr^{-1}$ in the Central Los Angeles Basin. The Applicant estimates that the existing baseline nitrogen deposition rates near the project site are less than or equal to 2 kg-N $ha^{-1}$ $yr^{-1}$ because the HBEP project and neighboring biological resource areas are within 5 kilometers of the coastline.

The Applicant conducted a literature review to identify critical load (CL) rates for the various biologically sensitive communities within 6 miles of HBEP. The CL rates presented in Table DR23-1 were compiled based on information contained in the *Effects of Nitrogen Deposition and Empirical Nitrogen Critical Loads for Ecoregions of the United States* paper (Pardo et al., 2011), *Regional and Global Concerns over Wetlands and Water Quality* (Verhoeven et al., 2006), and *Empirical Nitrogen Critical Loads for Natural and Semi-natural Ecosystems: 2002 Update* (Bobbink et al., 2003). The CL is defined as "the deposition of a pollutant below which no detrimental ecological effect occurs over the long term according to present knowledge" and is reported as a flux with the following units, kg $ha^{-1}$ $yr^{-1}$ (Pardo et al., 2011).

TABLE DR23-1
**Critical Loads of Nitrogen for the California Mediterranean Ecoregion and Wetlands**

| Habitat Type[a] | CL for N deposition (kg N $ha^{-1}$ $yr^{-1}$)[b,c,d] | Sensitive Natural Communities and Critical Habitat[e] | Wetlands and Protected Areas[f] |
|---|---|---|---|
| Chaparral | 4–10[b] | — | Laguna Coast Wilderness Park |
| Coastal sage scrub | 7.8–10[b] | Coastal California gnatcatcher | Bommer Canyon Open Space Preserve, Laguna Coast Wilderness Park, San Joaquin Freshwater Marsh Reserve, Talbert Nature Preserve, USACE Salt Marsh Restoration |
| Coastal dunes | 10–20[e] | Southern foredunes, southern dune scrub | Bolsa Chica Ecological Reserve, Huntington Beach Wetlands Conservancy, Talbert Nature Preserve |
| Freshwater marsh/wetland | 2.7–13[b] | — | San Joaquin Freshwater Marsh Reserve |
| Intertidal salt marshes | 63–400[b] | Southern coastal marsh; Western snowy plover | Seal Beach National Wildlife Refuge |
| Intertidal wetlands | 50–100[b] | Southern coastal marsh | Bolsa Chica Ecological Reserve, Huntington Beach Wetlands Conservancy, Talbert Nature Preserve, Seal Beach National Wildlife Refuge, USACE Salt Marsh Restoration, Upper Newport Bay Ecological Reserve/Nature Preserve |
| Oak woodlands | 4–10[b] | — | Bommer Canyon Open Space Preserve, Laguna Coast Wilderness Park |
| Serpentine grassland | 6[b] | — | Bommer Canyon Open Space Preserve, Laguna Coast Wilderness Park, Talbert Nature Preserve |

[2] California Energy Commission. 2006. *Impacts of Nitrogen Deposition on California Ecosystem and Biodiversity*. CEC-500-2005-165.

TABLE DR23-1
**Critical Loads of Nitrogen for the California Mediterranean Ecoregion and Wetlands**

| Habitat Type[a] | CL for N deposition (kg N $ha^{-1}$ $yr^{-1}$)[b,c,d] | Sensitive Natural Communities and Critical Habitat[e] | Wetlands and Protected Areas[f] |
|---|---|---|---|
| Riparian forest | 20-155[c] | Southern cottonwood willow riparian forest[g] | Laguna Coast Wilderness Park |

[a]Habitat types listed in this column were obtained from literature.

[b]Pardo L. H., M. E. Fenn, C. L. Goodale, L. H. Geiser, and C. T. Driscoll. 2011. Effects of nitrogen deposition and empirical nitrogen critical loads for ecoregions of the United States. *Ecological Applications* 21:3049-3082 and references therein unless noted otherwise. The freshwater wetlands CL are from wetlands in northeastern U.S. and Canada.

[c]Verhoeven, J. T. A., B. Arheimer, Y. Chengquing, and M. M. Hefting. 2006. Regional and global concerns over wetlands and water quality. *TRENDS in Ecology and Evolution* 21(2):96-103.

[d]Bobbink, R., M. Ashmore, S. Braun, W. Flückiger, and I. J. J. Van den Wyngaert. 2003. Empirical nitrogen critical loads for natural and semi-natural ecosystems: 2002 update. In: B. Achermann and R. Bobbink (Eds.), *Empirical Critical Loads For Nitrogen - Proceedings SAEFL*. Berne, pp. 43-171.

[e]Corresponding sensitive natural communities and critical habitat found within 10 miles of the HBEP.

[f]Corresponding significant regional wetlands, protected areas, sensitive natural communities and critical habitat that were identified within 10 miles of the HBEP.

[g]The Southern Cottonwood Willow Riparian Forest habitat that was listed in Figure 5.2-2 of the AFC was not included in this analysis because the data were obtained from a historical record and this riparian community has been extirpated (CDFG, 2012a; reference is listed in the AFC).

## DATA REQUEST

24. Please use AERMOD or an equivalent model to provide an analysis of impacts due to total nitrogen deposition from operation of the HBEP. The analysis should specify the amount of total nitrogen deposition in kg/ha/yr at the Huntington Beach Wetlands Conservancy's Coastal Marsh Restoration Complex, the U.S. Army Corps of Engineers (USACE) Salt Marsh Restoration project, the Talbert Nature Preserve, the Bolsa Chica Ecological Reserve, and the Seal Beach National Wildlife Refuge and any other special status habitats, vegetation types, and critical habitat for wet and dry deposition. Please provide the complete citation for references used in determining this number

**Response:** The wet and dry nitrogen deposition resulting directly from depositional nitrogen emissions from the six combustion turbines at the proposed HBEP were evaluated using AERMOD (version 12060). AERMOD is considered a conservative model for this analysis as it is a steady-state Gaussian plume dispersion model and does not calculate the complex chemical transformations and equilibria associated with nitrogen deposition.

Several additional conservative assumptions were used in the modeling with regard to nitrogen formation and deposition:

- 100 percent conversion of nitrogen oxides ($NO_x$) and ammonia ($NH_3$) into atmospherically derived nitrogen (ADN) within the turbine stacks rather than allowing for the conversion of $NO_x$ and $NH_3$ to occur over distance and time within the atmosphere, which would be more realistic.
- Depositional rates and parameters were based upon nitric acid ($HNO_3$) which, of all the depositing species, has the highest affinity for impacts to soils and vegetation and tendency to stick to what it is deposited on.
- Maximum settling velocities were selected to produce conservative deposition rates
- Maximum potential emissions for the HBEP facility were assumed to occur each year.

- The approach assumes no net benefit from the discontinuation of the existing boilers at the Huntington Beach Generating Station. Huntington Beach Generating Station Units 3 and 4 were recently shut down and Units 1 and 2 will be shutdown prior to completion of the project.

## Emissions

Emissions of depositional nitrogen were conservatively calculated as a complete conversion of in-stack $NO_x$ and ammonia ($NH_3$) from each of the six combustion turbines. This was done by multiplying the nitrogen mass fraction of each of the pollutants by the respective average annual emissions. For example, the mass fraction of nitrogen (14 g/mol) in $NO_x$ (as $NO_2$, 46 g/mol) is 0.304, while the mass fraction of nitrogen in $NH_3$ (17 g/mol) is 0.824.[3] Table DR24-1 presents the emissions for each combustion turbine.

TABLE DR24-1
**HBEP Average Annual Depositional Nitrogen Emissions (per turbine)**

| $NO_x$ Emissions (tpy) | $NH_3$ Emissions (tpy)[a] | Depositional Nitrogen from $NO_x$ (tpy)[b] | Depositional Nitrogen from $NH_3$ (tpy) | Total Depositional Nitrogen (tpy) |
|---|---|---|---|---|
| 40.4 | 16.0 | 12.3 | 13.2 | 25.6 |

[a]Average annual $NH_3$ assumed to be 2.5 ppmv (see footnote below).
[b]Molecular weight of $NO_x$ calculated as $NO_2$.

## Model Setup

The AERMOD model setup for the nitrogen deposition modeling was based on the same source locations and stack parameters identified for the annual $NO_2$ modeling included in HBEP AFC Appendix 5.1C (12-AFC-02). Receptor grids were developed for each of the wetland areas identified in Data Request 24, with receptors located at 25-meter increments along the perimeter of each of the wetland areas and Cartesian-grid receptors spaced at 100-meter increments within the wetland areas.

AERMOD also requires additional depositional parameters in order to model wet and dry deposition, which are discussed below.

***Deposition Parameters:***
The dry deposition algorithms in AERMOD include land use characteristics and some dry gas deposition resistance terms based on five seasonal categories and nine land use categories. The seasonal categories used for each month of modeling are as follows:

- Midsummer: April, May, June, and July
- Autumn: August, September, and October
- Late Autumn/Winter without snow: November, December, and January
- Transitional Spring: February and March

Land use categories are used within AERMOD to calculate dry deposition of the emitted nitrogen compounds. For example, in areas of lush vegetation, the gaseous nitrogen compounds would have a higher uptake and, therefore, dry deposition would be higher at these areas than in bodies of water or urban areas with fewer trees. The land use categories used in the analysis were determined for each 10 degree increment within a 3-kilometer-radius area surrounding HBEP, with 0 degrees representing due north, and are as follows:

- Suburban areas, grassy: Sectors 1–14 and 30–36
- Bodies of water: Sectors 15–29

[3] The Applicant has requested a maximum allowable ammonia emission concentration of 5 parts per million by volume but the ammonia emissions are expected to be significantly lower than the allowable limit as the catalyst will be in a new, clean condition and catalyst efficiency will be at its highest. However, as the selective catalyst reduction (SCR) system degrades, the ammonia emissions will increase to a point where catalyst replacement is required. The SCR degradation is measured periodically and the rate of degradation can be predicted so that catalyst replacement can be scheduled to avoid exceeding the allowable NOx or ammonia emission limitations. As a result, the replacement of the catalyst occurs well before the ammonia emissions reach the maximum allowable concentration. Therefore, a median point in the range of ammonia emissions was assumed to estimate the annual nitrogen deposition due to the ammonia emissions.

AERMOD also requires the input of wet and dry depositional parameters based on the nitrogen-containing species being emitted. For this analysis, it was conservatively assumed that all nitrogen emitted was in the form of nitric acid because nitric acid is the most depositionally aggressive species. The depositional parameters are as follows:

- Diffusivity in Air: 0.1628 $cm^2/s$
- Diffusivity in Water: $2.98 \times 10^{-5}$ $cm^2/s$
- Cuticular Resistance Term: $1.0 \times 10^{5}$ s/cm
- Henry's Law Coefficient: $8.0 \times 10^{-8}$ Pa $m^3$/mol

Lastly, AERMOD requires hourly inputs of precipitation code, precipitation amount, relative humidity, and surface pressure that were not included in the preprocessed AERMET meteorological data available from the SCAQMD. Therefore, supplemental AERMET data were required to complete the analysis. The John Wayne Airport station is the nearest National Weather Service surface station with data available for the same time period as the SCAQMD Costa Mesa AERMET meteorological data used in HBEP's air dispersion modeling assessment. Furthermore, the John Wayne Airport is located approximately 5 kilometers west of the Costa Mesa meteorological station the SCAQMD used to prepare the Costa Mesa AERMET data set. The proximity of these two meteorological stations provides representative hourly meteorological conditions needed for use in the nitrogen deposition modeling assessment. The parameters from the John Wayne Airport surface station were then inserted into the SCAQMD AERMET dataset.

## Model Results

The maximum modeled annual deposition over 3 years was combined with a conservative estimated background deposition rate of 2 kg $N \cdot ha^{-1}$ $yr^{-1}$ and compared to the CL for nitrogen deposition for each of the habitat types present in the wetland areas. As previously noted in Table DR23-1, the Southern Cottonwood Willow Riparian Forest habitat that were listed in Figure 5.2-2 of the AFC was not included in this analysis because the data was obtained from a historical record and this riparian community has been extirpated (CDFG, 2012a; reference is listed in the AFC).

The results of the deposition modeling are shown in Table DR24-2. In each case the maximum predicted nitrogen deposition was less than the CL deposition. Therefore, even with the use of the conservative methodology for estimating nitrogen deposition noted previously, any contribution of nitrogen deposition from HBEP would have a less-than-significant impact on sensitive species habitat located near the project site.

The dispersion modeling files, which include input and output files used in the analysis, have been submitted herewith on CD. The maximum predicted nitrogen deposition and location within each of the sensitive areas are also identified in the following data response (Figure DR25-1 and Figure DR25-2).

TABLE DR24-2
**Comparison of the Predicted HBEP N Deposition Flux to the Critical Loads of Nitrogen for the California Mediterranean Ecoregion and Wetlands**

| Habitat type | Maximum Predicted N Deposition Rate (kg $N \cdot ha^{-1}$ $yr^{-1}$) | Background N Deposition Rate (kg $N \cdot ha^{-1}$ $yr^{-1}$) | Total Predicted N Deposition Rate* (kg $N \cdot ha^{-1}$ $yr^{-1}$) | CL for N Deposition (kg $N \cdot ha^{-1}$ $yr^{-1}$) | Location of Maximum Predicted Deposition (i.e. Name of Wetland and/or Protected Area) |
|---|---|---|---|---|---|
| Chaparral | 0.2 | 2 | 2.2 | 4–10 | Laguna Coast Wilderness Park |
| Coastal sage scrub | 1.4 | 2 | 3.4 | 7.8–10 | Talbert Nature Preserve |
| Coastal dunes | 3.0 | 2 | 5.0 | 10–20 | Huntington Beach Wetlands Conservancy |
| Freshwater marsh/wetland | 0.4 | 2 | 2.4 | 2.7–13 | San Joaquin Freshwater Marsh Reserve |
| Intertidal salt marshes | 0.2 | 2 | 2.2 | 63–400 | Seal Beach National Wildlife Refuge |

TABLE DR24-2
**Comparison of the Predicted HBEP N Deposition Flux to the Critical Loads of Nitrogen for the California Mediterranean Ecoregion and Wetlands**

| Habitat type | Maximum Predicted N Deposition Rate (kg N·ha$^{-1}$ yr$^{-1}$) | Background N Deposition Rate (kg N·ha$^{-1}$ yr$^{-1}$) | Total Predicted N Deposition Rate* (kg N·ha$^{-1}$ yr$^{-1}$) | CL for N Deposition (kg N·ha$^{-1}$ yr$^{-1}$) | Location of Maximum Predicted Deposition (i.e. Name of Wetland and/or Protected Area) |
|---|---|---|---|---|---|
| Intertidal wetlands | 3.0 | 2 | 5.0 | 50–100 | Huntington Beach Wetlands Conservancy |
| Oak woodlands | 0.2 | 2 | 2.2 | 4–10 | Bommer Canyon Open Space Preserve |
| Serpentine grassland | 1.4 | 2 | 3.4 | 6 | Talbert Nature Preserve |
| Riparian forest | 0.2 | 2 | 2.2 | 20-155 | Laguna Coast Wilderness Park |

*The total predicted N deposition is the sum of the estimated background deposition rate of 2 kg N·ha$^{-1}$ yr$^{-1}$ plus the maximum predicted deposition rate.

## DATA REQUEST

25. Please provide an isopleth graphic over USGS 7.5-minute maps (or equally detailed map) of the direct nitrogen deposition rates caused by the project. This will be a graphical depiction of the projects' nitrogen deposition.

**Response:** The predicted nitrogen deposition flux isopleths are included in Figures DR25-1 and DR25-2.

## DATA REQUEST

26. Please provide a comprehensive cumulative impact analysis for the direct nitrogen deposition in kg/ha/yr caused by HBEP. Provide an isopleths graphic over USGS 7.5-minute maps of the direct nitrogen deposition values in the cumulative analysis and specify the cumulative nitrogen deposition rate in kg/ha/yr at any affected special status habitat, vegetation type, or critical habitat. The geographical extent of the cumulative nitrogen deposition mapping should be directed by the results, i.e. extend geographically to where the deposition is considered below any stated threshold of significance.

**Response:** The sources included in the cumulative nitrogen deposition analysis are the same NOx emitting sources identified in the response to Data Request 11. Similar to the HBEP sources, emissions of depositional nitrogen were conservatively calculated as a complete conversion of in-stack $NO_x$ from each source. Emissions of ammonia from the cumulative sources were considered negligible and therefore were not considered as a source of depositional nitrogen. Emissions from each source are shown in Table DR26-1.

TABLE DR26-1
**Cumulative Source Depositional Nitrogen Emissions**

| Source Description | $NO_x$ Emissions (tpy) | Depositional Nitrogen from $NO_x$ (tpy)* |
|---|---|---|
| **Orange County Sanitation District (Facility ID 17301)** | | |
| Boiler | 1.60 | 0.49 |
| Digester Gas ICEs (3) | 67.2 | 20.4 |
| **Orange County Sanitation District (Facility ID 29110)** | | |
| Emergency Diesel ICEs (8) | 5.38 | 1.64 |

*Molecular weight of NOx calculated as NO2.

## Model Setup

The cumulative nitrogen deposition analysis was performed using the same model settings and receptor grid outlined in the response to Data Request 24. Stack parameters for the cumulative sources are included in the response to Data Request 11.

## Model Results

The maximum modeled annual deposition over 3 years was combined with an estimated background deposition rate of 2 kg N·ha$^{-1}$ yr$^{-1}$ and compared to the CL for nitrogen deposition for each of the habitat types present in the sensitive areas. The results of the deposition modeling are shown in Table DR26-2. In each case the maximum predicted nitrogen deposition was less than the critical load deposition. Therefore, it is concluded that even with the use of the conservative methodology for estimating nitrogen deposition noted previously, the cumulative impacts would not contribute to the significant degradation of sensitive species habitat located near the project site.

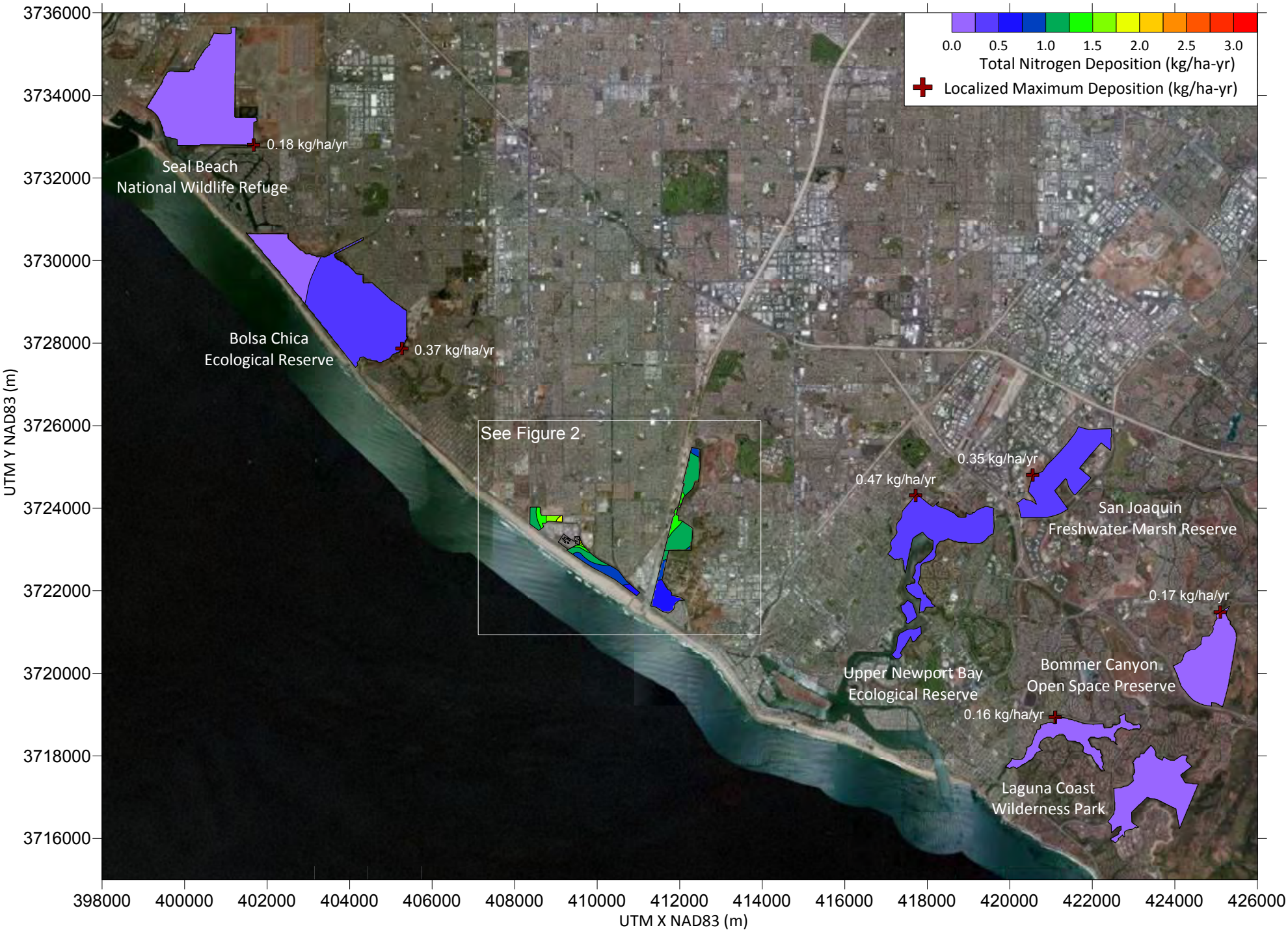
The dispersion modeling files, which include input and output files used in the analysis, have been submitted on CD. The predicted nitrogen deposition flux isopleths, which include the maximum predicted nitrogen deposition flux and the location within each of the sensitive areas, are included in Figures DR26-1 and DR26-2.

TABLE DR26-2
**Comparison of the Predicted Cumulative Sources and HBEP N Deposition Flux to the Critical Loads of Nitrogen for the California Mediterranean Ecoregion and Wetlands**

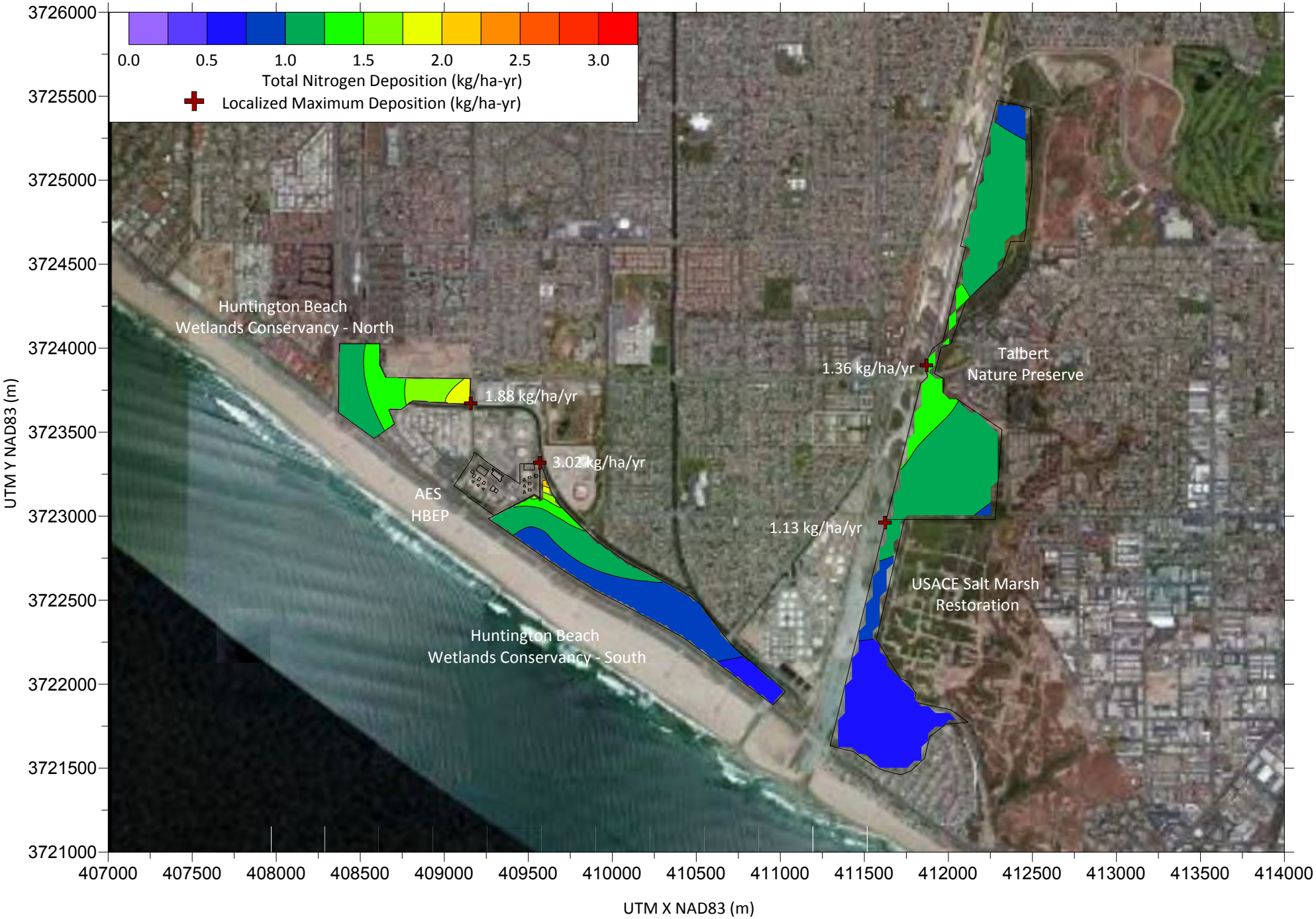
| Habitat type | Maximum Predicted N Deposition Rate (kg N·ha$^{-1}$ yr$^{-1}$) | Background N Deposition Rate (kg N·ha$^{-1}$ yr$^{-1}$) | Total Predicted N Deposition Rate* (kg N·ha$^{-1}$ yr$^{-1}$) | CL for N Deposition (kg N·ha$^{-1}$ yr$^{-1}$) | Location of Maximum Predicted Deposition (i.e. Name of Wetland and/or Protected Area) |
|---|---|---|---|---|---|
| Chaparral | 0.2 | 2 | 2.2 | 4–10 | Laguna Coast Wilderness Park |
| Coastal sage scrub | 1.5 | 2 | 3.5 | 7.8–10 | Talbert Nature Preserve |
| Coastal dunes | 3.1 | 2 | 5.1 | 10–20 | Huntington Beach Wetlands Conservancy |
| Freshwater marsh/wetland | 0.4 | 2 | 2.4 | 2.7–13 | San Joaquin Freshwater Marsh Reserve |
| Intertidal salt marshes | 0.2 | 2 | 2.2 | 63–400 | Seal Beach National Wildlife Refuge |
| Intertidal wetlands | 3.1 | 2 | 5.1 | 50–100 | Huntington Beach Wetlands Conservancy |
| Oak woodlands | 0.2 | 2 | 2.2 | 4–10 | Bommer Canyon Open Space Preserve |
| Serpentine grassland | 1.5 | 2 | 3.5 | 6 | Talbert Nature Preserve |
| Riparian forest | 0.2 | 2 | 2.2 | 20–155 | Laguna Coast Wilderness Park |

*The total predicted N deposition is the sum of the estimated background deposition rate of 2 kg N·ha$^{-1}$ yr$^{-1}$ plus the maximum predicted deposition rate.

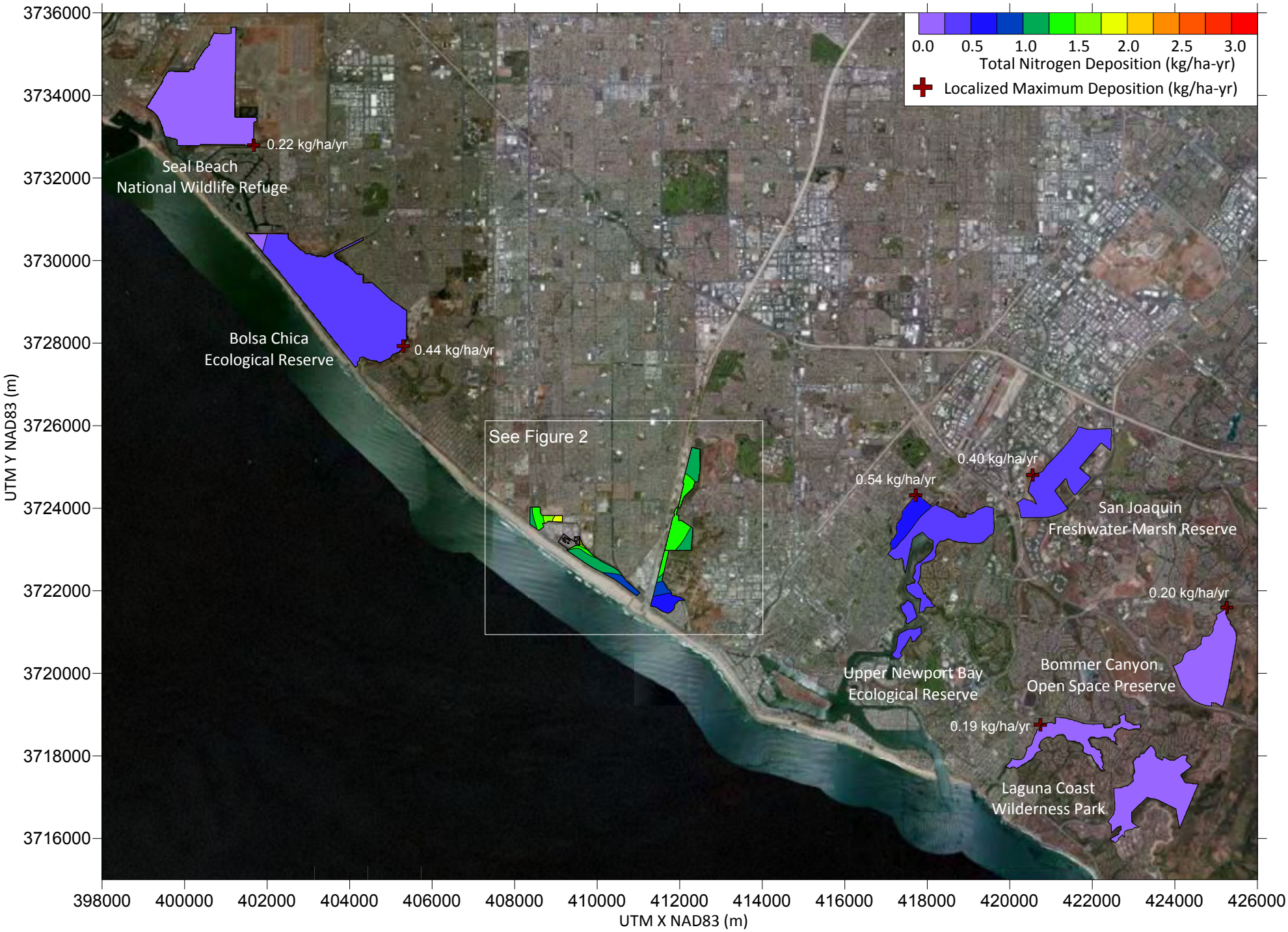
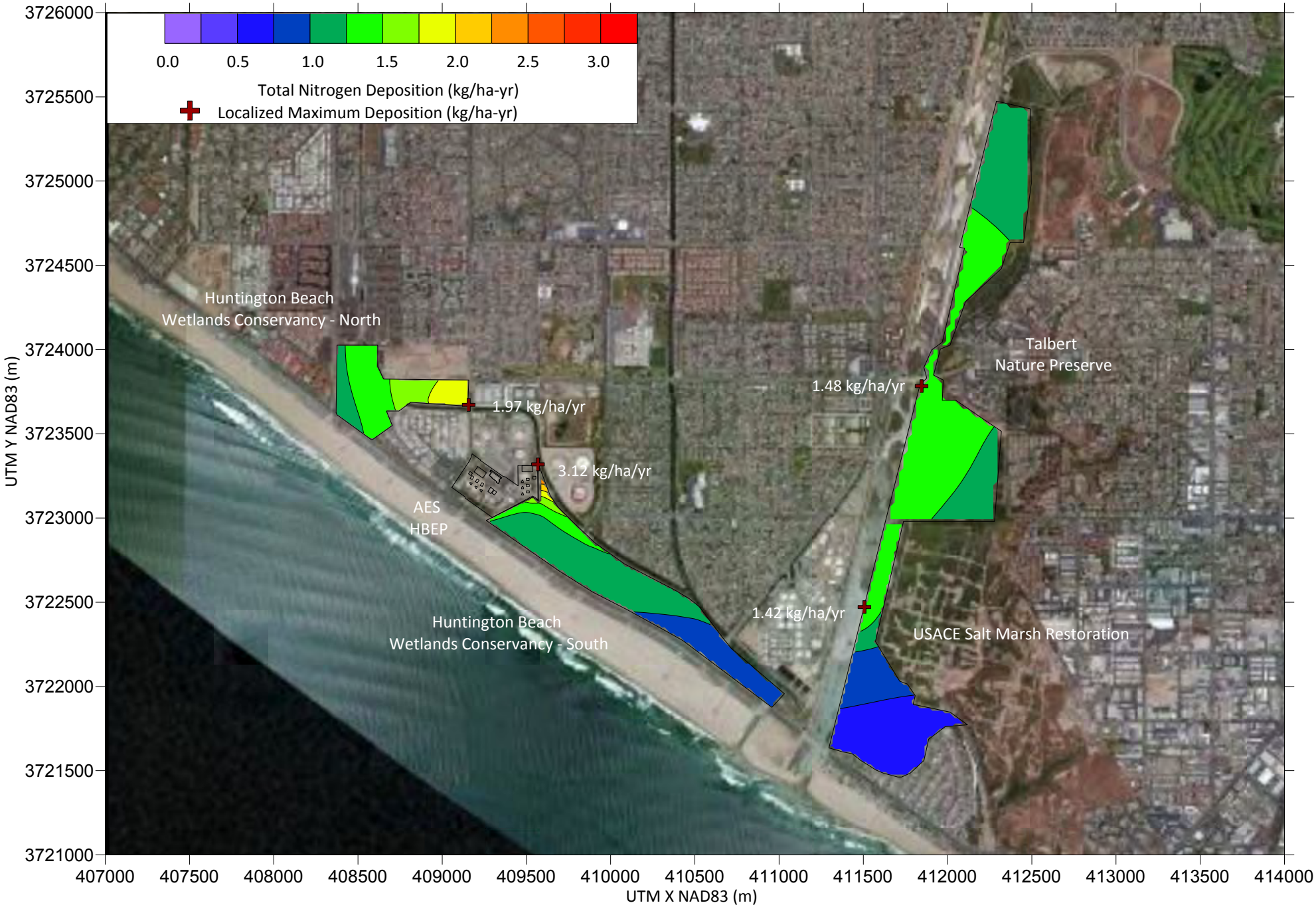
# Figure DR25-1: HBEP Total Nitrogen Deposition on Surrounding Habitats



# Figure DR25-2: HBEP Total Nitrogen Deposition on Surrounding Habitats



# Figure DR26-1: HBEP Cumulative Nitrogen Deposition on Surrounding Habitats



# Figure DR26-2: HBEP Cumulative Nitrogen Deposition on Surrounding Habitats