

**DRAFT DETERMINATION TO APPROVE MITIGATION MEASURES  
FOR THE WATER QUALITY CONTROL POLICY ON THE USE OF  
COASTAL AND ESTUARINE WATERS FOR POWER PLANT COOLING:**

**MANDALAY GENERATING STATION  
OCTOBER 2016 THROUGH FEBRUARY 2018**

Interim Mitigation Requirements and Determinations

The State Water Resources Control Board's (State Water Board) Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (Once-Through Cooling [OTC] Policy) requires owners or operators of existing power plants to implement measures to mitigate interim impingement and entrainment impacts resulting from their cooling water intake structures. The interim mitigation period commenced on October 1, 2015, and continues up to and until owners or operators achieve final compliance with the OTC Policy.

NRG Energy, Inc. (NRG) retired Mandalay Generating Station's Units 1 and 2 on February 5, 2018. NRG elected to have the interim mitigation payment for the final months of operation of Mandalay Generating Station's Units 1 and 2 included in this Determination. Therefore, this Determination contains the interim mitigation payment calculations for Mandalay Generating Station from October 1, 2016, through February 5, 2018.

The State Water Board approved Mandalay Generating Station's request to comply with the interim mitigation measures described in Section 2.C(3)(b) of the OTC Policy in the Final Determination<sup>1</sup> for the October 1, 2015, to September 30, 2016, interim mitigation period (2015-2016 Final Determination). The 2015-2016 Final Determination also included the interim mitigation payment for the period of October 2015 through September 2016, comprised of an entrainment fee, an impingement fee, and a management and monitoring fee, consistent with Resolution No. 2015-0057<sup>2</sup> and the recommendations in the Expert Review Panel's Final Report<sup>3</sup>.

The State Water Board calculated Mandalay Generating Station's interim mitigation payment for October 1, 2016, through February 5, 2018, consistent with the methods and calculations applied in the 2015-2016 Final Determination.

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<sup>1</sup> State Water Board 2015-2016 Final Determination for Mandalay Generating Station.

<[https://www.waterboards.ca.gov/water\\_issues/programs/ocean/cwa316/docs/mandalay\\_1516mitigaiton\\_letter.pdf](https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/docs/mandalay_1516mitigaiton_letter.pdf)>

<sup>2</sup> State Water Board Resolution No. 2015-0057.

<[https://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/resolutions/2015/rs2015\\_0057.pdf](https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2015/rs2015_0057.pdf)>

<sup>3</sup> Final Report from the Expert Review Panel.

<[https://www.waterboards.ca.gov/water\\_issues/programs/ocean/desalination/docs/erp\\_intake052512.pdf](https://www.waterboards.ca.gov/water_issues/programs/ocean/desalination/docs/erp_intake052512.pdf)>

## Interim Mitigation Payment Calculation for Mandalay Generating Station

### Entrainment Payment Calculation

*October 1, 2016 through September 30, 2017*

To calculate the interim mitigation payment to offset entrainment impacts, the State Water Board used the default average cost of entrainment. Consistent with Resolution No. 2015-0057 and the Expert Review Panel's Final Report, the State Water Board used a three percent escalator to update the average cost of entrainment from the 2015-2016 Final Determination to 2017 dollars to account for inflation. The resulting entrainment cost for October 2016 through September 2017 increased from \$4.73 per million gallons (MG) to \$4.87/MG:

$$(\$4.73/MG \times 0.03) + \$4.73/MG = \$4.87/MG$$

In their February 9, 2018 letter<sup>4</sup>, NRG provided the intake volume for Mandalay Generating Station from October 2016 through September 2017, totaling 118,983.73 MG. The State Water Board compared intake volume with the data submitted in the National Pollution Discharge Elimination System (NPDES) permit monitoring reports for Mandalay Generating Station. The State Water Board noted some discrepancies between the intake volume data provided in the February 9, 2018, letter and the NPDES monitoring data. NRG confirmed in an email dated April 18, 2018, that the NPDES data are accurate and should be used in the entrainment calculation for the October 2016 through September 2017 operating period.

To calculate the entrainment payment, the State Water Board multiplied the intake volume by the updated cost of entrainment:

$$\$4.87/MG \times 19,869.04MG = \$96,762.22$$

*October 1, 2017 through February 5, 2018*

To calculate the interim mitigation payment to offset entrainment impacts during the final months of operation at Mandalay Generating Station (October 1, 2017, through February 5, 2018), the State Water Board used a three percent escalator to update the average cost of entrainment from the 2016-2017 operating period calculated above to 2018 dollars to account for inflation. The resulting entrainment cost for October 2017 through February 2018 increased from \$4.87/MG to \$5.02/MG:

$$(\$4.87/MG \times 0.03) + \$4.87/MG = \$5.02/MG$$

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<sup>4</sup> Letter from George L. Piantka, NRG, to Eileen Sobek, State Water Board on February 9, 2018.  
<[https://www.waterboards.ca.gov/water\\_issues/programs/ocean/cwa316/powerplants/mandalay/docs/mandalay\\_1617inforequest\\_resp.pdf](https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/powerplants/mandalay/docs/mandalay_1617inforequest_resp.pdf)>

In their April 27, 2018 email, NRG provided the intake volume for Mandalay Generating Station from October 2017 through February 2018, totaling 5,210.7 MG<sup>5</sup>. The State Water Board verified the intake volume with the data submitted in the NPDES permit monitoring reports for Mandalay Generating Station.

To calculate the entrainment payment for October 2017 through February 2018 the State Water Board multiplied the intake volume by the updated cost of entrainment:

$$\$5.02/MG \times 5,210.7MG = \$26,157.71$$

The total entrainment payment to offset entrainment impacts from October 2016 through February 2018 is \$122,919.93.

$$\$96,762.22 + \$26,157.71 = \$122,919.93$$

#### Impingement Payment Calculation

In their February 9, 2018 letter, NRG provided the actual annual mass of fish impingement for Mandalay Generating Station from October 2016 to September 2017, totaling 108.85 pounds. The mass of fish impinged was determined from quarterly fish counts conducted from October 2016 through September 2017, totaling 108.85 pounds. The actual mass of fish impinged as determined from quarterly fish counts conducted from October 2017 through February 2018 was 13.61 pounds. The State Water Board calculated the impingement payment for October 2016 through February 2018 using the annual total pounds of fish impinged plus the total pounds of fish impinged during the final months of operation multiplied by the average indirect economic value of the fisheries as determined in the Expert Review Panel's Final Report of \$0.80 per pound:

$$\$0.80/pound \times (108.85pounds + 13.61pounds) = \$97.97$$

#### Management and Monitoring Payment Calculation

The State Water Board calculated the management and monitoring fee by taking twenty percent of the sum of the entrainment and impingement payments:

$$0.20 \times (\$122,919.93 + \$97.97) = \$24,603.58$$

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<sup>5</sup> Supplemental data for Mandalay Generating Station from George Piantka (NRG) to Katherine Faick (State Water Board) on April 28, 2018.

<[https://www.waterboards.ca.gov/water\\_issues/programs/ocean/cwa316/powerplants/mandalay/docs/mandalay\\_1617inforequest\\_supp.pdf](https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/powerplants/mandalay/docs/mandalay_1617inforequest_supp.pdf)>

State Water Board's Draft Determination for Mandalay Generating Station

Based on the sum of the entrainment, impingement, and management and monitoring payment calculations, the total payment is \$147,621.48 to fulfill the interim mitigation obligation for NRG Energy's Mandalay Generating Station for the operating period of October 1, 2016, to February 5, 2018.

$$\$122,919.93 + \$97.97 + \$24,603.58 = \$147,621.48$$