



**PETITION REQUESTING STATE WATER BOARD REVIEW OF REGIONAL WATER BOARD ORDER NO. R9-2011-0022**

Pursuant to Section 13320 of the California Water Code and Section 2050 of Title 23 of the California Code of Regulations ("CCR") San Diego Coastkeeper ("Coastkeeper") hereby petitions the State Water Resources Control Board ("State Board") to review the May 11, 2011 adoption by the California Regional Water Quality Control Board for the San Diego Region ("Regional Board") of Order No. R9-2011-0022, NPDES No. CAG999002, a General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Firework Pollutant Waste Discharges to Waters of the United States in the San Diego Region from the Public Display of Fireworks ("Permit").

For reasons described below, Petitioner Coastkeeper requests that the State Board vacate the Regional Board's May 11, 2011 decision and remand the San Diego Regional Board Order No. R9-2011-0022 for further consideration.

Petitioner Coastkeeper hereby requests a hearing on its Petition in order to present oral argument. Coastkeeper also reserves its right and hereby requests to provide supplemental evidence to the State Board.

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**1. NAME, ADDRESS, TELEPHONE, AND E-MAIL ADDRESS OF THE PETITIONER:**

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ONE ORGANIZATION PROTECTING 100% OF THE COAST



**2. THE SPECIFIC ACTION OR INACTION OF THE REGIONAL BOARD BEING PETITIONED AND A COPY OF ANY ORDER OR RESOLUTION OF THE REGIONAL BOARD WHICH IS REFERRED TO IN THE PETITION:**

Coastkeeper seeks review, reversal, and remand of San Diego Regional Board Order No. R9-2011-0022, NPDES No. CAG999002, which allows organizers to lawfully discharge pollutants present in fireworks to meet federal Clean Water Act ("Act") requirements. A copy of the Order is attached hereto. In particular, Petitioner challenges the Regional Board's failure to comply with the Water Quality Control Plan for Ocean Waters of California ("Ocean Plan") in adopting the Order and NPDES Permit No. CAG999002.

**3. THE DATE ON WHICH THE REGIONAL BOARD ACTED, REFUSED TO ACT, OR WAS REQUESTED TO ACT:**

The Regional Board approved Order No. R9-2011-0022, NPDES No. CAG999002 at a regular meeting on May 11, 2011.

**4. A FULL AND COMPLETE STATEMENT OF THE REASONS THE ACTION OR FAILURE TO ACT WAS INAPPROPRIATE OR IMPROPER:**

**I. The Regional Board failed to comply with California Ocean Plan requirements.**

The Regional Board approved an NPDES permit on May 11, 2011. This permit allows organizers to lawfully discharge pollutants present in fireworks to meet federal Clean Water Act requirements.<sup>1</sup> The permit requirement, effective June 1, 2011, applies to displays over any body of water in the region and requires organizers to collect, remove, and manage debris created by the fireworks. The permit includes a provision that allows discharge into designated Areas of Special

<sup>1</sup> Cal. Reg'l Water Quality Control Bd. San Diego Region Order No. R9-2011-0022, NPDES No. CAG999002, General National Pollution Discharge Elimination System (NPDES) Permit for Residual Firework Pollutant Waste Discharges to Water of the United States in the San Diego Region from the Public Display of Fireworks (2011).



Biological Significance (ASBS), specifically, into the La Jolla and Heisler Park ASBS.<sup>2</sup> This is of particular concern because the Ocean Plan prohibits discharge into ASBS.<sup>3</sup> Because the NPDES permit allows discharge into and adjacent to ASBS, the permit directly violates the Ocean Plan.

## II. The limited-term activities exception is not applicable to fireworks shows.

The Ocean Plan allows discharges into ASBS for limited-term activities including boat facility repair and maintenance, sea wall restoration, storm water pipe repair, and bridge repair, in ASBS.<sup>4</sup> The exception allows “temporary and short-term changes in existing water quality,” and requires that the activities do not “result in water quality lower than that necessary to protect existing uses.”<sup>5</sup> The Regional Board has determined that the La Jolla Cove show is a limited-term activity.<sup>6</sup> As such, the La Jolla Cove show is subject to the following condition: temporary excursions from natural ocean water quality conditions resulting from fireworks pollutant waste discharge are permissible as long as the beneficial uses of the ASBS are protected.<sup>7</sup> The Ocean Plan defines beneficial uses as the “preservation and enhancement of designated [ASBS].”<sup>8</sup> By allowing fireworks pollutant discharge into the ASBS, the beneficial uses of the ASBS are not protected.

## 5. THE MANNER IN WHICH THE PETITIONER IS AGGRIEVED:

San Diego Coastkeeper is a nonprofit public interest corporation, organized and existing under the laws of the State of California, with its principal place of business in San Diego, California. Much

<sup>2</sup> *Id.* at F-42.

<sup>3</sup> Water Quality Control Plan for Ocean Waters of Cal., Cal. Ocean Plan, 20 (2009).

<sup>4</sup> *Id.* at 20-21.

<sup>5</sup> *Id.* at 20.

<sup>6</sup> Order No. R9-2011-0022, F-43.

<sup>7</sup> *Id.*

<sup>8</sup> Cal. Ocean Plan, 3.



of Coastkeeper's work is focused on the protection of water resources, including the state created Areas of Special Biological Significance (ASBS), for the communities and wildlife that depend on them.

Coastkeeper promotes its mission to keep ASBS clean by engaging in community activism, participating in governmental hearings, and educating the public about environmental impacts on oceans, beaches, and watersheds. The interests that Coastkeeper seeks to protect with this petition are germane to its fundamental purpose.

Members of San Diego Coastkeeper regularly use the beach along the La Jolla shores area for recreation including surfing, hiking, scientific research, sun bathing, water sports, and passively enjoying nature. The injuries of Coastkeeper, its members, and their families are actual, concrete injuries, which would be redressed by the relief sought herein. Coastkeeper brings this petition on its own behalf, and on behalf of more than 350 members who live in San Diego County.

Order No. R9-2011-0022 allows discharge into the La Jolla ASBS, which is home to some of the most pristine and biologically unique sections of California's coast. The Regional Board has recognized that discharges from public fireworks displays contain pollutants that potentially cause deviations from applicable water and sediment quality objectives.<sup>9</sup> Further, fireworks displays over water result in the discharge of chemicals and other pollutants.<sup>10</sup> These chemicals are toxic to both humans and wildlife. Although the extent of the impact of these pollutants is unknown, studies show that there are adverse impacts to the coastal and marine environment from fireworks displays over water.<sup>11</sup> Accordingly, Coastkeeper members who regularly use and enjoy these waters are directly and adversely aggrieved by the issuance of Regional Board Order No. R9-2011-0022.

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<sup>9</sup> See Order No. R9-2011-0022.

<sup>10</sup> See Order No. R9-2011-0022. See also *SeaWorld Aerial Fireworks Displays 2008 Annual Report Executive Summary* (March 2009); *SeaWorld Aerial Fireworks Displays 2009 Annual Report and 2010 Work Plan* (January 2010).

<sup>11</sup> See, e.g., Richard T. Wilkin, Dennis D. Fine & Nicole G. Burnett, *Perchlorate Behavior in a Municipal Lake Following Fireworks Displays*, 41 ENVTL. SCI. & TECH. 3966, 3966-3971 (2007); S.M. Backus et al., *Determination of perchlorate in selected surface waters in the Great Lakes Basin by HPLC/MS/MS*, 61 CHEMOSPHERE 834, 834-843 (2005).



**6. THE SPECIFIC ACTION BY THE STATE OR REGIONAL BOARD WHICH PETITIONER REQUESTS:**

For the reasons stated in sections 4 and 7, San Diego Coastkeeper requests that the State Board review and remand to the Regional Board to reconsider this matter in light of the requirements of the Ocean Plan to prohibit discharge into the La Jolla ASBS.

**7. A STATEMENT OF POINTS AND AUTHORITIES IN SUPPORT OF LEGAL ISSUES RAISED IN THE PETITION:**

**I. The Clean Water Act prohibits the discharge of any pollutant unless otherwise allowed by permit.**

The Clean Water Act prohibits the discharge of any pollutant unless otherwise allowed by permit.<sup>12</sup> Section 1342(1) of the Act requires that a National Pollution Discharge Elimination System (NPDES) permit be issued before any pollutant is discharged into the waters of the United States. Specifically, an NPDES permit is required when a discharger has (1) discharged (2) a pollutant (3) to waters of the United States (4) from a point source.<sup>13</sup> Further, under California state law, discharges into an ASBS are prohibited, and any discharges near an ASBS must be located a sufficient distance from such areas.<sup>14</sup>

Fireworks displays, such as the one in La Jolla Cove, produce a combustion residue that includes smoke, airborne particulates, chemical pollutants, and debris such as paper, wires, and fuses, which can fall into the surface waters of surrounding areas.<sup>15</sup> Fireworks typically contain such chemicals as aluminum, magnesium, strontium, barium, sodium, potassium, copper, sulfate, nitrate, and

<sup>12</sup> The Clean Water Act, 33 U.S.C.A. § 1311(a).

<sup>13</sup> *Id.* at §§ 1311(a), 1342(a).

<sup>14</sup> Cal. Ocean Plan, 20.

<sup>15</sup> Order No. R9-2011-0022, F-5.



perchlorates.<sup>16</sup> Further, manganese compounds are used as a catalyst in fireworks,<sup>17</sup> iron is used to produce sparks,<sup>18</sup> and both nickel and chromium are also used in fireworks.<sup>19</sup> This array of waste falls under § 1362(6) of the Act, which lists solid waste, munitions, and chemical waste as types of pollutants.

During the fireworks shows, these harmful chemicals and debris fall into La Jolla Cove and into the Pacific Ocean, which constitute waters of the United States pursuant to § 1362(7). Because the Act defines a point source as any discernable, confined, and discrete conveyance, including any vessel or other floating craft, from which pollutants are or may be discharged, the barges from which the fireworks are shot function as a point source.<sup>20</sup> In accordance with the Clean Water Act, the NPDES permit allows the lawful discharge of pollutants present in fireworks. However, the permit directly violates the Ocean Plan.

## **II. The Fireworks Permit violates the California Ocean Plan.**

The Fireworks Permit violates the Ocean Plan because: (1) it allows discharge into an ASBS; (2) it does not require that the displays be located a sufficient distance from the ASBS to assure maintenance of natural water quality in the area; and (3) fireworks displays do not constitute the limited-term activities intended to be excepted by the Ocean Plan.

### **A. The Fireworks Permit violates the Ocean Plan because it allows discharge into an ASBS.**

The Ocean Plan protects the quality of the ocean waters for use and enjoyment by the people of the State by controlling the discharge of waste into ocean waters in accordance with the Plan's

<sup>16</sup> *Id.* at F-4.

<sup>17</sup> *Manganese Compounds*, EPA.GOV, <http://www.epa.gov/ttnatw01/hlthef/manganes.html> (2010).

<sup>18</sup> Ann Helmenstine, *Elements in Fireworks*, CHEMISTRY.ABOUT.COM, <http://chemistry.about.com/od/fireworks/pyrotechnics/a/ironfireworks.htm>.

<sup>19</sup> Order No. R9-2011-0022, F-13, 14.

<sup>20</sup> 33 U.S.C.A. § 1362(14).



provisions.<sup>21</sup> Additionally, the Ocean Plan seeks to preserve and enhance ASBS.<sup>22</sup> Because the La Jolla Cove fireworks display occurs in the air over and adjacent to the ASBS, pollutants enter the ASBS.<sup>23</sup> Thus, the show violates the Ocean Plan, which prohibits any discharges directly into an ASBS.<sup>24</sup>

**B. The fireworks display is not located a sufficient distance from the ASBS to assure maintenance of natural water quality in the area.**

The Ocean Plan also requires that discharges be located a sufficient distance from ASBS “to assure maintenance of natural water quality conditions in these areas.”<sup>25</sup> The State Board protects ASBS to the extent that alteration of natural water quality is undesirable.<sup>26</sup> Natural water quality is defined as:

[The] water quality (based on selected physical chemical and biological characteristics) that is required to sustain marine ecosystems, and which is without apparent human influence, *i.e.*, an absence of significant amounts of:

- (a) man-made constituents (e.g., DDT),
- (b) other chemical (e.g., trace metals), physical (temperature/thermal pollution, sediment burial) and biological (e.g., bacteria) constituents at levels that have been elevated due to man’s activities above those resulting from the naturally occurring processes that affect the area in question, and
- (c) non-indigenous biota (e.g., invasive algal bloom species) that have been introduced either deliberately or accidentally by man.<sup>27</sup>

Particulate matter from fireworks has a fallout zone ranging from 500 to 2,000 feet.<sup>28</sup> Once the combustion residue from the fireworks enters the water, “it can be transported to waters and shorelines

<sup>21</sup> Cal. Ocean Plan, 1.

<sup>22</sup> *Id.* at 3.

<sup>23</sup> Order No. R9-2011-0022, 42.

<sup>24</sup> Cal. Ocean Plan, 20.

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* at 24.

<sup>27</sup> Natural Water Quality Committee 2006-2009, *Summation of Findings*, 3 (2010).

<sup>28</sup> Letter from Marco Gonzalez to Michelle Mata and Regional Board Members (April 20, 2011), [http://www.waterboards.ca.gov/sandiego/water\\_issues/programs/npdes/fireworks/docs/updates042111/04\\_20\\_cerf.pdf](http://www.waterboards.ca.gov/sandiego/water_issues/programs/npdes/fireworks/docs/updates042111/04_20_cerf.pdf).



outside the fallout area due to wind shear and tidal effects.”<sup>29</sup> In some cases, the chemicals contained in fireworks have been shown to travel over 62 miles downwind over a two-day period.<sup>30</sup>

La Jolla Cove is located adjacent to the ASBS.<sup>31</sup> The La Jolla Cove fireworks show discharges residual fireworks pollutant waste into the La Jolla ASBS.<sup>32</sup> Thus, debris and chemicals contained in fireworks have a potential to contribute to degradation of water and sediment quality in La Jolla Cove and the Pacific Ocean. Because these solid and chemical wastes have the potential to adversely impact water and sediment quality in the ASBS, the La Jolla Cove show violates the Ocean Plan.

C. Fireworks displays do not constitute the limited-term activities intended to be excepted by the Ocean Plan in its limited-term activities exception.

Although the Ocean Plan allows discharges into an ASBS for limited-term activities, nothing in the language indicates that the State Board intended to include fireworks shows. The Regional Board may approve waste discharge for “limited-term (i.e. weeks or months) activities,” such as boat facility repair and maintenance, sea wall restoration, and bridge repair, in ASBS.<sup>33</sup> The exception allows “temporary and short-term changes in existing water quality,” and requires that the activities do not “result in water quality lower than that necessary to protect existing uses.”<sup>34</sup> Further, the Ocean Plan requires that all practicable means of minimizing such degradations must be implemented.<sup>35</sup>

State Board representatives have confirmed that this exception is only to be applied to true maintenance and repair activities.<sup>36</sup> The examples listed in the limited-term activity exception are activities that occur, by their very nature, over water. Sea wall restoration, repair of existing storm water

<sup>29</sup> Order No. R9-2011-0022, F-5.

<sup>30</sup> Amy Davis & Gar Smith, *Fallout Over Disneyland*, 17 EARTH ISLAND JOURNAL (Summer 2002).

<sup>31</sup> Map of La Jolla ASBS available at <http://cordc.ucsd.edu/projects/asbs/>.

<sup>32</sup> Order No. R9-2011-0022, F-42.

<sup>33</sup> Cal. Ocean Plan, 20-21.

<sup>34</sup> *Id.* at 21.

<sup>35</sup> *Id.* at 42.

<sup>36</sup> Letter from Marco Gonzalez to Michelle Mata and Regional Board Members (April 20, 2011) (referencing personal communication with Dominic Gregorio).



pipes, and repair of boat facilities and bridges are activities that occur near to or over water, specifically near to or over ASBS. Thus, even if best management practices (BMP) are used to prevent discharge, any discharge that does occur may enter the water. Unlike these fixed sources of potential pollution, fireworks are an inherently mobile source. Fireworks shows do not have to occur over the water, and certainly not an ASBS; thus, discharge into the water is avoidable.

It is estimated that, in 2010, between 400 and 500 pounds net weight of pyrotechnics material was discharged into the air over or adjacent to the La Jolla ASBS during the Fourth of July show.<sup>37</sup> It is unlikely that the Ocean Plan intended such discharges of 400 to 500 pounds of waste during an annual event to fall under the limited-term activities exception.

D. Even if fireworks displays did constitute limited-term activities within the meaning of the Ocean Plan, they fail to comply with the associated conditions.

Unfortunately, the Regional Board has arbitrarily determined that the La Jolla Cove show is a limited-term activity.<sup>38</sup> As a limited-term activity, however, the show is subject to conditions. Particularly, “temporary excursions from natural ocean water quality conditions resulting from residual fireworks pollutant waste discharges within any portion of the firing range located in the ASBS are permissible *if beneficial uses are protected*.”<sup>39</sup> The Ocean Plan defines beneficial uses as the “preservation and enhancement of designated [ASBS].”<sup>40</sup> By allowing fireworks pollutant discharge into the ASBS, the beneficial uses of the ASBS are not protected because the man-made and chemical constituents from fireworks potentially contribute to the degradation of natural water quality.

It is undisputed that fireworks displays over water pose a threat to water quality. The chemicals contained in fireworks have potentially deleterious effects to humans and marine life. Based on the high

<sup>37</sup> See Order No. R9-2011-0022, F-42; Letter from Marco Gonzalez to Michelle Mata and Regional Board Members (April 20, 2011).

<sup>38</sup> Order No. R9-2011-0022, F-43.

<sup>39</sup> *Id.* (emphasis added)

<sup>40</sup> Cal. Ocean Plan, 3.



water solubility of perchlorate, aquatic organisms and organisms at the aquatic terrestrial interface would theoretically receive the highest exposure.<sup>41</sup> Studies indicate that exposure to heightened perchlorate concentrations have resulted in thyroid impacts in fish.<sup>42</sup> Elevated perchlorate concentrations may also pose a risk to aquatic ecosystems.<sup>43</sup> Studies show direct contamination from firework displays of lake water adjacent to the displays.<sup>44</sup> In one such study, post-fireworks display perchlorate concentrations in surface water adjacent to the display spiked to values ranging from 24 to 1,028 times the average perchlorate concentration preceding the display.<sup>45</sup> Specifically, the maximum perchlorate concentration after the display was 44.2 micrograms per liter, whereas the average concentration preceding the display was 0.043 micrograms per liter.<sup>46</sup> After the fireworks display, perchlorate concentrations return to normal within 20 to 80 days, depending on conditions such as surface water temperature, wind, and tidal effects.<sup>47</sup> Although this study was conducted in a lake, another study, which measured samples from the Long Island Sound and the Atlantic Ocean, found that perchlorate concentrations can be 18 times as much as pre-display levels.<sup>48</sup>

Perchlorate is of considerable concern because it can persist for many years in ground and surface water. In 2003, the California legislature enacted the Perchlorate Contamination Prevention Act. Studies show that the maximum perchlorate concentrations following fireworks displays exceed current action levels for drinking water in many states, including California, which has a maximum contaminant

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<sup>41</sup> Philip N. Smith et al., *Preliminary Assessment of Perchlorate in Ecological Receptors at the Longhorn Army Ammunition Plant (LHAAP), Karnack, Texas*, 10 *ECOTOXICOLOGY* 305, 306 (2001).

<sup>42</sup> See C.M. Bradford et al., *Perchlorate affects thyroid function in eastern mosquitofish (Gambusia holbrooki) at environmentally relevant concentrations*, 39 *ENVTL. SCI. & TECH.* 5190, 5190-5195 (2005); Christopher Theodorakis et al., *Perchlorate in fish from a contaminated site in east-central Texas*, 139 *ENVTL. POLLUTION* 59, 59-69 (2006).

<sup>43</sup> Wilkin, *supra* note 11, at 3966.

<sup>44</sup> See Backus, *supra* note 11; Wilkin, *supra* note 11, at 3966.

<sup>45</sup> Wilkin, *supra* note 11, at 3966. See also Jennie Munster et al., *The Fallout From Fireworks: Perchlorate in Total Disposition*, 198 *WATER, AIR & SOIL POLLUTION* 149, 149-153 (2009).

<sup>46</sup> Wilkin, *supra* note 11, at 3968.

<sup>47</sup> *Id.*

<sup>48</sup> Munster, *supra* note 45, at 152.



level of six micrograms per liter.<sup>49</sup> By allowing fireworks, a source of perchlorate pollution, to discharge over an ASBS, the Regional Board is undermining the efforts of the legislature to prevent such contamination.

Furthermore, "perchlorate ingestion may pose an adverse human health risk because perchlorate interferes with the production of thyroid hormones required for normal metabolism and the development of mental function."<sup>50</sup> Fish from contaminated sites have been found to contain hundreds of parts per billion of perchlorate in the fillets.<sup>51</sup> When humans consume fish from contaminated water bodies, humans also ingest the perchlorate concentrations contained in the fish.

Additionally, the Scripps Institute of Oceanography highlighted in its biological monitoring results that pollutants (chromium, nickel, iron, and manganese) were elevated in transplanted mussels in the southern portion of the La Jolla ASBS relative to other sites within the area of study.<sup>52</sup>

The aforementioned potentially deleterious effects from the residual fireworks pollutant waste certainly do not promote the preservation and enhancement of the La Jolla ASBS. Thus, the permitted discharges into the ASBS do not protect the beneficial uses of the ASBS, and the La Jolla Cove fireworks show violates this condition of the Fireworks Permit.

**8. A STATEMENT THAT THE PETITION HAS BEEN SENT TO THE APPROPRIATE REGIONAL BOARD AND TO THE DISCHARGER, IF NOT THE PETITIONER:**

A true and correct copy of this petition was sent via electronic mail on June 10, 2011 to the Regional Board, to the Discharger, and interested parties at the following address:

David Gibson, Executive Officer

<sup>49</sup> Wilkin, *supra* note 11, at 3970; CAL. CODE REGS. 22, § 64431 (2008).

<sup>50</sup> See J. Wolff, *Perchlorate and the Thyroid Gland*, 50 PHARMACOLOGICAL REV. 89, 92 (1998); NATIONAL RESEARCH COUNCIL, HEALTH IMPLICATIONS OF PERCHLORATE INGESTION (National Academies Press, 200).

<sup>51</sup> Smith, *supra* note 41, at 310.

<sup>52</sup> Natural Water Quality Committee 2006-2009, *supra* note 27, at 6-7.



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**9. A STATEMENT THAT THE SUBSTANTIVE ISSUES OR OBJECTIONS  
RAISED IN THE PETITION WERE RAISED BEFORE THE REGIONAL BOARD:**

Petitioner Coastkeeper raised the issues discussed in this petition before the San Diego Regional Board in oral comments on May 11, 2011.

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If you have any questions regarding this petition, please feel free to contact us directly.

Dated June 10, 2011

Respectfully submitted,

**SAN DIEGO COASTKEEPER**

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