CALIFORNIA COASTAL COMMISSION
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Th13a

5-23-0383

(Naples Restaurant Group, LLC)

JUNE 8, 2023

CORRESPONDENCE

APPLICANT'S

COMMENTS

Amitay, Shahar@Coastal

From: Caroline Wilson <caroline.wilson@cwn-law.com>
Sent: Friday, June 2, 2023 3:46 PM
To: SouthCoast@Coastal; Amitay, Shahar@Coastal
Cc: Katie Jakemer; John Morris
Subject: Public Comment on June 2023 Agenda Item Thursday 13a - Application No. 5-23-0383 (Naples Restaurant Group LLC, Long Beach)
Attachments: Redline Tentative Order CAG994007.pdf; 2023 Written Comment to Draft CDP.pdf

Dear Shahar:

Attached is our written comment to the draft permit. I'm also attaching a copy of the draft NPDES permit that was approved by the LA Water Board on May 25, 2023. The final order has not been published yet, but the redlined draft was approved in whole (with the exception of two very small edits that aren't relevant for this purpose). I assume you already have a copy, but just in case…

Thank you so much for your time and consideration.

Talk soon,
Caroline

Caroline J. Wilson
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Agenda Item No. Th13a
Permit No. 5-23-0383
Submitted by: Caroline Wilson on behalf of and counsel to Naples Restaurant Group
Position: In favor of the project

Re: Written Comments to Permit Number 5-23-0383

On behalf of our client, Naples Restaurant Group d/b/a Boathouse on the Bay ("Permittee"), we write to provide written comments to Permit Number 5-23-0383 (the "Permit") and respectfully request that Coastal Commission reconsider certain conditions to the extent that conditions are infeasible, impracticable, and/or vague.

The below list identifies the specific conditions along with Permittee's comments.

- Special Condition 3(C) requires that all labels and wrapping be removed from the fireworks prior to being fired. It appears that this only refers to plastic and aluminum wrappings, but for the sake of good order, Permittee points out that it is actually illegal to remove labels on fireworks, whereas outer plastic coverings can and will be removed. Permittee therefore seeks clarification that this condition only targets removal of plastic coverings and not the physical label on the firework shell itself. Additionally, aluminum foil will not be used for the majority of shells, however, larger shells, may require aluminum as a protective barrier. Permittee requests that this Special Condition be revised to only require the removal of aluminum to the extent practicable. Permittee notes that the Los Angeles Regional Water Quality Control Board's ("LA Water Board") does not impose a total ban on aluminum foil.

- Special Condition 5 requires that "IMMEDIATELY FOLLOWING THE EVENT," all event and fireworks-related debris in the event area and around the fireworks launch site shall be recovered. Permittee seeks clarification on the meaning of "immediately" and would like to confirm that beginning clean up efforts within twenty minutes following the fireworks display would be compliant under the current language of Special Condition 5. Before, during, and after the fireworks display, U.S. Coast Guard and local life guards establish a safety perimeter around the barge. The safety perimeter is lifted following the cool down period which takes approximately fifteen minutes. It would be unsafe for Permittee's environmental team to begin debris search efforts until

the safety perimeter is lifted. However, as mentioned above, this results in a mere fifteen to twenty minute delay.

- Special Condition 5 generally requires that the Permittee inspect Bay waters and the sea bottom for a minimum of two days following the conclusion of each fireworks display. As written it would appear that clean up crews need to be present onshore and in the water for 48 continuous hours. Permittee takes no issue with undertaking reasonable inspection, and if necessary, recovery efforts following the fireworks display, but there is no historical evidence to indicate that clean up is necessary for 48 hours. Prior water quality reports have shown, consistently, that there is little to no trash to be recovered in the water following the fireworks display. Of the little trash that has been recovered, there has been nothing to suggest that said trash came from Permittee's fireworks display. Accordingly, Permittee objects to this condition on the basis that 48 hours of continuous search is not and has never been indicated as a necessary measure.

- Special Condition 5(B), as written, appears to require the use of divers for 48 continuous hours. Permittee intends to use an ROV to search and, if necessary, recover potential fireworks related debris. However, Permittee has been advised by its environmental consultant that using divers to search for debris is incredibly dangerous and impossible. Having divers on the bottom of Alamitos Bay on the night of July 3rd would pose a significant and unreasonable risk to the divers' safety. There are a number of boaters who will be present at the event and moving about the bay. There would be no way of protecting unlit divers from the numerous boats in navigation. Similarly, deploying divers on July 4th in Alamitos Bay would pose similar unreasonable risks. It is anticipated that many boaters will be present during July 4th and again, there would be no way to protect divers from boaters. Moreover, Permittee is unaware of any governmental authority that imposes such a risky requirement. Rather, the LA Water Board's general permit allows the use of an ROV in lieu of human divers out of recognition for safety concerns.

- Special Condition 5(C) requires debris collection efforts on the adjacent shoreline despite the fallout zone not reaching the adjacent shoreline. Permittee is unaware of any firework related debris from the barge reaching the shoreline. Permittee seeks clarification on the justification for this requirement and object to this requirement on the basis that there is no demonstrated necessity.

- Special Condition 7(B) requires that Permittee reserve the outdoor dining area that is landward of Berth 3 for the public. This area is in the middle of the ticketed area and would open up the entire ticketed area to the public who have not cleared security. Moreover, the area is in the middle of the Alcoholic Beverage Control ("ABC") permitted space. If the outdoor dining area is open

to the public, Permittee will be unable to control what people are doing or consuming in the area for which Permittee is responsible for under the ABC permit.

- Special Condition 7(D)(1) requires proof of payment to the charity organizations within 30 days of the event. Records reflecting payment to the charities are outside Permittee's control. Ticket purchases go directly to the charity organizations and therefore proof of payment is within the control of the charity and not the Permittee. Accordingly, Permittee objects to this condition as it would be impossible to comply.

- Special Condition 7(D)(2) requires an informational kiosk to educate attendees and members of the public about the event. Permittee seeks confirmation that the front gate where patrons present their tickets and go through security complies with this condition. The event is discussed generally at the front gate as patrons are welcomed in by event staff. Event staff will be available at the front gate to answer any event related questions from the public and patrons.

- Special Condition 7(F) requires development of a free valet bicycle and scooter program in cooperation with the City of Long Beach. Permittee seeks clarification on what this condition entails and notes that this is not a requirement of the City of Long Beach.

- Special Condition 8(A) states that a pre-event survey must be completed within 7 days of the event. It then states that the survey report must be submitted within two days of survey completion along with a monitoring plan, which is to include plans for surveys prior to, during, and after the event. The timing of this doesn't quite make sense. Presumably, to comply under section 8(A), a biologist can arrive on July 2 to do a pre event survey and Permittee can submit the survey report two days following the event – July 4. It doesn't make sense that on July 4, in conjunction with its submission of a preliminary survey report, Permittee would then submit its comprehensive monitoring plan. Permittee proposes a revised requirement to submit a comprehensive plan a week before the event and submit one singular report within 30 days after the event. Additionally, Section IV Findings and Declarations, pg. 21, states that Special Condition 8 requires Permittee to conduct surveys seven days prior to the event while Special Condition 8 states "within 7 days" of the event. Accordingly, Permittee seeks clarification on this requirement.

- Special Condition 8(B) imposes additional mitigation measures if noise levels reach 65dB. Permittee's understanding is that 65dB is the noise level of normal conversation. Permittee requests clarification on the scientific rationale that

establishes a threshold noise level of 65dB for avian species and how this threshold warrants substantial intervention.

- Special Condition 9(A) requires a marine wildlife monitoring report. Permittee questions the justification for this requirement. To Permittee's knowledge there has never been a single instance of marine wildlife injury as a result of this event. Accordingly, Permittee requests clarification on the scientific rational that warrants this condition and objects to this condition outright as something that is not indicated.

- Section IV Findings and Declarations, pg. 24, under the heading "Water Quality," refers to the LA Water Board's development of a general permit for fireworks. Permittee would like to update the Commission on the status of the general permit. The general permit was adopted by the LA Water Board on May 25, 2023 and Permittee is finalizing its enrollment at the direction of the LA Water Board. Permittee would like to clarify that the Special Study required under the general permit is a one-time requirement and will not be required for the 2023 event. Moreover, the Special Study imposes a requirement of a novel monitoring model and Permittee is working with the LA Water Board to develop a compliant model and will eventually conduct a compliant water quality monitoring study consistent with the general permit. Accordingly, it would be impossible to submit a water quality report within 30 days consistent with the LA Water Board's general permit. However, Permittee can certainly conduct water quality monitoring, and test for the full analytical suite of target chemicals as has been previously done.

Permittee would like to thank the members of the Coastal Commission for their diligent efforts and time spent on developing this CDP permit. We look forward to discussing this further at the hearing on June 8, 2023.

Very truly yours,

Caroline J. Wilson

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2023-xxxx
GENERAL NPDES PERMIT NO. CAG994007

WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF RESIDUAL FIREWORK POLLUTANTS FROM PUBLIC FIREWORKS DISPLAYS TO SURFACE WATERS IN LOS ANGELES AND VENTURA COUNTIES

Table 1. Administrative Information

This Order was adopted Los Angeles Water Board on:	**May 25, 2023**
Enrollment to this Order shall become effective on:	**May 25, 2023**
This Order shall expire on:	**May 25, 2028**

The United State Environmental Protection Agency (USEPA) and the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board) have classified discharges covered under this General National Pollutant Discharge Elimination System (NPDES) Permit as minor discharges.

I, Susana Arredondo, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the Los Angeles Water Board on the date indicated above.

Susana Arredondo
Executive Officer

TABLE OF CONTENTS

Attachments

I. FACILITY/DISCHARGE INFORMATION

This Order (also referred to as "General Permit") is intended to authorize discharges from public firework displays (residual firework pollutants) into waters of the United States in the Los Angeles Region (Discharges). The Clean Water Act (CWA) prohibits the discharge of any pollutant to waters of the United States, except in compliance with an NPDES permit. Residual firework pollutants discharged into surface waters constitutes discharge of a pollutant. Therefore, coverage under an NPDES permit is required before residual firework pollutant discharges associated with the public display of fireworks can be lawfully discharged. Discharges authorized under this Order are subject to all applicable conditions set forth in this Order.

II. PERMIT COVERAGE AND NOTIFICATION REQUIREMENTS

A. Permit Coverage

This Order covers the discharge of residual firework pollutants to waters of the United States (Surface Waters) within the jurisdiction of the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board). Any person who proposes to discharge pollutants from the public display of fireworks to surface waters (Discharger) must obtain coverage under this Order prior to the public display of fireworks event. This Order does not cover 1) Discharges from private individuals who use ~~consumer~~ Safe and Sane fireworks for personal display, 2) Discharges covered by individual or other NPDES permits or WDRs, or 3) Discharges over land and/or to the municipal separate storm sewer system (MS4).

B. Eligibility Criteria

Any person who proposes to discharge pollutants from the public display of fireworks to surface waters (Discharger) must submit a Notice of Intent (NOI) to obtain coverage under this Order in accordance with the requirements of Part II.D of the Order.

C. Authorization

Upon receipt of the application, the Executive Officer shall determine the applicability of this Order to such a discharge. If the discharge is eligible, the Executive Officer shall issue a notice of applicability (NOA) to the Discharger that the discharge is authorized under the terms and conditions of this Order noting any specific conditions that may be necessary to be in compliance with this Order. The Discharger shall comply with the requirements of this Order and other conditions prescribed in the NOA. For new discharges, the discharge shall not commence until receipt of the NOA for coverage under this Order or until an individual permit is issued by the Los Angeles Water Board.

D. Permit Application/Notice of Intent

1. Deadline for Submission

A Discharger shall complete and submit the NOI form at least 45 days before commencement of the fireworks event unless a shorter deadline has been granted by the Los Angeles Water Board.

2. Application Requirements

The Discharger may be the fireworks event host, or the fireworks display operator, who agrees to be responsible for compliance with all conditions specified in this Order.

The NOI submittal may address multiple fireworks events at different locations throughout the Los Angeles Region. The Los Angeles Water Board may require the joint submission of an NOI from both the host and the person operating the fireworks event on a case-by-case basis.

The Discharger shall use the NOI form in Attachment C of this Order or the current version of the form available on the Los Angeles Water Board website at https://www.waterboards.ca.gov/losangeles/publications_forms/forms/general_npdes_application_forms.html.

The Discharger, upon request, shall submit any additional information that the Los Angeles Water Board deems necessary to evaluate applicability and to determine whether any specific conditions are necessary to ensure compliance with the Order.

3. NOI Modification:

A Discharger may modify its NOI by submitting a modified NOI form (e.g., a mark-up of the original NOI form showing all changes and including a new signature and date) at least 30 days before the proposed change implementation date. The Discharger shall include a transmittal letter describing the changes, its purpose for changes, when the changes are to go into effect, and any new or different measures taken or planned to comply with this Order's requirements. Changes shall be authorized if and when the Executive Officer modifies or issues the NOA.

4. Annual Fee

Title 23 of the California Code of Regulations (CCR) requires that all discharges subject to waste discharge requirements shall pay an annual fee. Fireworks discharges require no treatment systems to meet the terms and conditions of this Order and pose no significant threat to water quality. As such, these discharges are classified as Category 3 pursuant to the fee schedule. The fees applicable to this Order are set forth in CCR, section 2200, subdivision (a)(10). The check or money order shall be made payable to the State Water Resources Control Board as described in section IV of Attachment B of this Order.

5. Notice of Termination (NOT)

Dischargers shall submit a Notice of Termination (NOT) when coverage under this Order is no longer needed. A NOT contains the Waste Discharge Identification Number (WDID) or Compliance Inspection (CI) number, and the name and address of the Discharger. The NOT shall be signed and dated by the Discharger, certifying that the discharge associated with Permit No. CAG994007 has been eliminated or that there has been a change in ownership. Upon submission of the NOT, the Discharger is no longer authorized to discharge wastewater associated with this Order.

6. Change of Ownership/ Notice of Transfer (NOTT)

Dischargers shall submit a Notice of Transfer (NOTT) when there has been a change in ownership. Coverage under this Order may be transferred in case of change of ownership of land or discharge facility provided the existing Discharger notifies the Executive Officer at least 30 days before the proposed transfer date, and the notice includes a written agreement between the existing and new Dischargers containing a specific date of transfer of coverage, responsibility for compliance with this Order, and liability between them. The Los Angeles Water Board may require modification or revocation and reissuance of

coverage under the Order to change the name of the Permittee or to incorporate other requirements as may be necessary under the CWA and the California Water Code (CWC).

III. FINDINGS

The Los Angeles Water Board finds:

A. Legal Authorities

This Order serves as waste discharge requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC (commencing with section 13260; see in particular section 13263, subd. (i) [general permits]). This Order also serves as an NPDES permit for discharges of residual firework pollutants from public displays of fireworks to Surface Waters within the jurisdiction of the Los Angeles Water Board, is issued pursuant to section 402 of the CWA, the implementing regulations adopted by the EPA, and Chapter 5.5, Division 7 of the CWC (commencing with section 13370).

B. Background

On September 22, 1989, EPA granted the State of California, through the State Water Resources Control Board (State Water Board) and the Los Angeles Water Board, the authority to issue general NPDES permits pursuant to Title 40 of the Code of Federal Regulations (40 CFR) parts 122 and 123.

40 CFR section 122.28(a)(2)(ii) provides for issuance of general NPDES permits to regulate a category of point sources, other than storm water point sources, if the sources within the category:

1. Involve the same or substantially similar types of operations;
2. Discharge the same types of waste;
3. Require the same effluent limitations or operating conditions;
4. Require the same or similar monitoring; and
5. In the opinion of the permitting authority, discharges are more appropriately controlled under a general NPDES permit rather than individual NPDES permits.

General NPDES permits and WDRs enable the Los Angeles Water Board to expedite the processing of requirements, simplify the application process for dischargers, better utilize limited staff resources, and avoid the expense and time involved in repetitive public noticing, hearings, and permit adoptions.

C. Rationale for Requirements

The Los Angeles Water Board developed the requirements in this Order based on applicable federal and state laws and regulations, information collected as part of previous investigations, input from prospective dischargers and environmental advocates, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for the Order. Attachments A through E are also incorporated into this Order.

D. Notification of Interested Parties

The Los Angeles Water Board has notified the Dischargers and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an

opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.

E. Consideration of Public Comment

The Los Angeles Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

IV. DISCHARGE PROHIBITIONS

- Discharges of any waste at a location different from the location(s) listed in the issued NOA are prohibited.
- Discharge of residual firework pollutants to waters of the United States so as to create, or to cause pollution, contamination, or nuisance as defined in Water Code section 13050 is prohibited.
- Discharge of plastic trash to waters of the United States is prohibited.

V. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations are not included in the Order. The Discharger shall implement the best management practices in accordance with Provision VII.C.

VI. RECEIVING WATER LIMITATIONS

The discharge shall not cause or contribute to any of the following:

1. Floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses;
2. Alteration of suspended sediment in such a manner as to cause nuisance, or to adversely affect beneficial uses, or to cause detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life;
3. Suspended material, including trash, in concentrations that cause nuisance or adversely affect beneficial uses;
4. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;
5. Alteration of temperature beyond present natural background levels;
6. Coloration that causes nuisance or adversely affects beneficial uses;
7. Taste or odor-producing substances in concentrations that alter the natural taste, odor, and/or color of fish, shellfish, or other edible aquatic resources; cause nuisance; or adversely affect beneficial uses;
8. Visible, floating, suspended, or deposited oil or other products of petroleum origin;
9. Toxic or other deleterious substances in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration; or
10. Violations of any water quality standard for receiving waters adopted by the Los Angeles Water Board, State Water Resources Control Board (State Water Board), or USEPA as required by the Clean Water Act and regulations adopted thereunder.

VII. PROVISIONS

This Order provides Standard Provisions and Special Provisions. Dischargers enrolled under the Order must comply with all Standard and Special Provisions. Standard Provisions applying to all NPDES permits in accordance with 40 CFR sections 122.41 and 122.42 are included in Attachment D of this Order.

A rationale for the special provisions contained in this Order is provided in Attachment F, Fact Sheet. Special Provisions provided in this Order are in sections VII. A. through VII.E. below.

A. Standard Provisions

Los Angeles Water Board Standard Provisions. The Discharger shall comply with the following provisions. If there is any conflict, duplication, or overlap between provisions specified by this Order, the provisions stated herein prevail:

1. Oil or oily materials, chemicals, refuse, or other materials that may cause pollution in storm water and/or urban runoff shall not be stored or deposited in areas where they may be picked up by rainfall/urban runoff or wind and discharged to surface waters. Any spill of such materials shall be contained, removed, and cleaned immediately.
2. This Order neither exempts the Discharger from compliance with any other laws, regulations, or ordinances that may be applicable, nor legalizes the facility or activity.
3. The Discharger shall at all times properly operate and maintain all systems installed or used to achieve compliance with this Order.
4. Any Discharger authorized under this Order may request to be excluded from the coverage of this Order by applying for an individual permit.
5. The provisions of this Order are severable. If any provision of this Order or the application of any provision of this Order is found invalid, the remainder of this Order shall not be affected.
6. A copy of this Order shall be made available to all personnel/staff (including field staff or contractors and their agents and representatives) involved with the compliance of this Order.
7. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges of residual firework pollutants, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
8. Violation of any of the provisions of this Order may subject the Discharger to any of the penalties described herein or in Attachment D of this Order, or any combination thereof, at the discretion of the prosecuting authority.

B. Best Management Practices (BMP~~s~~) Plan

The Discharger shall prepare a BMP Plan (Plan) that describes procedures to ensure that residual firework pollutants discharges will not adversely affect receiving waters. While developing the Plan, an analysis of alternatives should be conducted to determine BMPs. The Plan, along with the alternative analysis, shall be submitted as a component of the NOI

to the Los Angeles Water Board. The Discharger shall implement the BMPs in the approved Plan and it shall make the approved Plan available to all persons who request it.

The Plan shall include the following three elements to avoid and/or mitigate potential impacts to receiving water quality:

Pollution Prevention

Use alternative (e.g., biodegradable) fireworks materials and/or select an alternative debris fallout location based on readily available meteorological data to eliminate or reduce residual firework pollutant discharges to waters of the United States.

Pollutants Identification

Describe activities conducted within the firing range that have a potential to release pollutants and identify the potential pollutant sources associated with each activity.

Pollution Control

Provide measures of controlling pollutant discharges during the firework operations and cleaning up the fallout areas to minimize the potential adverse effects of pollutant discharges after the firework displays. These measures shall represent the best available technology that is economically achievable. At a minimum, the Plan shall include the following BMPs to the extent practicable and economically achievable:

1. Use alternative fireworks that replace perchlorate with other oxidizers and contain biodegradable components.

~~1.~~2. Use fireworks that do not contain plastic outer casings or have non-biodegradable inner components.

~~2.~~3. Use propellants that burn cleaner, produce less smoke, and reduce residual firework pollutant discharges to surface waters.

~~3.~~4. Select firing range locations based on readily available meteorological data and designs that reduce residual firework pollutant discharges.

~~4.~~5. Secure all pyrotechnic equipment and fireworks in a manner that minimizes the risk of such materials and objects entering receiving waters before, during, and after fireworks displays.

~~5.~~6. Inspect each firework launch area for potential safety issues on an ongoing basis.

~~6.~~7. Perform visual observations and monitoring activities to assess BMP performance.

~~7.~~8. Prior to fireworks displays, ~~deploy containment measures to collect and~~ set up a retaining wall/fence or other barrier around three of the four sides of the launch site to control the mobility of fireworks debris, particulate matter, and to avoid fuses and other debris falling into the surface water. ~~waste from within the design firing ranges for all fireworks launch areas.~~

~~8.~~9. As soon as practicable after fireworks displays, conduct BMP effectiveness evaluations.

~~9.~~10. Whenever practicable, feasible, and safe, ~~R~~remove all plastic and aluminum labels and wrappings from aerial shells and special effect pyrotechnic devices ~~prior to use and~~ before they are launched ~~or detonated~~.

~~10.~~11. Describe in the Plan how shells and special effect pyrotechnic devices will be

secured during the firework show and the plan to collect all firework related wastes following the fireworks event.

~~11.~~12. As soon as practicable, and no later than 12 hours following a public display of fireworks, collect, remove, and manage particulate matter and debris from ignited and un-ignited pyrotechnic material including aerial shells, stars (small pellets of composition that produce color pyrotechnic effects), paper, cardboard, wires and fuses found during inspection of the entire firing range, nearby shoreline and adjacent affected surface water(s) in addition to complying with title 19 of the California Code of Regulations, section 1003 (operation of fireworks display).

~~12.~~13. Other than system firing cables and common or grounding wires intended to be recovered after the display, secure electric igniter wires used to trigger the fireworks to minimize the risk that the wires fall into the water during or after the discharge.

~~13.~~14. ~~Immediately following the public display of fireworks~~ When the fireworks have been cleared from the launch area, rake or sweep the decks of each barge or floating platform that contained fireworks to gather fireworks debris and prevent it from being deposited into the water. Collect all non-hazardous solid waste resulting from the set-up, firing, and strike of the public display, including wires, boxes, and packaging, and properly disposed of the solid waste. Pick up fireworks debris on the nearby shoreline in the morning of the day immediately following the fireworks event.

~~14.~~15. Immediately following the public display of fireworks, handle and manage all hazardous fireworks waste, including duds, resulting from the set-up, firing, and strike of the public display, including live pyrotechnics waste, in accordance with applicable fireworks and hazardous waste laws and regulations.

~~15.~~16. Document the shipping manifest ~~W~~weight of the aerial shells and special effect pyrotechnic devices prior to use to determine net explosive weight. Indicate in the Plan what percentage of the total weight of fireworks-related waste will be created. Ensure that any floatable degradable and non-biodegradable components of the fireworks-related waste are collected after the event.

~~16.~~17. Setup, discharge, and take down the fireworks and fireworks equipment in accordance with the laws and regulations applying to that display by a public display operator licensed by the State of California. Obtain all required permits, licenses and approvals from the authorities having jurisdiction over the fireworks display and comply with the requirements and conditions of those permits and licenses.

~~17.~~18. Package, transport, store, set-up, and handle firework in accordance with California Code of Regulations, Title 19, Division1, Chapter 6, Fireworks and Title 22, Chapter 33, Best Management Practices for Perchlorate Materials to prevent or minimize firework pollutant wastes from entering surface waters.

C. Reopener Provisions

1. Pursuant to 40 CFR sections 122.62 and 122.63, this Order may be modified, revoked and reissued, or terminated for cause, including, but not limited to:

   a. Violation of any term or condition contained in this Order;

   b. Obtaining this Order by misrepresentation, or by failure to disclose fully all relevant facts; or

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

2. This Order may be reopened if present or future investigations demonstrate that the discharges governed by this Order have or will have, or will cease to have, a reasonable potential to cause or contribute to adverse impacts on water quality or beneficial uses of the receiving waters.

3. If more stringent applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, the Los Angeles Water Board may revise or modify this Order in accordance with such standards.

4. This Order may be reopened if translator, dilution, or other water quality studies provide a basis for determining that a permit condition should be modified.

5. This Order may be reopened and modified to the extent necessary, to be consistent with new or revised policies, new or revised state-wide plans, new laws, or new regulations.

6. This Order may be reopened if an administrative or judicial decision on a separate NPDES permit or WDRs addresses requirements similar to those applicable to these discharges.

7. This Order may be reopened upon submission by the Discharger of adequate information, as determined by the Los Angeles Water Board. The filing of a request by the Discharger for an Order modification, revocation and issuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

D. Expiration and Continuation of this Order

This Order expires on May 25, 2028. If this Order is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 40 CFR 122.6 and remain in full force and effect.

E. Reauthorization

Upon reissuance of a new order, existing dischargers enrolled under this Order shall file a Notice of Intent or a new Report of Waste Discharge within 90 days of adoption of the new Order.

F. Special Study

The Dischargers shall conduct a special study to determine the impacts of the constituents from fireworks at the fallout zone by collecting samples in “real time” during the fireworks displays. The Dischargers shall submit a work plan within 12 months from the effective date of this Order for approval from the Executive Officer of the Los Angeles Water Board. The Work Plan shall include real time sampling for all the constituents hereby specified: Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Thallium, Tin, Titanium, Vanadium, Zinc, nitrate, bis-phthalate, Total Phosphorous, and Perchlorate within the fall out zone.

VIII. COMPLIANCE DETERMINATION

This Order contains discharge prohibitions and requires the use of minimum BMPs to control and abate the discharge of pollutants from public fireworks displays to surface

waters in the Los Angeles Region. Proper implementation of BMPs will ensure the protection of water and sediment quality within the receiving waters. Dischargers enrolled under this Order are expected to comply with all water and sediment quality objectives through the implementation of BMPs. Compliance will be determined by evaluating the proper implementation of the minimum stipulated BMPs and their effectiveness in preventing and minimizing pollutant loading from public fireworks events to surface waters. Compliance will also be evaluated using information obtained under the monitoring and reporting program of this Order.

ATTACHMENT A- DEFINITIONS

Aerial Fireworks
Aerial fireworks provide their own propulsion or are shot into the air in an aerial shell by a mortar using a black powder lift charge or propellant.

Aerial Shell
Cylinder or spherical cartridge containing a burst charge and pyrotechnic or non-pyrotechnic effects, a fuse, and a black powder lift charge that is fired from a mortar (19 CCR § 980[a][1]). Aerial shells are typically designed to burst between 200 and 1,000 feet above ground level.

Alternative Fireworks
Fireworks are produced with new pyrotechnic formulas that replace perchlorate with other oxidizers and propellants that burn cleaner, produce less smoke, and reduce residual firework pollutant loading to surface waters.

Barge
Water vessel with from which fireworks are launched or ignited.

Best Management Practices (BMPs)
Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices that prevent or reduce the pollution of water of the United States.

Biodegradable
Biodegradable means capable of decomposing rapidly by microorganisms under natural conditions (aerobic and/or anerobic). Biodegradable in the context of fireworks will be interpreted to mean non-plastic and non-toxic to humans or aquatic organisms.

Break
Individual burst from an aerial shell, producing either a visible or audible effect, or both, that may consist of a single burst or multiple effects (19 CCR § 980 (b((7)).

Dud
Pyrotechnic item that leaves the mortar and returns to earth without producing the intended burst or effect (19 CCR § 980 (d)(4)).

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays do not include inland surface waters or ocean waters.

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuaries do not include inland surface waters or ocean waters.

Fallout Area
Area in which firework debris and pollutants fall after a pyrotechnic device is burst. The extent of the fallout area depends on the wind and the angle of mortar placement.

Fireworks
Device containing chemical elements and chemical compounds capable of burning independently of the oxygen in the atmosphere and producing an audible, visual, mechanical, or thermal effect that is useful as a pyrotechnic device or for entertainment. The term "fireworks" includes, but it is not limited to, devices designated by the manufacturer as fireworks, torpedoes, skyrockets, roman candles, rockets, Daygo bombs, sparklers, party poppers, paper caps, chasers, fountains, smoke sparks, aerial bombs, and fireworks kits (California Health and Safety Code § 12511).

Fireworks Display
See *Public Fireworks Display*.

Firing Range
Area over which fireworks may travel by design or accident and upon which residual firework pollutants may fall, including fireworks launch areas and adjacent shorelines, quays, docks, barges, and fireworks fallout areas.

Ground Display Piece
Pyrotechnic device that functions on the ground (as opposed to an aerial shell that functions in the air) and that includes fountains, wheels, and set pieces.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Low-level Fireworks
Low-level fireworks consist of stars or other components that produce single or multi-colored fountain effects or sparks. They are designed to burn at less than 200 feet above ground level.

Minimum Level (ML)
Concentration at which the entire analytical system gives a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Misfire
Pyrotechnic item that fails to function as designed after initiation (19 CCR § 980(m)(5)).

Mortar
Cylinder used to hold and fire public display or special effects pyrotechnic items or compositions (19 CCR § 980 (m)(8)).

Multiple Break
Aerial shell that has two or more breaks (19 CCR § 980(m)(11)).

Net Explosive Weight
Weight of all pyrotechnic compositions, explosives material, and fuse (22 CCR § 67384.3).

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent Pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pier
Structure extending from the land out over a body of water to afford convenient passage for persons, property, and vessels.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bio accumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Los Angeles Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Los Angeles Water Board.

Public Fireworks Display (also referred to as Fireworks Display)
Entertainment feature where the public or a private group is admitted or permitted to view a display or discharge of fireworks (22 CCR § 67384.3).

Pyrotechnic Operator
Licensed pyrotechnic operator, who by examination, experience, and training, has demonstrated required skill and ability in the use and discharge of fireworks as authorized by the license granted (22 CCR § 67384.3).

Pyrotechnic Compositions

Combination of chemical elements or chemical compounds capable of burning independently of the oxygen of the atmosphere (California Health and Safety Code § 12525).

Quay
Wharf for loading and unloading goods carried by ships.

Reporting Level (RL)
ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Los Angeles Water Board either from SIP Appendix 4 in accordance with SIP section 2.4.2 or established in accordance with SIP section 2.4.3. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Roman Candle
Heavy paper or cardboard tube containing pellets of pyrotechnic composition that, when ignited, are expelled into the air at several second intervals (19 CCR § 980 (r)(3)).

Safe and Sane Fireworks
Any fireworks which do not come within the definition of “dangerous fireworks” or “exempt fireworks.” (California Health and Safety Code § 12529).

Salute
Aerial shell or another pyrotechnic item whose primary effects are detonation and flash of light (19 CCR § 980 (s)(1)).

Star
Small pellet of composition that produces a pyrotechnic effect. A single aerial firework shell could contain several hundred stars (22 CCR § 67384.3).

Set Piece Fireworks
Set piece firework devices are primarily static and typically do not launch into the air. They produce effects at less than 50 feet above ground level.

Trash
All improperly discarded solid material from any production, manufacturing, or processing operation including, but not limited to, products, product packaging, or containers constructed of plastic, steel, aluminum, glass, paper, or other synthetic or natural materials.

ATTACHMENT B- NOTICE OF INTENT

This Notice of Intent form shall be completed and submitted to apply for Authorization to Discharge under NPDES Permit No. CAG994007 (Fireworks General Permit) to waters of the United States.

I. DISCHARGER INFORMATION AND CERTIFICATION

This certification shall be signed in accordance with Attachment D section V.B.2. The Discharger hereby agrees to comply with and be responsible for all conditions specified in the Fireworks General Permit.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
Signature: Date:
Printed Name:
Title:
Discharger Type (Check One) ☐ Public ☐ Private ☐ Other, specify type: New or Previously Authorized Discharger (Check One) ☐New ☐Previously Authorized Discharger Discharger Name:
Mailing Address:
Legally Responsible Person (LRP): The following individual (or any individual occupying the position listed below) may act as the Discharger's duly authorized representative and may sign and certify submittals in accordance with Attachment D section V.B.3. The individual shall be responsible for the overall operation of the regulated facility or activity or an individual position having overall responsibility for environmental matters for the Discharger.
LRP Name and Title:
LRP Email:
LRP Phone Number:

□ Check here if additional Discharger information is attached to this form.

II. BILLING INFORMATION

☐ Check this box if same as Section I (otherwise, complete this section).
Discharger Name:
Mailing Address:
Billing Contact Name and Title:
Billing Contact Email:
Billing Contact Phone Number:

III. DISCHARGE INFORMATION

Receiving Water:
Discharge Frequency: ☐Once ☐Annual ☐Other (please describe): ☐**Project location (address, latitude & longitude information)** Stating means of firework deployment (i.e., barge, and staging area necessary to determine the closest receiving waters).

☐ Check here if information for additional discharge locations is attached to this form.

IV. BEST MANAGEMENT PRACTICES PLAN

Attach a Best Management Practices Plan (Plan) as described in Provision VII.B of this Order.

V. APPLICATION FEES AND MAILING INSTRUCTIONS

Submit check payable to "State Water Resources Control Board" for appropriate application fee to this address:

Los Angeles Regional Water Quality Control Board
340 West 4th Street, Suite 200
Los Angeles, CA 90013

For current fees for general NPDES permit category 3, see Water Code section 2200(b)(9) or visit www.waterboards.ca.gov/resources/fees.

Submit this form (with signature and attachments) via email augustine.anijielo@waterboards.ca.gov or as otherwise indicated on the Los Angeles Water Board's website:
https://www.waterboards.ca.gov/losangeles/water_issues/programs/index.html

ATTACHMENT C- FIREWORKS DISPLAY REPORT FORM

The Fireworks Display Report shall be completed following each fireworks display. The Discharger may attach additional information as necessary. Fireworks Display Reports shall be made available to the Los Angeles Water Board upon request and shall be submitted with self-monitoring reports in accordance with section VIII.C of Attachment E, MRP.

I. GENERAL EVENT INFORMATION

Discharger Name: Event Name:
Event Contact Person Name: Phone Number: Email:
Event Location Address: GPS Coordinates:
Receiving Water Name:
Event Date: Event Start and End Time:

II. FIRING RANGE MAP

Attach an aerial or satellite map identifying the firing range, fireworks fallout area, affected receiving waters, and adjacent coastlines, barges, docks, piers, quays, and any other relevant features or landmarks.

III. PYROTECHNIC OPERATORS

Name	License Number	Date Issued	Expiration Date

IV. FIREWORKS INFORMATION

Aerial Fireworks			Low Level Fireworks		Set Piece Fireworks	
Shell Size	**No. Single Breaks**	**No. Multiple Breaks**	**Type**	**No.**	**Type**	**No.**
25 mm			Mines		Sets	
80 mm			Romans		Devices	
2”			Comets			
3”			Cakes			
4”						
5”						
6”						
8”						
9”						
10”						
11”						
12”						

Net Explosive Weight: pounds (lbs)	

	Were alternative fireworks used? If so, describe:
	Were the entire firing range (including the fireworks launching area and adjacent coastline, quays, docks, and fireworks fallout area), barges (if used), and adjacent surface waters inspected and cleaned of particulate matter and debris from ignited and un-ignited pyrotechnic material within 24 hours following the display? ☐ Yes Date: _____ Time: _____ ☐ No If no, explain:
	Total amount of debris collected from receiving water: _____lbs wet weight _____lbs dry weight (if known)
	Total amount of debris collected: _____lbs wet weight

V. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
Signature:	Date:
Printed Name:	
Title:	
Discharger Name:	
Address:	
Email:	Phone No.:

ATTACHMENT D- STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the CWA and the CWC and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application (40 CFR section 122.41(a)).

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order (40 CFR section 122.41(c)).

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment (40 CFR section 122.41(d)).

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order (40 CFR section 122.41(e)).

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges (40 CFR section 122.41(g)).
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations (40 CFR section 122.5(c)).

F. Inspection and Entry

The Discharger shall allow the Los Angeles Water Board, State Water Resources Control Board (State Water Board), EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. section 1318(a)(4)(B); 40 CFR section 122.41(i); CWC sections 13267 and 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C. section 1318(a)(4)(B)(i); 40 CFR section 122.41(i)(1); CWC sections 13267 and 13383);
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. section 1318(a)(4)(B)(ii); 40 CFR section 122.41(i)(2); CWC sections 13267 and 13383);

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. section 1318(a)(4)(B)(ii); 40 CFR section 122.41(i)(3); CWC sections 13267 and 13383);
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location (33 U.S.C. section 1318(a)(4)(B)(ii); 40 CFR section 122.41(i)(4); CWC sections 13267 and 13383).
5. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof (40 CFR section 122.41(n)(4)).

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition (40 CFR section 122.41(f)).

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit (40 CFR section 122.41(b)).

C. Transfers

This Order is not transferable to any person except after notice to the Los Angeles Water Board. The Los Angeles Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC (40 CFR sections 122.41(l)(3) and 122.61).

III. STANDARD PROVISIONS – MONITORING (NOT APPLICABLE)

IV. STANDARD PROVISIONS – RECORDS

A. The Discharger shall retain records of all monitoring information, including copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Los Angeles Water Board Executive Officer at any time (40 CFR section 122.41(j)(2)).

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR section 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 CFR section 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 CFR section 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 CFR section 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 CFR section 122.41(j)(3)(v)); and

6. The results of such analyses (40 CFR section 122.41(j)(3)(vi)).

C. Claims of confidentiality for the following information will be denied (40 CFR section 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR section 122.7(b)(1)); and

2. Permit applications and attachments, permits and monitoring data (40 CFR section 122.7(b)(2)).

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Los Angeles Water Board, State Water Board, or EPA within a reasonable time, any information which the Los Angeles Water Board, State Water Board, or EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Los Angeles Water Board, State Water Board, or EPA copies of records required to be kept by this Order (40 CFR section 122.41(h); CWC sections 13267 and 13383).

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Los Angeles Water Board, State Water Board, and/or EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below (40 CFR section 122.41(k)).

2. All permit applications shall be signed as follows:

a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR section 122.22(a)(1));

b. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively [(40 CFR section 122.22(a)(2)); or

c. For a municipality, State, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA) (40

CFR section 122.22(a)(3)).

3. All reports required by this Order and other information requested by the Los Angeles Water Board, State Water Board, or EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR section 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position) (40 CFR section 122.22(b)(2)); and

   c. The written authorization is submitted to the Los Angeles Water Board, State Water Board, or EPA (40 CFR section 122.22(b)(3)).

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Los Angeles Water Board, State Water Board or EPA prior to or together with any reports, information, or applications, to be signed by an authorized representative (40 CFR section 122.22(c)).

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   a. "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations" (40 CFR section 122.22(d)).

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order (40 CFR section 122.41(*l*)(4)).

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Los Angeles Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices (40 CFR section 122.41(*l*)(4)(i)).

D. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be

provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance (40 CFR section 122.41(*l*)(6)(i)).

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR section 122.41(*l*)(6)(ii)):

   Any emergency that occurred which results in fireworks-related trash not being able to be collected following an event.

E. Planned Changes

The Discharger shall give notice to the Los Angeles Water Board as soon as possible of any alterations to the permitted activity (40 CFR section 122.41(*l*)(1)). Notice is required under this provision when:

1. The changes meet one of the criteria for determining whether a facility is a new source in 40 CFR section 122.29(b) (40 CFR section 122.41(*l*)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order, nor to notification requirements under 40 CFR section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1) (40 CFR section 122.41(*l*)(1)(ii)).
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan (40 CFR section 122.41(*l*)(1)(iii)).

F. Anticipated Noncompliance

The Discharger shall give advance notice to the Los Angeles Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with the requirements of this Order (40 CFR section 122.41(*l*)(2)).

G. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.E.3, V.E.4, and V.E.5 above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above (40 CFR section 122.41(*l*)(7)).

H. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Los Angeles Water Board, State Water Board, or EPA, the Discharger shall promptly submit such facts or information (40 CFR section 122.41(*l*)(8)).

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Los Angeles Water Board and State Water Board is authorized to enforce the terms of this Order under several provisions of the CWC, including, but not limited to, sections 13268, 13385, 13386, and 13387.

1. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the CWA, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the CWA, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the CWA, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the CWA, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions (40 CFR section 122.41(a)(2); CWC sections 13385 and 13387).

2. Any person may be assessed an administrative penalty by the Los Angeles Water Board for violating section 301, 302, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000 (40 CFR section 122.41(a)(3)).

3. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment

of not more than 4 years, or both (40 CFR section 122.41(j)(5)).

4. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both (40 CFR section 122.41(k)(2)).

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Los Angeles Water Board as soon as they know or have reason to believe (40 CFR section 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR section 122.42(a)(1)):

   a. 100 micrograms per liter (µg/L) (40 CFR section 122.42(a)(1)(i));

   b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4 dinitrophenol and 2 methyl 4,6 dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(1)(ii));

   c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(1)(iii)); or

   d. The level established by the Los Angeles Water Board in accordance with 40 CFR section 122.44(f) (40 CFR section 122.42(a)(1)(iv)).

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" (40 CFR section 122.42(a)(2)):

   a. 500 micrograms per liter (µg/L) (40 CFR section 122.42(a)(2)(i));

   b. 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(2)(ii));

   c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(2)(iii)); or

   d. The level established by the Los Angeles Water Board in accordance with 40 CFR section 122.44(f) (40 CFR section 122.42(a)(2)(iv)).

ATTACHMENT E - MONITORING AND REPORTING PROGRAM (MRP)

40 CFR section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Section 13383 of the CWC also authorizes the Los Angeles Water Board to establish monitoring, reporting, and recordkeeping requirements. This MRP establishes monitoring and reporting requirements which implement the federal and California laws and/or regulations.

I. GENERAL MONITORING PROVISIONS

A. Visual and video monitoring locations shall be established where accurate visual and pictural information can be obtained during and after the fireworks display.

B. The Discharger shall monitor the implementation of best management practices in accordance with Provision VII.B of R4-2023-XXXX

C. Each monitoring report shall state whether there was any change in the discharge as described in the Order during the reporting period.

D. In the event wastes generated from the fireworks display are transported to a different disposal site during the report period, the following shall be reported in the monitoring report:

1. Types of wastes and quantity of each type;
2. Name and address for each hauler of wastes (or method of transport if other than by hauling); and
3. Location of the final point(s) of disposal for each type of waste.

If no wastes are transported off-site during the reporting period, a statement to that effect shall be submitted.

II. MONITORING LOCATION

The Discharger shall establish monitoring locations for each fireworks display event that covers the firing range and adjacent affected surface waters to access implementation and compliance with the BMPs.

III. EFFLUENT MONITORING REQUIREMENTS – N/A

IV. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS – N/A

V. LAND DISCHARGE REQUIREMENTS – N/A

VI. RECLAMATION MONITORING REQUIREMENTS – N/A

VII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Visual Monitoring:

The Discharger shall conduct visual monitoring within one hour following the end of the fireworks event, if feasible and practical. Visual monitoring must be conducted latest in the morning of the day immediately following the fireworks event. Visual monitoring shall occur within and adjacent to the firing range, and at the area most likely to accumulate

fireworks debris based on the prevailing wind, current, and tides. Visual monitoring of the surface water conditions, such as wind (direction and speed), weather (cloudy, sunny, or rainy), direction of current, tidal conditions (high or low), discoloration, oil and grease, turbidity, odor, and floatable or suspended fireworks debris, if any, at the designated receiving water shall be recorded. The results of visual monitoring shall be submitted with the Display of Fireworks Post-Event Report Form in accordance with the schedule in section VIII.C of this MRP.

B. Visual Monitoring applicable for fireworks display from Barges or vessels on Surface Waters.

C. Discharger or its pyrotechnics company shall:

1. Collect video footage of the event, with filming taking place on the barge to capture the extent of debris and potential fallout zone in the immediate vicinity of the barge.
2. Monitor any discharge of fireworks into the water, (i.e., the base-level explosive material discharges), not the display itself;
3. Use more than one video to capture any discharge in the water adjacent to the barge and the potential discharge from the barge itself.
4. Take photos of the barge before and after the show to capture debris fallout.
5. Take photos of the debris collected from the barge cleanup/sweeping efforts.
6. Dive Team/Equivalent Monitoring Device. Take photographs of the bay floor prior to the fireworks display events and as soon thereafter as possible to capture visual evidence of suspended debris and/or debris deposition within the fallout zone.

D. Special Study

In recent years, the Los Angeles Water Board has issued multiple Investigative Orders, pursuant to California Water Code section 13267, to fireworks organizers in Long Beach Harbor and Alamitos Bay to conduct water quality monitoring before fireworks displays to determine baseline and post-display conditions to determine any water quality impacts caused by the fireworks activities. Although water quality data were collected in response to these investigative orders, the data only provided a partial picture of the impacts from the fireworks activities because the sampling was conducted 12 hours after the displays occurred, allowing time for pollutants to move out of the fallout zone and beyond sampling locations. Therefore, a more immediate and comprehensive understanding of the fate, transport, and impacts of residual pollutants from fireworks is necessary.

Thus, the Dischargers shall conduct a special study to determine the impacts of the constituents from fireworks in the fallout zone by collecting samples in “real time” during the fireworks displays. The Dischargers shall submit a work plan within 12 months from the effective date of this Order for approval by the Executive Officer of the Los Angeles Water Board. The Work Plan shall include real time sampling for all the constituents hereby specified: Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Thallium, Tin, Titanium, Vanadium, Zinc, nitrate, bis-phthalate, Total Phosphorous, and Perchlorate within the fall out zone.

Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP (and included as Appendix A of this Order), or where no methods are specified for a given pollutant, pollutants shall be analyzed by methods approved by the Los Angeles Water Board or the State Water Board. Monitoring results and the report shall be submitted to the Los Angles Water Board within 90 days of the completion of the monitoring.

VIII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) of Order R4-2023-XXXX related to monitoring, reporting, and recordkeeping.
2. Each monitoring report shall contain a separate section titled “Summary of Non-Compliance” which discusses the compliance record and corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. This section shall clearly list all non-compliance with waste discharge requirements.
3. The Discharger shall inform the Los Angeles Water Board well in advance of any proposed activity that could potentially affect compliance with applicable requirements.

B. Fireworks Display Reports

The Discharger shall complete and maintain a Fireworks Display Report (see Attachment C) for each fireworks display. Fireworks Display Reports shall be submitted to the Los Angeles Water Board with the self-monitoring reports required by Section VIII.C. of this MRP within 60 days of conducting of the firework display event.

C. Self-Monitoring Reports

1. The Discharger shall submit SMRs 60 days after each fireworks event. The Discharger shall submit SMRs via email to losangeles@waterboard.ca.gov . If there has been no discharge (i.e., no public fireworks display) during the previous calendar year (January 1 through December 31), the Discharger shall submit SMRs annually by February 15 stating that there was no discharge. SMRs shall include the following:

a. A cover letter with summary of non-compliance;

b. The Fireworks Display Report (Attachment C);

c. The list of fireworks displays and location(s),;

d. Discussion of performance and compliance of the fireworks operations in the reporting period, including any corrective actions taken or planned, such as changes to equipment or operations needed to achieve compliance and any other actions taken or planned that are intended to improve the performance and reliability of the Discharger’s practices;

e. Identification of any violations of this Order or a statement that there were no violations

in the reporting period, and detailed description of the causes of the violations and proposed time schedule for corrective actions taken or planned to resolve the violations and prevent recurrence (if previous reports address the corrective actions, then reference the earlier reports);

f. Visual and video monitoring report;

g. Evaluation of BMP performance; and

h. Signature in accordance with the standard provision on signature requirements in Attachment D of the Order.

2. If SMRs and documents are 10 MB or larger, the documents should be transferred to a disk and mailed to the address listed below.

LARWQCB – Los Angeles Region

320 West 4th Street, Suite 200
Los Angeles, CA 90013
Attn: General Permitting Unit

3. At any time during the term of this General Permit, the State or Los Angeles Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall email electronic copy of SMRs to losangeles@waterboards.ca.gov. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

D. Discharge Monitoring Reports (DMRs) (not applicable)

E. Other Reports ~~(not applicable)~~

1. Special Study Report: Real time samples shall be collected within the firework fallout area and the special study report shall include results of chemical analysis, meteorological conditions on the date of monitoring, sampling methods and sampling devices, analytical methods, and other relevant information pertaining to the monitoring activities. The special study report shall be submitted to the Los Angles Water Board within 90 days of the completion of the special study.

F. Notifications:

At least 14 calendar days prior to each fireworks display; the Discharger shall notify the Los Angeles Water Board, via email to losangeles@waterboards.ca.gov, of its intent to conduct public fireworks display, providing date and location of the event.

ATTACHMENT F - FACT SHEET

TABLES

ATTACHMENT F – FACT SHEET

The California Regional Water Quality Control Board, Los Angeles (Los Angeles Water Board) incorporates this Fact Sheet as findings of the Los Angeles Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in the State of California (State). Only those sections of this Order that are specifically identified as "not applicable" have been determined not to apply to Dischargers under this Order. Sections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The State Water Resources Control Board (State Water Board) has been authorized by the EPA, pursuant to Section 402 of the Clean Water Act (CWA), to administer the National Pollutant Discharge Elimination System (NPDES) program in California since 1973. The procedures for the State Water Board and the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board) to issue NPDES permits, pursuant to NPDES regulations at 40 Code of Federal Regulations (CFR) Sections 122 and 1231, were established through the NPDES Memorandum of Agreement between the EPA and the State Water Board on September 22, 1989.

Section 122.28(a)(2)(ii) provides for issuance of general NPDES permits to regulate a category of point sources, other than storm water point sources, if the sources within the category: (a) involve the same or substantially similar types of operations; (b) discharge the same types of waste; (c) require the same effluent limitations or operating conditions; (d) require the same or similar monitoring; and (e) in the opinion of the permitting authority, are more appropriately controlled under a general NPDES permit rather than individual NPDES permits. General NPDES permits enable the Los Angeles Water Board to expedite the processing of requirements, simplify the application process for Dischargers, better utilize limited staff resources, and avoid the expense and time involved in repetitive public noticing, hearings, and permit adoptions.

When fireworks are detonated and combusted, firework combustion residue is produced in the form of smoke, airborne particulates, chemical pollutants, and debris including plastic, paper, cardboard, wires, and fuses. This combustion residue can fall into surface waters. Un-ignited pyrotechnic materials including duds and misfires can also fall into surface waters. Evidence gathered by the San Francisco and San Diego Water Boards as well as information submitted to the Los Angeles Water Board establishes that fireworks-related trash is discharged in connection with public fireworks displays.

Chemicals released from the firework combustion residues and un-ignited pyrotechnic materials include, but are not limited to, aluminum, antimony, barium, carbon, calcium, chlorine, cesium, copper, iron, potassium, lithium, magnesium, nitrates, perchlorates, phosphorus, sodium sulfur, strontium, titanium, and zinc. The fireworks residue fallout area on receiving water can vary depending on wind speed and direction, shell sizes (in general, the fallout area is 70 feet per inch of shell diameter), the angle of mortar placement, the type and height of firework explosions and other environmental factors. Once the firework residue enters a water body, it can be transported to waters and coastline outside the

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

fallout area due to the horizontal water movements due to wind shear and tidal effects. However, several years of monitoring reports submitted to the Los Angeles Water Board in compliance with 13267 letters issued for fireworks displays in Long Beach Harbor and Alamitos Bay showed no evidence of sediment or water quality impairment to receiving waters from fireworks shows conducted during New Years Day and 4th of July celebrations.

Section 301(a) of CWA broadly prohibits the discharge of any pollutant to waters of the United States, except in compliance with an NPDES permit. Fireworks residue waste discharged into surface waters constitutes discharge of a pollutant. Therefore, coverage under an NPDES permit is required before residual firework pollutant discharges associated with the public display of fireworks can be lawfully discharged.

Effluent limitations and permit conditions are the two major mechanisms in NPDES permits to regulate discharge of pollutants from point-sources. Effluent limitation, as defined in Section 502(11) of CWA, refers to any restriction established by NPDES authorities in an NPDES permit on quantities, rates, and concentrations of chemical, physical, biological, and other pollutants. The restrictions are commonly effluent limits expressed in numerical values. In some cases, nonnumeric or narrative effluent limitations rather than, or in addition to, numeric limitations are applied in NPDES permits. This Order prohibits discharge of plastic trash associated with firework displays into surface waters, and requires implementation of best management practices (BMPs) in lieu of traditional effluent limitations, to ensure the discharges of residual firework pollutants do not cause pollution or nuisance conditions in surface waters within the Los Angeles Region.

II. DISCHARGE DESCRIPTION

This Order covers residual firework pollutant discharges to waters of the United States associated with public fireworks displays. Dischargers enrolled under this Order conduct public fireworks displays for community celebrations, such as for Fourth of July and New Year's Eve, and entertainment associated with sporting, business, and school events.
Discharge Information

This Order regulates discharges of the residual pollutants from public firework displays (residual firework pollutants) to surface waters within the jurisdiction of the Los Angeles Water Board. Public displays of fireworks are conducted throughout the year at various locations within the Los Angeles Region as part of national and community celebrations and other special events. Additionally, firework displays and pyrotechnics special effects are periodically used in other venues such as business grand openings, special events, school events, sport events, and local fairs. The most significant and widespread use of fireworks displays in the Los Angeles Region are for annual Fourth of July and New Year's Eve events. Firework display sites on or adjacent to urban coastlines, and on surface waterbodies such as lakes are often the preferred setting to provide public access and avoid fire hazards associated with terrestrial display sites.

Fireworks are a class of low explosive pyrotechnic devices used to produce four primary effects: noise, light, smoke, and floating materials (e.g., confetti), for aesthetic or entertainment purposes. Fireworks may be designed to burn with colored flames and sparks including red, orange, yellow, green, blue, purple, and silver.

1. Firework Types

Fireworks can be detonated at ground (set piece or lance work fireworks) or up to over 1,000 feet in the air (aerial fireworks), which decisively determines the sizes of the

residual fallout area. According to their design detonation height, fireworks are grouped into three general categories in this Order:

a. Aerial Fireworks

Aerial fireworks are typically shot into the air by a mortar using a black powder lift charge or propellant. The aerial shell typically consists of a cylinder or spherical cartridge, usually constructed of paper, plastic, or cardboard, and may include some plastic or paper internal components within the shell. The shell casing contains a burst charge, pyrotechnic material that emits prescribed colors and effects when burst, a fuse, and a black powder lift charge. Aerial shells are often combined in fireworks display to create a variety of shapes and colors upon detonation.

The lift charge and shell are placed at the bottom of a mortar partially buried in earth and or placed within a rack. Shells can be launched one at a time or in a barrage of simultaneous launches or launches in quick succession. Shells are typically designed to perform between 200 and 1,000 feet above ground level. Most of the incendiary elements and shell casings burn up in the atmosphere; however, portions of the casings and some internal structural components and chemical residue fall back to the ground or receiving waters.

b. Low-level Fireworks

Low-level fireworks devices consist of pyrotechnic pellets packed linearly within a tube. When the device is ignited, the pellets exit the tube in succession producing a fountain effect of single or multi-colored lights as the pellets burn through the course of their flight. Typically, the pellets burn rather than explode, thus producing a ball or trail of sparkling light to a prescribed altitude, then extinguish. Sometimes they may terminate with a small explosion similar to a firecracker. Other low-level fireworks devices emit a projected hail of colored sparks or perform erratic low-level flight while emitting a high-pitched whistle. Some emit a pulsing light pattern or crackling or popping sound effects. Generally, low-level launch devices and encasements remain on the ground or attached to a fixed structure and can be removed upon completion of the display. They are generally designed to produce effects between 0 and 200 feet above ground level.

c. Set Piece Fireworks

Set piece fireworks are primarily static and remain close to the ground. They are usually attached to a frame that may be crafted in the design of a logo or familiar shape, and illuminated by pyrotechnic devices, such as flares, sparklers, or strobes. Set pieces are typically used in concert with low-level effects or an aerial show, and sometimes act as a centerpiece for the display. Set pieces may have moving parts, but typically do not launch devices into the air. Set piece displays are typically designed to produce effects between 0 and 50 feet above ground level.

2. Firework Chemical Constituents

A partial list of chemical elements used in fireworks for fuels, oxidizers, binding agents, coloration effects and sound effects are provided in the following table. Although monitoring to date in the Los Angeles region has shown no impacts to water quality, public displays of fireworks over or adjacent to surface waters may result in the discharge of residual firework pollutants containing these chemical elements to surface waters at levels that could cause or contribute to cause to an exceedance of a water quality standard in the receiving water.

Table F-1. Firework Chemical Constituents and Functions

Constituent	Function
Aluminum (Al)	Creates silver and white flames and sparks.
Antimony (Sb)	Creates glitter effects.
Barium (Ba)	Creates green colors and stabilizes other volatile elements.
Carbon (C)	Provides fuel as a main component of black powder.
Calcium (Ca)	Enhances fireworks colors; calcium salts produce orange fireworks.
Chlorine (Cl)	Enhances volatility and light emission of color-producing metals.
Cesium (Cs)	Creates indigo colors.
Copper (Cu)	Creates blue colors.
Iron (Fe)	Creates sparks that vary in color according to the heat of the metal.
Lithium (Li)	Creates red colors; lithium carbonate is a common colorant.
Magnesium (Mg)	Creates white sparks or improves firework brilliance.
Phosphorus (P)	Creates glow-in-the-dark effects and burns spontaneously in air; found in some firework fuels.
Strontium (Sr)	Creates red colors and stabilizes fireworks mixtures.
Sulfur (S)	Provides fuel as a main component of black powder.
Titanium (Ti)	Creates silver sparks.
Zinc (Zn)	Creates smoke effects.

Various factors can affect the levels of firework chemical residues in surface waters adjacent to fireworks displays, such as the frequency of firework events, the overall number of ignited fireworks per event, efficiency of perchlorate oxidation which controls the mass of perchlorate introduced to the environment, wind direction, velocity which controls the dispersion and fall-out of firework particles, and number of duds or misfires. All of these factors associated with the detonation of fireworks have a potential to adversely affect or contribute to degradation of water and sediment quality within the receiving water.

3. Discharge Points and Receiving Waters

Under the General Permit, there may be multiple discharge points. Information regarding the discharge points and applicable receiving waters can be found in the completed NOI and will be included in the Notice of Applicability (NOA).

The following table summarizes administrative information related to the facility of dischargers covered under the Order.

Table F-2. Facility Information

Discharger	Any person discharging pollutants associated with the public display of fireworks to surface waters in the Los Angeles Region.
Major or Minor Facility	Minor
Threat to Water Quality	3
Complexity	C
Watershed	Watersheds within Los Angeles Water Board's Jurisdiction.
Receiving Water	Surface waters in Los Angeles and Ventura Counties
Receiving Water Type	Ocean waters, enclosed bays, estuaries, and inland surface waters

4. Fees

Section 2200 (Annual Fee Schedules) of Title 23 of the California Code of Regulations (CCR) requires that all discharges subject to waste discharge requirements shall pay an application fee and subsequent annual fees (if applicable). Section 2200 of the CCR provides Annual Fee Schedules based on threat to water quality and complexity of the discharge.

Residual firework pollutant discharges are classified as Category 3 pursuant to the fee schedule. This category is appropriate because this Order incorporates BMPs to control potential impacts to beneficial uses, requires no treatment systems to meet the Order's terms and conditions, and prohibits residual firework pollutants from causing excursions of water quality objectives. Residual firework pollutants discharges pose no significant threat to water quality.

The annual fee associated with this category can be found on the Water Quality Fees webpage under NPDES Permit Fees (https://www.waterboards.ca.gov/resources/fees/water_quality/#npdes).

III. APPLICABLE PLANS, POLICIES AND REGULATIONS

The requirements contained in the Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the CWA and implementing regulations adopted by the EPA and Chapter 5.5, Division 7 of the California Water Code (CWC) (commencing with section 13370). It shall serve as a NPDES permit for point source discharges of residual firework pollutants from public fireworks displays to surface waters under the jurisdiction of the Los Angeles Water Board. This Order also serves as WDRs pursuant to Article 4, Chapter 4 of the CWC (commencing with section 13260; see in particular section 13263, subd. (i) [general permits]).

States may request authority to issue general NPDES permits pursuant to 40 CFR section 122.28. The State Water Board has been authorized by the EPA to administer the NPDES program in California since 1973. The procedures for the State Water Board and

the Los Angeles Water Board to issue NPDES permits pursuant to 40 CFR Parts 122 and 123 were established through the NPDES Memorandum of Agreement between the EPA and the State Water Board on September 22, 1989.

B. California Environmental Quality Act (CEQA)

Under CWC section 13389, this action to adopt an NPDES permit is exempt from CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code See also *County of Los Angeles v. State Water Resources Control Board (SWRCB)* (2006) 143 Cal.App.4th 985, 1007. Fireworks shows are also existing discharges.

C. State and Federal Regulations, Policies, and Plans

1. Water Quality Control Plans.

The Los Angeles Water Board's *Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan states that the beneficial uses of any specifically identified water body generally apply to its tributary streams.

2. California Ocean Plan

The State Water Board adopted the Water Quality Control Plan for Ocean Waters of California (California Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, 2012, 2015, and 2018. The State Water Board adopted the latest amendment on August 7, 2018, the USEPA approved the amendments on March 22, 2019, and it became effective on March 22, 2019. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean.

3. California Thermal Plan.

The State Water Board adopted the Water Quality Control Plan for Control of Temperature in the Costal and Interstate Water and Enclosed Bays and Estuaries of California (Thermal Plan) on January 7, 1971, and amended this plan on September 18, 1975.

4. Sediment Quality

The State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* on September 16, 2008, and it became effective on August 25, 2009. This plan contains a narrative water quality objective: "Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California." This objective is to be implemented by integrating three lines of evidence: sediment toxicity, benthic community condition, and sediment chemistry. The plan requires that if the Regional Water Board determines that a discharge has reasonable potential to cause or contribute to an exceedance of this objective, it is to impose the objective as a receiving water limit.

According to the sediment monitoring that SeaWorld conducted in San Diego's Mission Bay from September 2012 through September 2018, fireworks discharges are unlikely to cause or contribute to exceedances of the sediment quality objectives (Annual Fireworks Monitoring Report, SeaWorld, 2019). The potential impacts of fireworks displays in the Los Angeles Region are expected to be significantly less than those in Mission Bay due

to infrequency (once per year) and greater geographic distribution of the fireworks events. This is further supported by several years of monitoring reports submitted to the Los Angeles Water Board in compliance with 13267 letters issued for fireworks displays in Long Beach Harbor and Alamitos Bay. The reports showed no evidence of sediment or water quality impairment from fireworks shows conducted during New Year and 4th of July of each year. Therefore, this Order does not implement sediment quality objectives and does not establish sediment monitoring for discharges governed by this Order.

5. National Toxics Rule (NTR) and California Toxics Rule (CTR).

   EPA promulgated the NTR on December 22, 1992, and later revised it on May 4, 1995, and November 9, 1999. About forty water quality criteria in the NTR applied in California. On May 18, 2000, EPA promulgated the CTR (40 CFR section 131.38). The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was revised on February 13, 2001. These rules contain water quality criteria for priority pollutants.

6. State Implementation Policy.

   On March 2, 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the EPA through the NTR and to the priority pollutant objectives established by the Los Angeles Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the EPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control.

7. Antidegradation Policy.

   40 CFR section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified, based on specific findings. The Los Angeles Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in more detail later in this Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR section 131.12 and State Water Board Resolution No. 68-16.

8. Anti-Backsliding Requirements.

   Sections 402(o) and 303(d)(4) of the CWA and section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

9. Endangered Species Act.

   This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the

future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with requirements intended to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the Endangered Species Acts.

10. Trash Amendments.

The State Water Board adopted the "Amendment to the Ocean Plan and Part I Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California" (Trash Amendments) through Resolution No. 2015-0019, which was approved by the Office of Administrative Law (OAL) on December 2, 2015, and became effective upon U.S. EPA approval on January 12, 2016. The Trash Amendments established a narrative water quality objective and a prohibition on the discharge of trash, to be implemented through permits issued pursuant to CWA section 402(p), waste discharge requirements, or waivers of waste discharge requirements.

The Trash Amendments apply to all surface waters of the State, with the exception of those waters within the jurisdiction of the Los Angeles Water Board where trash or debris Total Maximum Daily Loads (TMDLs) were in effect prior to the effective date of the Trash Provisions. The Trash Amendments identify plastic trash, in particular, as a priority, and targeted reductions in marine debris, due to the facts that plastics do not readily biodegrade, constitute the larger percentage of floating trash, and can serve as a transport medium for pollutants and sorb persistent organic pollutants in the marine environment. Ingestion of plastics by birds and marine mammals has been identified as "detrimental," posing a "significant threat," and causing fatalities. The Trash Amendments also acknowledge the threat of micro-plastics, which occur as the result of breakdown of plastic trash in the environment. The Trash Amendments authorize NPDES permitting authorities, such as the Los Angeles Water Board, to require dischargers to implement any appropriate trash controls in areas or facilities that may generate trash. This Order incorporates the requirements of the Trash Amendments through discharge prohibitions and requirements to develop and implement BMPs to prevent the discharge of trash, in particular plastic trash, to surface waters.

11. Environmental Justice and Advancing Racial Equity.

When issuing or reissuing regional or statewide waste discharge requirements or waivers of waste discharge requirements, the state board or a regional board shall make a concise, programmatic finding on potential environmental justice, tribal impact, and racial equity considerations related to the issuance. The finding shall be based on readily available information identified by staff or raised during the public review process and include the information specified in paragraphs (1) and (2) of subdivision (b). (Water Code § 13149.2, effective Jan. 1, 2023). Water Code section 189.7 requires the Los Angeles Water Board to conduct outreach in affected disadvantaged and/or tribal communities. The Los Angeles Water Board is also committed to developing and implementing policies and programs to advance racial equity and environmental justice so that race can no longer be used to predict life outcomes, and outcomes for all groups are improved.

This General Order regulates residual firework pollutant discharges associated with the public display of fireworks to surface waters -- mostly harbors, bays, and ocean fronts -- where previously no specific regulations from the Los Angeles Water Board were

implemented. The General Order aims to provide level guidance, regulation and accountability to fireworks shows conducted over receiving waters throughout the region. Based on historical public fireworks display locations, the areas around the fireworks displays in Los Angeles County don't have disadvantaged communities as defined in Water Code section 189.7(d)(1), but there are multiple tribal communities. The area around the one known historical fireworks display in Ventura County has a disadvantaged community and tribal communities. The areas around fireworks displays in Los Angeles County have Cal EnviroScreen scores ranging from 5-38, which indicate that the surrounding communities are not disproportionately impacted by pollution burden. A Cal EnviroScreen score of 81 is reported for the Ventura county location, which indicates the surrounding community may be disproportionally burdened by pollution.

The Los Angeles Water Board has therefore conducted outreach consistent with Water Code section 189.7 by reaching out to surrounding communities and tribal communities about this Order. Additionally, the Board considered any environmental justice concerns within the Board's authority and raised by interested persons with regard to those impacts. In accordance with the Water Boards' efforts to advance racial equity, the Order requires the Permittee to meet water quality standards to protect public health and the environment, thereby benefitting all persons and communities within the Region. Therefore, the Los Angeles Water Board anticipates that the issuance of this Order will not result in water quality impacts to disadvantaged or tribal communities or raise environmental justice concerns.

D. Impaired Water Bodies on CWA Section 303(d) List

The State Water Board prepared the California 2020 and 2022 Integrated Report based on a compilation of the Los Angeles Water Boards' Integrated Reports. These Integrated Reports contain both the Clean Water Act (CWA) section 305(b) water quality assessment and section 303(d) list of impaired waters. In developing the Integrated Reports, the Water Boards solicit data, information, and comments from the public and other interested persons. On January 19, 2022, the State Water Board approved the CWA Section 303(d) List portion of the State's 2020 and 2022 Integrated Report (State Water Board Resolution No. 2022-0006). On May 11, 2022, the EPA approved California's 2020 and 2022 list of water quality limited segments requiring a TMDL under CWA section 303(d) for the Los Angeles Region as well as the rest of California. The CWA section 303(d) list can be found at the following link: https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html The Los Angeles Water Board has adopted trash TMDLs for fifteen watersheds and water bodies: Los Angeles River Watershed, Ballona Creek, Malibu Creek Watershed, Santa Monica Bay Nearshore and Offshore, San Gabriel River East Fork, Revolon Slough and Beardsley Wash, Ventura River Estuary, Machado Lake, Lake Elizabeth, Lake Hughes, Munz Lake, Peck Road Park Lake, Echo Park Lake, Lincoln Park Lake and Legg Lake. The discharges regulated through this Order are not expected to contribute to any water quality impairment because the requirements of Provision VII.B of this Order will sufficiently control potential pollutant discharges.

E. Related Fireworks Regulatory Agencies

1. Office of the California State Fire Marshal.

California's Fireworks Law, passed in 1938, established the Office of the State Fire Marshal (SFM) as the fireworks classification authority in California.

Fireworks are classified through laboratory analysis, field examinations and test firing of items. As part of the program, SFM requires the licensing of all pyrotechnic operators, fireworks manufacturers, importer-exporters, wholesalers, retailers, and public display companies. Pyrotechnic operators, who discharge fireworks at public displays or launch high powered and experimental rockets, must also pass a written examination and provide proof of experience. The State's Explosives Law authorizes the California State Fire Marshal to adopt regulations for the safe use, handling, storage and transportation of fireworks in California. The laws and regulations governing the transportation, use and storage of fireworks in California are contained in:

a. State Fireworks Law, California Health and Safety Code, Section 12500 – 12728;

b. State Fireworks Regulations, Title 19, California Code of Regulations (CCR), Chapter 6;

c. Storage, Title 27, Code of Federal Regulations (CFR) part 55, Sub-part K; and

d. Hazardous Materials Transportation, Title 13, CCR.

2. California State Department of Toxic Substances Control.

In light of the risks to public health and the environment posed by perchlorate releases, the California Legislature adopted the Perchlorate Contamination Prevention Act of 2003, amending Chapter 6.5 of Division 20 of, the Health and Safety Code and requiring the California Department of Toxic Substances Control (DTSC) to adopt regulations specifying BMPs for perchlorate and perchlorate-containing substances. The perchlorate BMP regulations were adopted on December 31, 2005 and are contained in CCR, Title 22. Social Security Division 4.5. Environmental Health Standards for the Management of Hazardous Waste Chapter 33. Best Management Practices for Perchlorate Materials Article 1, § 67384.1 - § 67384.11. These regulations provide at § 67384.8 (c), Special Best Management Practices for Flares and Pyrotechnic Perchlorate Materials, that:

"Within twenty-four (24) hours of a public display of fireworks or the use of dangerous fireworks, the pyrotechnics operator, in addition to complying with title 19 of the California Code of Regulations, section 1003, shall, to the extent practical, collect any stars and un-ignited pyrotechnic material found during the required inspection of the entire firing range."

3. United States Coast Guard.

The United States Coast Guard (USCG), pursuant to 33 CFR 100, implements a Marine Safety Program designed to ensure the safety of vessels and recreational boaters on navigable United States waters during fireworks display events. The USCG issues Marine Event permits to parties sponsoring or hosting public display of fireworks marine events that have the potential to endanger marine safety. An Application for Approval of Marine Event must be submitted to the USCG or approval no later than 135 days prior to the event if the applicant does not meet criteria specified in 33 CFR 100.15 (c), or 60 days prior to the event if the applicant does meet the criteria. After approving plans for the holding of a fireworks display event, the USCG is authorized to promulgate special local regulations as necessary to ensure public safety on navigable waters immediately prior to, during, and immediately after the approved fireworks event. Such regulations may include a restriction on, or control of, the movement of vessels through a specified fireworks display area.

4. South Coast Air Quality Management District.

The South Coast Air Quality Management District (AQMD) is the air pollution control agency for all of Orange County and the urban portions of Los Angeles, Riverside and San Bernardino Counties. The AQMD historically has not required permits for equipment associated with fireworks displays at theme park activities or annual celebrations. AQMD Rule 219- Exemptions From Written Permit Requirements, specifically exempts pyrotechnic equipment from written permit requirements. AQMD prohibitory Rule 4–4 - Open Burning, also provides exemption from rule provisions for various fireworks and pyrotechnics activities. Ventura County Air Pollution Control District has no similar rules.

5. United States Department of Transportation.

Prior to transportation into and within the United States, all explosives, including fireworks, must be classed and approved by Department of Transportation (DOT). Federal hazardous materials (hazmat) transportation law (Federal hazmat law; 49 U.S.C., 5101 et seq.) authorizes DOT to issue classification documents in accordance with the Hazardous Materials Regulations (HMR; 49 CFR, parts 100 -185). All fireworks must be in compliance with, and meet the terms and conditions of, the American Pyrotechnic Association (APA) Standard 87-1 (which is incorporated by reference as part of the HMR, or be submitted to a DOT-approved laboratory for examination and classification (see 49 CFR 173.56(b)). If approved, fireworks are assigned an explosives classification number by the Associate Administrator of Hazardous Materials Safety.

Approval holders also must comply with the rules set forth by the USCG; United States Customs and Border Protection; Bureau of Alcohol, Tobacco, and Firearms; as well as the Consumer Product Safety Commission.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations. Section 122.44(a) requires that permits include applicable technology-based limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

As most recently evaluated in *Coastal Environmental Rights Foundation v. Naples Restaurant Group, LLC* (2023 C.D. Cal.) ___F.Supp.3d ___ (Case No. 2:21-cv-09172-MCS-JEM), mortars constitute a point source from which discharges of residual firework pollutants, such as debris and chemicals, may occur. This Order does not establish effluent limitations but requires BMPs and establishes prohibitions.

A. Discharge Prohibitions

Based on 40 CFR section 122.21(a) and Water Code section 13260, which require filing an application and Report of Waste Discharge before discharge can occur, Section IV.1. of the Order prohibits discharges of any waste at a location different from the location(s) listed in the NOA.

Based on California Water Code section 13263, which requires the Los Angeles Water Board to prescribe WDRs that prevent nuisance conditions, Section IV.2. of the Order

prohibits discharge of pollutants so as to create pollution, contamination, or nuisance as defined by Water Code section 13050.

B. Technology Based Effluent Limitations

Section 301(b) of the CWA and implementing EPA permit regulations at 40 CFR section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards in the receiving water. The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs). USEPA has not developed ELGs for this type of industry or discharge. Section 402(a)(1) of the CWA and section 125.3 of the CFR authorize the use of best professional judgment to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern.

C. Water Quality Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards in the receiving water.

2. Applicable Beneficial Uses, and Water Quality Criteria and Objectives

Typical beneficial uses covered by this Order include the following:

a. Inland surface waters above an estuary – municipal and domestic supply, industrial service and process supply, agricultural supply, groundwater recharge, freshwater replenishment, aquaculture, warm and cold freshwater habitats, inland saline water and wildlife habitats, water contact and noncontact recreation, fish migration, and fish spawning.

b. Inland surface waters within and below an estuary – industrial service supply, marine and wetland habitats, estuarine and wildlife habitats, water contact and noncontact recreation, commercial and sport fishing, aquaculture, migration of aquatic organisms, fish migration, fish spawning, preservation of rare and endangered species, preservation of biological habitats, and shellfish harvesting.

c. Coastal Zones (both nearshore and offshore) – industrial service supply, navigation, water contact and noncontact recreation, commercial and sport fishing, marine habitat, wildlife habitat, fish migration and spawning, shellfish harvesting, and rare, threatened, or endangered species habitat.

Water quality criteria and objectives to protect these beneficial uses are described below:

a. Basin Plan - The Basin Plan specifies numerous water quality objectives to protect aquatic life, human health, and other beneficial uses. These objectives include the primary and secondary maximum contaminant levels for waters designated for use as domestic or municipal supply.

b. CTR - The CTR specifies numeric aquatic life and human health criteria for numerous priority pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries. Some human health criteria are for consumption of “water and organisms” and others are for consumption of “organisms only.” Waters with the municipal or

domestic supply beneficial use designation are subject to the “water and organisms” criteria.

c. Ocean Plan- The Ocean Plan specifies water quality objectives to protect the quality of ocean waters for use and enjoyment. The beneficial uses of the ocean waters that shall be protected include industrial, recreation, navigation, and aquatic life. This plan is applicable to both point sources and non-point sources of waste discharges to the ocean.

3. Determining the Need for WQBELs

a. Available Information

The need for WQBELs in the Order is evaluated based on the pertinent EPA regulations and SIP requirements for a reasonable potential analysis (RPA). Available water quality information for the RPA includes data collected from fireworks water quality monitoring conducted in the Los Angeles Region (San Pedro Bay and Alamitos Bay Fireworks Water Quality Monitoring reports in 2017, 2018, and 2022) and the San Diego Region (Annual Fireworks Monitoring Reports, SeaWorld, 2013 – 2019).

The Los Angeles Water Board issued several Investigative Orders from 2017 to 2022, for July 4th-related firework display activities conducted at Boathouse on the Bay, Queen Mary and Big Bang on the Bay events in the Long Beach harbor area. The investigative orders required surface and depth-discrete water samples, which were collected and analyzed before and after firework displays. Post-event samples were taken at different depths of the receiving waters. Parameters typically found in fireworks were analyzed, including Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Thallium, Tin, Titanium, Vanadium, Zinc, bis-phthalate, Total Phosphorous, and Perchlorate. No statistically significant evidence from the post-event samples indicated that concentrations of the analyzed parameters were higher than those in the pre-event samples from any of the fireworks events.

Receiving water and sediment monitoring were conducted by SeaWorld San Diego (SeaWorld), from September 2012 through September 2018, to evaluate the potential impacts of its fireworks-related discharges to Mission Bay in the San Diego Region. The effects of SeaWorld’s fireworks displays on Mission Bay are representative of worst case conditions compared to the Los Angeles Region firework shows because SeaWorld conducts far more fireworks events each year than the few events typically scheduled within the Los Angeles Region, occurring primarily on major holidays, like the 4th of July or New Years holidays.

The table below presents the most stringent applicable water quality criteria and objectives and estimated receiving water concentrations for the receiving waters potentially affected by authorized fireworks discharges. Metals are expressed in total recoverable concentrations. There is no reasonable potential for any of the pollutants considered to exceed a water quality criterion or objective because the estimated receiving water concentrations do not exceed the most stringent criteria and objectives.

Table F-3. Water Quality RPA (SeaWorld, 2012 – 2018)

Pollutant	Unit	Governing Criterion/Objective	Estimated Receiving Water Concentration
Aluminum	µg/L	200	80
Antimony	µg/L	6.0	0.23
Barium	µg/L	1,000	10
Copper	µg/L	8.2	7.5
Iron	µg/L	300	32
Perchlorate	µg/L	6.0	2.5
Phosphorus, Total	µg/L	No criteria	250
Potassium	mg/L	No criteria	450
Strontium	mg/L	No criteria	8.4
Titanium	µg/L	No criteria	72
Zinc	µg/L	86	14

b. Water Quality Objectives from Basin Plan

TMDL-based Wasteload Allocations (WLAs) are the main water quality objectives in Basin Plan applicable to this Order. The Los Angeles Water Board developed TMDL-based WLAs for metals, nutrients, toxic organic compounds in the major rivers and its tributaries in the Los Angeles Water Board Region. Discharges to a receiving water with an established TMDL limitation are considered to have shown a reasonable potential for the pollutants to be present in the discharge at levels that would cause or contribute to a violation of water quality standards.

The Los Angeles Water Board is required to ensure that the effluent limitations in this Order are "consistent with the assumptions and requirements of any available wasteload allocation for the discharge." (40 CFR section 122.44(d)(1)(vii)(B).) Although TMDLs apply to discharges authorized under this Order, none of the TMDLs for metals, nutrients, or toxic organic compounds or supporting staff reports indicate that discharges from the public fireworks displays authorized under this Order are significant sources of the relevant pollutants.

In addition, based on the relevant data gathered in the Los Angeles Region and the instantaneous, intermittent short-term nature of discharges from the public fireworks displays, the Los Angeles Water Board determined that discharges regulated under this Order meet section 122.44(d)(1)(vii)(B) requirements because (1) applicable TMDLs do not identify specific waste load allocations for discharges from fireworks displays activities and these discharges do not significantly impact water quality, and (2) more stringent requirements than those included in this Order are not needed to address impairment of surface waters with TMDLs.

If the Executive Officer determines that any existing or any newly adopted WLAs must be implemented through TMDL-specific permit requirements for discharges from

fireworks displays, the Discharger will be required to maintain enrollment under this Order until the Los Angeles Water Board issues an individual or general NPDES Permit for those discharges to which the WLAs apply. Alternatively, if future TMDLs are adopted that address pollutants that are likely to be in discharges from fireworks displays and allocate waste loads specifically to Dischargers regulated under this Order, the Los Angeles Water Board may consider adding TMDL-specific permit requirements to this Order in a subsequent permit amendment per the reopener provisions or during permit reissuance.

The Los Angeles Water Board has developed minerals water quality objectives for waterbodies in the Los Angeles Region. These water quality objectives do not require or contemplate a reasonable potential analysis at the permit development stage.

c. Water Quality Criteria from CTR

SIP section 1.3 sets forth the reasonable potential analysis (RPA) procedures used for this Order for assessing whether a priority pollutant in the CTR has reasonable potential to exceed a water quality objective. The same procedures are used as guidance for other firework pollutants of concern. There are three triggers in determining reasonable potential:

Trigger 1 is activated if the maximum effluent concentration is greater than or equal to the lowest applicable water quality objective.

Trigger 2 is activated if the receiving water concentration is greater than the lowest applicable water quality objective *and* the pollutant is detected in effluent.

Trigger 3 is activated if a review of other information indicates that a WQBEL is needed to protect beneficial uses.

Additionally, Section 1.3 of the SIP recognizes that a reasonable potential analysis at the permit development stage is unnecessary if a TMDL has been developed and WLAs assigned to the discharge.

Trigger 1 is not applicable to the Order because the residual firework pollutants are present and dispersed over the receiving water after solid fireworks are delivered to the air. “Maximum effluent concentration” used in Trigger 1 does not exist in the fireworks context.

There are water quality impaired waterbodies in the Los Angeles Region in which concentrations of pollutants regulated under this Order are greater than the lowest applicable water quality objective. Since the Order covers residual firework pollutants discharges to any and all waterbodies in the Los Angeles Region, Trigger 2 is activated for all discharges under the Order.

There is no other information available indicating a WQBEL is needed to protect beneficial uses. Therefore, Trigger 3 is not activated.

4. WQBEL Calculations

WQBELs in NPDES permits are generally calculated in the numeric form following procedures contained in EPA’s *Technical Support Document for Water Quality-Based Toxics Control (TSD) of 1991* (USEPA/505 /2-90-001) and the SIP. When numeric effluent limitations are infeasible, in accordance with 40 CFR 122.44(k), best management practices shall be included in applicable NPDES permits to control or abate the discharge of pollutants. Since the residual firework pollutants are present

only after the delivery of fireworks to air and are not in the form of liquid effluent, it is infeasible, pursuant to the TSD and/or SIP procedures, to calculate numerical effluent limitations for the residual firework pollutants discharge covered by the Order. Accordingly, applicable water quality criteria and objectives are translated to the narrative BMPs as permit conditions in the Order.

A. Final Effluent Limitation Considerations

1. Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(*l*) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. There is no backsliding issue in the Order since it sets forth a first time NPDES permit to regulate the discharge of residual firework pollutants in the Los Angeles Region.

2. Antidegradation Policies

The State Water Board established California's Antidegradation Policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal Anti-Degradation Policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing high quality of waters is maintained unless degradation is justified based on specific findings. The Los Angeles Water Board's Basin Plan implements, and incorporates by reference, both the state and federal policies.

In accordance with State Water Board Administrative Procedures Update No. 90-004, the potential for degradation is evaluated by comparing the receiving water quality likely to result from the new permit to the water quality baseline. The water quality baseline is the best receiving water quality that has existed since 1968 when considering Resolution No. 68-16 or since 1975 under the federal policy, unless subsequent lowering was due to regulatory action consistent with State and federal antidegradation policies. If poorer water quality was permitted, the most recent water quality resulting from permitted action is the baseline water quality. For purposes of this analysis, existing water quality is assumed to be the best that has existed since 1968 and 1975. Water quality in 1968 and 1975 was worse than it is now because most Clean Water Act controls, such as the secondary treatment standards for municipal wastewater treatment, were not yet in place. Fireworks displays have taken place, unregulated, for decades, and no poorer water quality has been permitted. Therefore, the permitted discharge under this Order is consistent with the federal Anti-Degradation provision of 40 CFR Section 131.12 and State Water Board Resolution No. 68-16 and will improve water quality in the Los Angeles Region by virtue of implementing discharge prohibitions and requiring BMPs that will reduce impacts of residual firework pollutants to surface waters.

3. Stringency of Requirements for Individual Pollutants

This Order's restrictions on individual pollutants are no more stringent than required to implement Clean Water Act requirements.

This Order's requirements protect water quality standards, including beneficial uses and water quality objectives approved pursuant to federal law. EPA approved most Basin Plan beneficial uses and water quality objectives prior to May 30, 2000. Beneficial uses and water quality objectives submitted to EPA prior to May 30, 2000, but not approved

by EPA before that date, are nonetheless "applicable water quality standards for purposes of the Clean Water Act" pursuant to 40 CFR 131.21(c)(1). EPA approved the remaining beneficial uses and water quality objectives, so they are applicable water quality standards pursuant to 40 CFR 131.21(c)(2).

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Discharges covered under the Order must conform to applicable water quality standards and shall not cause an exceedance above any applicable narrative or numeric water quality objective in the receiving water, including but not limited to all applicable provisions contained in:

1. Water Board's Basin Plan, including beneficial uses, water quality objectives, and implementation plans;
2. State Water Board plans and policies for water and sediment quality control including:
   a. Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries (Thermal Plan);
   b. Water Quality Control Plan Ocean Waters of California (Ocean Plan), including beneficial uses, water quality objectives, and implementation plans;
   c. Amendment to the Ocean Plan and Part I Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California;
   d. Water Quality Control Plan for Enclosed Bays and Estuaries of California – Sediment Quality Provisions (Sediment Quality Provisions), including the narrative objectives for sediment quality;
   e. Water Quality Control Policy for the Enclosed Bays and Estuaries of California;
   f. Policy for Implementation of Toxics Standards for Inland Surface Waters, and Enclosed Bays, and Estuaries of California; and
   g. Statement of Policy with Respect to Maintaining High Quality of Waters in California (State Water Board Resolution No. 68-16);
3. Priority pollutant criteria promulgated by EPA through:
   - National Toxics Rule (NTR), 40 CFR 131.36, (promulgated on December 22, 1992, and amended on May 4, 1995, and November 9, 1999); and
   - California Toxics Rule (CTR), 65 Federal Register 31682-31719 (May 18, 2000), adding section 131.38 to 40 CFR.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

40 CFR 122.41 provides conditions that apply to all NPDES permits. They are the Standard Provisions of this Order listed in Attachment D. The Dischargers enrolled in this Order permit shall comply with all the Standard Provisions as applicable.

40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFRs 122.41(j)(5) and (k)(2) because the enforcement authority under the California Water Code is more

stringent. In lieu of these conditions, this Order incorporates by reference California Water Code section 13387(e).

Because the discharge of residual firework pollutants does not share typical attributes of facilities engaged in wastewater discharge, some Standard Provides in Attachment D, such as conditions on bypass and compliance schedules, are not applicable.

B. Discharge Prohibitions

40 CFR 122.42 provides additional conditions applicable to specified categories of NPDES permits. In the NPDES permit regulation, these categories are specified as "Existing manufacturing, commercial, mining, and silvicultural dischargers", "Publicly owned treatment works", "Municipal separate storm sewer systems", "Storm water discharges", "Concentrated animal feeding operations", and "Public notification requirements for CSO discharges to the Great Lakes Basin". This Order doess not fall within any of the specified categories and, therefore, does not include additional conditions.

C. Special Prohibitions

In addition to conditions required for all and specified categories of NPDES permits, 40 CFR 122.43 requires establishment of conditions on a case-by-case basis, to provide for and ensure compliance with all applicable requirements of CWA and regulations. Special Provisions are established in this Order that apply to all discharges of residual firework pollutants to surface waters in the Los Angeles Region.

D. Best Management Practices

As discussed in section IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS of the Factsheet, it is infeasible to establish numeric effluent limitations for the residual firework pollutant discharges from fireworks displays. Therefore, BMPs are required in lieu of effluent limitations to control and abate residual firework pollutant discharges and serve as special permit conditions in the Order, in accordance with 40 CFR section 122.44(k).

The BMPs are derived from 22 CCR section 67384.8, guidance targeting perchlorate-containing fireworks (see Massachusetts Department of Environmental Protection, Fireworks Best Environmental Management Practices, May 2011), NPDES orders governing fireworks in other regions, and other applicable authorities cited herein. These guidance and authorities are relevant to preventing, controlling, and responding to discharges associated with fireworks. The BMPs reflect best available technology economically achievable (BAT) and best practicable treatment control technology (BPT) to reduce or prevent discharges of pollutants in a manner that reflects best industry practice, considering technological availability and economic practicability and achievability.

E. Reopener Provisions

Pursuant to 40 CFR 122.62, this Order may be modified, revoked and reissued, or terminated for cause. Reasons for modification may include new information on the impact of discharges regulated under this Order, promulgation of new effluent standards and/or regulations, adoption of new policies and/or water quality objectives, and/or new judicial decisions affecting requirements of this Order. In addition, if receiving water quality is threatened due to discharges covered under this Order, the Order may be

reopened to incorporate more stringent requirements addressing the constituents creating the threat.

VII. PUBLIC PARTICIPATION

The Los Angeles Water Board has considered the issuance of WDRs that will serve as a General NPDES permit for Discharges of Residual Firework Pollutants from Public Fireworks Displays to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties. As a step in the WDR adoption process, the Los Angeles Water Board staff developed tentative WDRs. The Los Angeles Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Los Angeles Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and provided them with an opportunity to submit their written comments and recommendations. Notification was provided through email and public notice.

The public had access to the agenda and any changes in dates and locations through the Los Angeles Water Board's website at http://www.waterboards.ca.gov/losangeles.

B. Written Comments

Interested persons were invited to submit written comments concerning these tentative WDRs as provided through the notification process electronically at losangeles@waterboards.ca.gov with a copy to Peter.ho@waterboards.ca.gov.

To be fully responded to and considered by the Los Angeles Water Board, written comments were due at the Los Angeles Water Board offices by 5:00 p.m. **on May 4, 2023**.

C. Public Hearing

The Los Angeles Water Board held a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	May 25, 2023
Time:	9 AM
Location:	Junipero Serra Building (Carmel Room) 320 West 4th Street, Los Angeles, CA 90013

A virtual platform was also available for those who wanted to join online. The directions were provided in the agenda to register or to view the Board meeting.

Additional information about the location of the hearing and options for participating are made available 10 days before the hearing. Any person desiring to receive future notices about any proposed Board action regarding this Discharger, please contact Peter.ho@waterboards.ca.gov, to be included on the e-mail list.

Interested persons were invited to attend. At the public hearing, the Los Angeles Water Board heard testimony, if any, pertinent to the discharge, WDRs, and NPDES Permit. For accuracy of the record, important testimony was requested in writing.

D. Waste Discharge Requirements Petitions

Any person aggrieved by this action of the Los Angeles Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320

and California Code of Regulations, Title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Or by email at waterqualitypetitions@waterboards.ca.gov

For instructions on how to file a petition for review, see: http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

E. Information and Copying

The Tentative Permit and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Los Angeles Water Board by calling (213) 576-6651.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding this Order was invited to contact the Los Angeles Water Board, reference this Order, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Peter Ho at (213) 620-2093 or at Peter.ho@waterboards.ca.gov.

INTERESTED PARTIES'

COMMENTS

Amitay, Shahar@Coastal

From: anngadfly@aol.com
Sent: Friday, May 19, 2023 7:49 PM
Cc: Amitay, Shahar@Coastal; Huckelbridge, Kate@Coastal; Wilson, Mike@Coastal; nidia.garciaerceg@coastal.ca.gov; Turnbull-Sanders, Effie@Coastal; Brownsey, Donne@Coastal; Uranga, Roberto@Coastal; Escalante, Linda@Coastal; Harmon, Meagan@Coastal; Rice, Katie@Coastal
Subject: Fw: Revised Tentative Fireworks General Order
Attachments: RTC_CAG994007.pdf; Redline Tentative Order CAG994007.pdf; TransLtr_rev__tent_order_CAG994007.pdf

Dear Coastal Commission Decision Makers:
I see that you are not included in this information about suggested revisions in the LA Regional Water Boards Fireworks order. As this issue is on the June CCC Agenda, perhaps this would be of interest for you.
Ann Cantrell, co-chair,
Sierra Club Los Cerritos Wetlands Task Force

----- Forwarded Message -----
From: Ho, Peter@Waterboards <peter.ho@waterboards.ca.gov>
To: Anijielo, Augustine@Waterboards <augustine.anijielo@waterboards.ca.gov>; Lim, Jeong-Hee@Waterboards <jeong-hee.lim@waterboards.ca.gov>; Newman, Jenny@Waterboards <jenny.newman@waterboards.ca.gov>; Austin, Tamarin@Waterboards <tamarin.austin@waterboards.ca.gov>
Cc: Becky Mitschele <mitschele.becky@epa.gov>; Stephen.m.estes@usace.army.mil <stephen.m.estes@usace.army.mil>; crystal.marquez@usace.army.mil <crystal.marquez@usace.army.mil>; kenneth.wong@usace.army.mil <kenneth.wong@usace.army.mil>; cbell@nrdc.org <cbell@nrdc.org>; dbeckman@nrdc.org <dbeckman@nrdc.org>; sfleischli@nrdc.org <sfleischli@nrdc.org>; bryant.chesney <bryant.chesney@noaa.gov>; christopher_diel@fws.gov <christopher_diel@fws.gov>; Jonathan_D_Snyder@fws.gov <jonathan_d_snyder@fws.gov>; Hudson, Steve@Coastal <steve.hudson@coastal.ca.gov>; Cox, Nat@Parks <nat.cox@parks.ca.gov>; amoe@healthebay.org <amoe@healthebay.org>; bruce@lawaterkeeper.org <bruce@lawaterkeeper.org>; stucker@wrd.org <stucker@wrd.org>; robert.k.wu@dot.ca.gov <robert.k.wu@dot.ca.gov>; rtahir@tecsenv.com <rtahir@tecsenv.com>; sarah.torres@pgenv.com <sarah.torres@pgenv.com>; tsmith@dpw.lacounty.gov <tsmith@dpw.lacounty.gov>; abellomo@ph.lacounty.gov <abellomo@ph.lacounty.gov>; caroline.wilson@cwn-law.com <caroline.wilson@cwn-law.com>; Livia Borak Beaudin <livia@coastlawgroup.com>; Peter Kozelka <kozelka.peter@epa.gov>; Ben Harris <ben@lawaterkeeper.org>; annachristensen259@gmail.com <annachristensen259@gmail.com>; anngadfly@aol.com <anngadfly@aol.com>; Justine Nevarez <justinen@dlba.org>; Gary Brown <gbrown@pyrospec.com>; Maryanne Cronin <maryanne.cronin@longbeach.gov>; Lucie Kim <lkim@bh.lacounty.gov>; Phillips, Caleb@CALFIRE <caleb.phillips@fire.ca.gov>; Bill Hickman <bill@surfridersd.org>; Kristen Northrop <knorthrop@coastlaw.com>; d11-smb-sectorlalb-wwm@uscg.mil <d11-smb-sectorlalb-wwm@uscg.mil>; barak@lawaterkeeper.org <barak@lawaterkeeper.org>; HOrtiz@venturacountyfair.org <hortiz@venturacountyfair.org>; tmann@aqmd.gov <tmann@aqmd.gov>; Diaz, Jose@DTSC <jose.diaz@dtsc.ca.gov>; Hinojosa, Javier@DTSC <javier.hinojosa@dtsc.ca.gov>
Sent: Friday, May 19, 2023 at 03:55:25 PM PDT
Subject: Revised Tentative Fireworks General Order

To all interested parties:

The Los Angeles Regional Water Quality Control Board has reviewed public comments and made changes to the tentative order.

Enclosed are copies of the transmittal letter, response to comments, and the Revised Tentative Waste Discharge Requirements and General National Pollutant Discharge Elimination System Permit for Discharges of Residual Firework Pollutants From Public Fireworks Displays to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties (CAG994007).

The tentative waste discharge requirements are scheduled for consideration at the May 25, 2023 Board Meeting, 9:00 a.m., 320 W 4th Street, Carmel Room, Los Angeles, California, 90013. Please refer to the transmittal letter for additional details. Thank you.

_____

Peter Ho

California Water Resources Control Board

Los Angeles Region

320 W. 4th St., Suite 200

Los Angeles, CA 90013

213-620-2093

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2023-xxxx
GENERAL NPDES PERMIT NO. CAG994007

WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF RESIDUAL FIREWORK POLLUTANTS FROM PUBLIC FIREWORKS DISPLAYS TO SURFACE WATERS IN LOS ANGELES AND VENTURA COUNTIES

Table 1. Administrative Information

This Order was adopted Los Angeles Water Board on:	**May 25, 2023**
Enrollment to this Order shall become effective on:	**May 25, 2023**
This Order shall expire on:	**May 25, 2028**

The United State Environmental Protection Agency (USEPA) and the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board) have classified discharges covered under this General National Pollutant Discharge Elimination System (NPDES) Permit as minor discharges.

I, Susana Arredondo, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the Los Angeles Water Board on the date indicated above.

Susana Arredondo
Executive Officer

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Attachments

I. FACILITY/DISCHARGE INFORMATION

This Order (also referred to as "General Permit") is intended to authorize discharges from public firework displays (residual firework pollutants) into waters of the United States in the Los Angeles Region (Discharges). The Clean Water Act (CWA) prohibits the discharge of any pollutant to waters of the United States, except in compliance with an NPDES permit. Residual firework pollutants discharged into surface waters constitutes discharge of a pollutant. Therefore, coverage under an NPDES permit is required before residual firework pollutant discharges associated with the public display of fireworks can be lawfully discharged. Discharges authorized under this Order are subject to all applicable conditions set forth in this Order.

II. PERMIT COVERAGE AND NOTIFICATION REQUIREMENTS

A. Permit Coverage

This Order covers the discharge of residual firework pollutants to waters of the United States (Surface Waters) within the jurisdiction of the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board). Any person who proposes to discharge pollutants from the public display of fireworks to surface waters (Discharger) must obtain coverage under this Order prior to the public display of fireworks event. This Order does not cover 1) Discharges from private individuals who use ~~consumer~~ Safe and Sane fireworks for personal display, 2) Discharges covered by individual or other NPDES permits or WDRs, or 3) Discharges over land and/or to the municipal separate storm sewer system (MS4).

B. Eligibility Criteria

Any person who proposes to discharge pollutants from the public display of fireworks to surface waters (Discharger) must submit a Notice of Intent (NOI) to obtain coverage under this Order in accordance with the requirements of Part II.D of the Order.

C. Authorization

Upon receipt of the application, the Executive Officer shall determine the applicability of this Order to such a discharge. If the discharge is eligible, the Executive Officer shall issue a notice of applicability (NOA) to the Discharger that the discharge is authorized under the terms and conditions of this Order noting any specific conditions that may be necessary to be in compliance with this Order. The Discharger shall comply with the requirements of this Order and other conditions prescribed in the NOA. For new discharges, the discharge shall not commence until receipt of the NOA for coverage under this Order or until an individual permit is issued by the Los Angeles Water Board.

D. Permit Application/Notice of Intent

1. Deadline for Submission

A Discharger shall complete and submit the NOI form at least 45 days before commencement of the fireworks event unless a shorter deadline has been granted by the Los Angeles Water Board.

2. Application Requirements

The Discharger may be the fireworks event host, or the fireworks display operator, who agrees to be responsible for compliance with all conditions specified in this Order.

The NOI submittal may address multiple fireworks events at different locations throughout the Los Angeles Region. The Los Angeles Water Board may require the joint submission of an NOI from both the host and the person operating the fireworks event on a case-by-case basis.

The Discharger shall use the NOI form in Attachment C of this Order or the current version of the form available on the Los Angeles Water Board website at https://www.waterboards.ca.gov/losangeles/publications_forms/forms/general_npdes_application_forms.html.

The Discharger, upon request, shall submit any additional information that the Los Angeles Water Board deems necessary to evaluate applicability and to determine whether any specific conditions are necessary to ensure compliance with the Order.

3. NOI Modification:

A Discharger may modify its NOI by submitting a modified NOI form (e.g., a mark-up of the original NOI form showing all changes and including a new signature and date) at least 30 days before the proposed change implementation date. The Discharger shall include a transmittal letter describing the changes, its purpose for changes, when the changes are to go into effect, and any new or different measures taken or planned to comply with this Order's requirements. Changes shall be authorized if and when the Executive Officer modifies or issues the NOA.

4. Annual Fee

Title 23 of the California Code of Regulations (CCR) requires that all discharges subject to waste discharge requirements shall pay an annual fee. Fireworks discharges require no treatment systems to meet the terms and conditions of this Order and pose no significant threat to water quality. As such, these discharges are classified as Category 3 pursuant to the fee schedule. The fees applicable to this Order are set forth in CCR, section 2200, subdivision (a)(10). The check or money order shall be made payable to the State Water Resources Control Board as described in section IV of Attachment B of this Order.

5. Notice of Termination (NOT)

Dischargers shall submit a Notice of Termination (NOT) when coverage under this Order is no longer needed. A NOT contains the Waste Discharge Identification Number (WDID) or Compliance Inspection (CI) number, and the name and address of the Discharger. The NOT shall be signed and dated by the Discharger, certifying that the discharge associated with Permit No. CAG994007 has been eliminated or that there has been a change in ownership. Upon submission of the NOT, the Discharger is no longer authorized to discharge wastewater associated with this Order.

6. Change of Ownership/ Notice of Transfer (NOTT)

Dischargers shall submit a Notice of Transfer (NOTT) when there has been a change in ownership. Coverage under this Order may be transferred in case of change of ownership of land or discharge facility provided the existing Discharger notifies the Executive Officer at least 30 days before the proposed transfer date, and the notice includes a written agreement between the existing and new Dischargers containing a specific date of transfer of coverage, responsibility for compliance with this Order, and liability between them. The Los Angeles Water Board may require modification or revocation and reissuance of

coverage under the Order to change the name of the Permittee or to incorporate other requirements as may be necessary under the CWA and the California Water Code (CWC).

III. FINDINGS

The Los Angeles Water Board finds:

A. Legal Authorities

This Order serves as waste discharge requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC (commencing with section 13260; see in particular section 13263, subd. (i) [general permits]). This Order also serves as an NPDES permit for discharges of residual firework pollutants from public displays of fireworks to Surface Waters within the jurisdiction of the Los Angeles Water Board, is issued pursuant to section 402 of the CWA, the implementing regulations adopted by the EPA, and Chapter 5.5, Division 7 of the CWC (commencing with section 13370).

B. Background

On September 22, 1989, EPA granted the State of California, through the State Water Resources Control Board (State Water Board) and the Los Angeles Water Board, the authority to issue general NPDES permits pursuant to Title 40 of the Code of Federal Regulations (40 CFR) parts 122 and 123.

40 CFR section 122.28(a)(2)(ii) provides for issuance of general NPDES permits to regulate a category of point sources, other than storm water point sources, if the sources within the category:

1. Involve the same or substantially similar types of operations;
2. Discharge the same types of waste;
3. Require the same effluent limitations or operating conditions;
4. Require the same or similar monitoring; and
5. In the opinion of the permitting authority, discharges are more appropriately controlled under a general NPDES permit rather than individual NPDES permits.

General NPDES permits and WDRs enable the Los Angeles Water Board to expedite the processing of requirements, simplify the application process for dischargers, better utilize limited staff resources, and avoid the expense and time involved in repetitive public noticing, hearings, and permit adoptions.

C. Rationale for Requirements

The Los Angeles Water Board developed the requirements in this Order based on applicable federal and state laws and regulations, information collected as part of previous investigations, input from prospective dischargers and environmental advocates, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for the Order. Attachments A through E are also incorporated into this Order.

D. Notification of Interested Parties

The Los Angeles Water Board has notified the Dischargers and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an

opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.

E. Consideration of Public Comment

The Los Angeles Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

IV. DISCHARGE PROHIBITIONS

- Discharges of any waste at a location different from the location(s) listed in the issued NOA are prohibited.
- Discharge of residual firework pollutants to waters of the United States so as to create, or to cause pollution, contamination, or nuisance as defined in Water Code section 13050 is prohibited.
- Discharge of plastic trash to waters of the United States is prohibited.

V. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations are not included in the Order. The Discharger shall implement the best management practices in accordance with Provision VII.C.

VI. RECEIVING WATER LIMITATIONS

The discharge shall not cause or contribute to any of the following:

1. Floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses;
2. Alteration of suspended sediment in such a manner as to cause nuisance, or to adversely affect beneficial uses, or to cause detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life;
3. Suspended material, including trash, in concentrations that cause nuisance or adversely affect beneficial uses;
4. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;
5. Alteration of temperature beyond present natural background levels;
6. Coloration that causes nuisance or adversely affects beneficial uses;
7. Taste or odor-producing substances in concentrations that alter the natural taste, odor, and/or color of fish, shellfish, or other edible aquatic resources; cause nuisance; or adversely affect beneficial uses;
8. Visible, floating, suspended, or deposited oil or other products of petroleum origin;
9. Toxic or other deleterious substances in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration; or
10. Violations of any water quality standard for receiving waters adopted by the Los Angeles Water Board, State Water Resources Control Board (State Water Board), or USEPA as required by the Clean Water Act and regulations adopted thereunder.

VII. PROVISIONS

This Order provides Standard Provisions and Special Provisions. Dischargers enrolled under the Order must comply with all Standard and Special Provisions. Standard Provisions applying to all NPDES permits in accordance with 40 CFR sections 122.41 and 122.42 are included in Attachment D of this Order.

A rationale for the special provisions contained in this Order is provided in Attachment F, Fact Sheet. Special Provisions provided in this Order are in sections VII. A. through VII.E. below.

A. Standard Provisions

Los Angeles Water Board Standard Provisions. The Discharger shall comply with the following provisions. If there is any conflict, duplication, or overlap between provisions specified by this Order, the provisions stated herein prevail:

1. Oil or oily materials, chemicals, refuse, or other materials that may cause pollution in storm water and/or urban runoff shall not be stored or deposited in areas where they may be picked up by rainfall/urban runoff or wind and discharged to surface waters. Any spill of such materials shall be contained, removed, and cleaned immediately.
2. This Order neither exempts the Discharger from compliance with any other laws, regulations, or ordinances that may be applicable, nor legalizes the facility or activity.
3. The Discharger shall at all times properly operate and maintain all systems installed or used to achieve compliance with this Order.
4. Any Discharger authorized under this Order may request to be excluded from the coverage of this Order by applying for an individual permit.
5. The provisions of this Order are severable. If any provision of this Order or the application of any provision of this Order is found invalid, the remainder of this Order shall not be affected.
6. A copy of this Order shall be made available to all personnel/staff (including field staff or contractors and their agents and representatives) involved with the compliance of this Order.
7. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges of residual firework pollutants, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
8. Violation of any of the provisions of this Order may subject the Discharger to any of the penalties described herein or in Attachment D of this Order, or any combination thereof, at the discretion of the prosecuting authority.

B. Best Management Practices (BMP~~s~~) Plan

The Discharger shall prepare a BMP Plan (Plan) that describes procedures to ensure that residual firework pollutants discharges will not adversely affect receiving waters. While developing the Plan, an analysis of alternatives should be conducted to determine BMPs. The Plan, along with the alternative analysis, shall be submitted as a component of the NOI

to the Los Angeles Water Board. The Discharger shall implement the BMPs in the approved Plan and it shall make the approved Plan available to all persons who request it.

The Plan shall include the following three elements to avoid and/or mitigate potential impacts to receiving water quality:

Pollution Prevention

Use alternative (e.g., biodegradable) fireworks materials and/or select an alternative debris fallout location based on readily available meteorological data to eliminate or reduce residual firework pollutant discharges to waters of the United States.

Pollutants Identification

Describe activities conducted within the firing range that have a potential to release pollutants and identify the potential pollutant sources associated with each activity.

Pollution Control

Provide measures of controlling pollutant discharges during the firework operations and cleaning up the fallout areas to minimize the potential adverse effects of pollutant discharges after the firework displays. These measures shall represent the best available technology that is economically achievable. At a minimum, the Plan shall include the following BMPs to the extent practicable and economically achievable:

1. Use alternative fireworks that replace perchlorate with other oxidizers and contain biodegradable components.

~~1.~~2. Use fireworks that do not contain plastic outer casings or have non-biodegradable inner components.

~~2.~~3. Use propellants that burn cleaner, produce less smoke, and reduce residual firework pollutant discharges to surface waters.

~~3.~~4. Select firing range locations based on readily available meteorological data and designs that reduce residual firework pollutant discharges.

~~4.~~5. Secure all pyrotechnic equipment and fireworks in a manner that minimizes the risk of such materials and objects entering receiving waters before, during, and after fireworks displays.

~~5.~~6. Inspect each firework launch area for potential safety issues on an ongoing basis.

~~6.~~7. Perform visual observations and monitoring activities to assess BMP performance.

~~7.~~8. Prior to fireworks displays, ~~deploy containment measures to collect and~~ set up a retaining wall/fence or other barrier around three of the four sides of the launch site to control the mobility of fireworks debris, particulate matter, and to avoid fuses and other debris falling into the surface water. ~~waste from within the design firing ranges for all fireworks launch areas.~~

~~8.~~9. As soon as practicable after fireworks displays, conduct BMP effectiveness evaluations.

~~9.~~10. Whenever practicable, feasible, and safe, ~~R~~remove all plastic and aluminum labels and wrappings from aerial shells and special effect pyrotechnic devices ~~prior to use and~~ before they are launched ~~or detonated~~.

~~10.~~11. Describe in the Plan how shells and special effect pyrotechnic devices will be

secured during the firework show and the plan to collect all firework related wastes following the fireworks event.

~~11.~~12. As soon as practicable, and no later than 12 hours following a public display of fireworks, collect, remove, and manage particulate matter and debris from ignited and un-ignited pyrotechnic material including aerial shells, stars (small pellets of composition that produce color pyrotechnic effects), paper, cardboard, wires and fuses found during inspection of the entire firing range, nearby shoreline and adjacent affected surface water(s) in addition to complying with title 19 of the California Code of Regulations, section 1003 (operation of fireworks display).

~~12.~~13. Other than system firing cables and common or grounding wires intended to be recovered after the display, secure electric igniter wires used to trigger the fireworks to minimize the risk that the wires fall into the water during or after the discharge.

~~13.~~14. ~~Immediately following the public display of fireworks~~ When the fireworks have been cleared from the launch area, rake or sweep the decks of each barge or floating platform that contained fireworks to gather fireworks debris and prevent it from being deposited into the water. Collect all non-hazardous solid waste resulting from the set-up, firing, and strike of the public display, including wires, boxes, and packaging, and properly disposed of the solid waste. Pick up fireworks debris on the nearby shoreline in the morning of the day immediately following the fireworks event.

~~14.~~15. Immediately following the public display of fireworks, handle and manage all hazardous fireworks waste, including duds, resulting from the set-up, firing, and strike of the public display, including live pyrotechnics waste, in accordance with applicable fireworks and hazardous waste laws and regulations.

~~15.~~16. Document the shipping manifest ~~W~~weight of the aerial shells and special effect pyrotechnic devices prior to use to determine net explosive weight. Indicate in the Plan what percentage of the total weight of fireworks-related waste will be created. Ensure that any floatable degradable and non-biodegradable components of the fireworks-related waste are collected after the event.

~~16.~~17. Setup, discharge, and take down the fireworks and fireworks equipment in accordance with the laws and regulations applying to that display by a public display operator licensed by the State of California. Obtain all required permits, licenses and approvals from the authorities having jurisdiction over the fireworks display and comply with the requirements and conditions of those permits and licenses.

~~17.~~18. Package, transport, store, set-up, and handle firework in accordance with California Code of Regulations, Title 19, Division1, Chapter 6, Fireworks and Title 22, Chapter 33, Best Management Practices for Perchlorate Materials to prevent or minimize firework pollutant wastes from entering surface waters.

C. Reopener Provisions

1. Pursuant to 40 CFR sections 122.62 and 122.63, this Order may be modified, revoked and reissued, or terminated for cause, including, but not limited to:

   a. Violation of any term or condition contained in this Order;

   b. Obtaining this Order by misrepresentation, or by failure to disclose fully all relevant facts; or

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

2. This Order may be reopened if present or future investigations demonstrate that the discharges governed by this Order have or will have, or will cease to have, a reasonable potential to cause or contribute to adverse impacts on water quality or beneficial uses of the receiving waters.

3. If more stringent applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, the Los Angeles Water Board may revise or modify this Order in accordance with such standards.

4. This Order may be reopened if translator, dilution, or other water quality studies provide a basis for determining that a permit condition should be modified.

5. This Order may be reopened and modified to the extent necessary, to be consistent with new or revised policies, new or revised state-wide plans, new laws, or new regulations.

6. This Order may be reopened if an administrative or judicial decision on a separate NPDES permit or WDRs addresses requirements similar to those applicable to these discharges.

7. This Order may be reopened upon submission by the Discharger of adequate information, as determined by the Los Angeles Water Board. The filing of a request by the Discharger for an Order modification, revocation and issuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

D. Expiration and Continuation of this Order

This Order expires on May 25, 2028. If this Order is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 40 CFR 122.6 and remain in full force and effect.

E. Reauthorization

Upon reissuance of a new order, existing dischargers enrolled under this Order shall file a Notice of Intent or a new Report of Waste Discharge within 90 days of adoption of the new Order.

F. Special Study

The Dischargers shall conduct a special study to determine the impacts of the constituents from fireworks at the fallout zone by collecting samples in “real time” during the fireworks displays. The Dischargers shall submit a work plan within 12 months from the effective date of this Order for approval from the Executive Officer of the Los Angeles Water Board. The Work Plan shall include real time sampling for all the constituents hereby specified: Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Thallium, Tin, Titanium, Vanadium, Zinc, nitrate, bis-phthalate, Total Phosphorous, and Perchlorate within the fall out zone.

VIII. COMPLIANCE DETERMINATION

This Order contains discharge prohibitions and requires the use of minimum BMPs to control and abate the discharge of pollutants from public fireworks displays to surface

waters in the Los Angeles Region. Proper implementation of BMPs will ensure the protection of water and sediment quality within the receiving waters. Dischargers enrolled under this Order are expected to comply with all water and sediment quality objectives through the implementation of BMPs. Compliance will be determined by evaluating the proper implementation of the minimum stipulated BMPs and their effectiveness in preventing and minimizing pollutant loading from public fireworks events to surface waters. Compliance will also be evaluated using information obtained under the monitoring and reporting program of this Order.

ATTACHMENT A- DEFINITIONS

Aerial Fireworks
Aerial fireworks provide their own propulsion or are shot into the air in an aerial shell by a mortar using a black powder lift charge or propellant.

Aerial Shell
Cylinder or spherical cartridge containing a burst charge and pyrotechnic or non-pyrotechnic effects, a fuse, and a black powder lift charge that is fired from a mortar (19 CCR § 980[a][1]). Aerial shells are typically designed to burst between 200 and 1,000 feet above ground level.

Alternative Fireworks
Fireworks are produced with new pyrotechnic formulas that replace perchlorate with other oxidizers and propellants that burn cleaner, produce less smoke, and reduce residual firework pollutant loading to surface waters.

Barge
Water vessel with from which fireworks are launched or ignited.

Best Management Practices (BMPs)
Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices that prevent or reduce the pollution of water of the United States.

Biodegradable
Biodegradable means capable of decomposing rapidly by microorganisms under natural conditions (aerobic and/or anerobic). Biodegradable in the context of fireworks will be interpreted to mean non-plastic and non-toxic to humans or aquatic organisms.

Break
Individual burst from an aerial shell, producing either a visible or audible effect, or both, that may consist of a single burst or multiple effects (19 CCR § 980 (b((7)).

Dud
Pyrotechnic item that leaves the mortar and returns to earth without producing the intended burst or effect (19 CCR § 980 (d)(4)).

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays do not include inland surface waters or ocean waters.

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuaries do not include inland surface waters or ocean waters.

Fallout Area
Area in which firework debris and pollutants fall after a pyrotechnic device is burst. The extent of the fallout area depends on the wind and the angle of mortar placement.

Fireworks
Device containing chemical elements and chemical compounds capable of burning independently of the oxygen in the atmosphere and producing an audible, visual, mechanical, or thermal effect that is useful as a pyrotechnic device or for entertainment. The term "fireworks" includes, but it is not limited to, devices designated by the manufacturer as fireworks, torpedoes, skyrockets, roman candles, rockets, Daygo bombs, sparklers, party poppers, paper caps, chasers, fountains, smoke sparks, aerial bombs, and fireworks kits (California Health and Safety Code § 12511).

Fireworks Display
See *Public Fireworks Display*.

Firing Range
Area over which fireworks may travel by design or accident and upon which residual firework pollutants may fall, including fireworks launch areas and adjacent shorelines, quays, docks, barges, and fireworks fallout areas.

Ground Display Piece
Pyrotechnic device that functions on the ground (as opposed to an aerial shell that functions in the air) and that includes fountains, wheels, and set pieces.

Inland Surface Waters are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Low-level Fireworks
Low-level fireworks consist of stars or other components that produce single or multi-colored fountain effects or sparks. They are designed to burn at less than 200 feet above ground level.

Minimum Level (ML)
Concentration at which the entire analytical system gives a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Misfire
Pyrotechnic item that fails to function as designed after initiation (19 CCR § 980(m)(5)).

Mortar
Cylinder used to hold and fire public display or special effects pyrotechnic items or compositions (19 CCR § 980 (m)(8)).

Multiple Break
Aerial shell that has two or more breaks (19 CCR § 980(m)(11)).

Net Explosive Weight
Weight of all pyrotechnic compositions, explosives material, and fuse (22 CCR § 67384.3).

Ocean Waters are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent Pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pier
Structure extending from the land out over a body of water to afford convenient passage for persons, property, and vessels.

Pollutant Minimization Program (PMP) means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bio accumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Los Angeles Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Los Angeles Water Board.

Public Fireworks Display (also referred to as Fireworks Display)
Entertainment feature where the public or a private group is admitted or permitted to view a display or discharge of fireworks (22 CCR § 67384.3).

Pyrotechnic Operator
Licensed pyrotechnic operator, who by examination, experience, and training, has demonstrated required skill and ability in the use and discharge of fireworks as authorized by the license granted (22 CCR § 67384.3).

Pyrotechnic Compositions

Combination of chemical elements or chemical compounds capable of burning independently of the oxygen of the atmosphere (California Health and Safety Code § 12525).

Quay
Wharf for loading and unloading goods carried by ships.

Reporting Level (RL)
ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Los Angeles Water Board either from SIP Appendix 4 in accordance with SIP section 2.4.2 or established in accordance with SIP section 2.4.3. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Roman Candle
Heavy paper or cardboard tube containing pellets of pyrotechnic composition that, when ignited, are expelled into the air at several second intervals (19 CCR § 980 (r)(3)).

Safe and Sane Fireworks
Any fireworks which do not come within the definition of “dangerous fireworks” or “exempt fireworks.” (California Health and Safety Code § 12529).

Salute
Aerial shell or another pyrotechnic item whose primary effects are detonation and flash of light (19 CCR § 980 (s)(1)).

Star
Small pellet of composition that produces a pyrotechnic effect. A single aerial firework shell could contain several hundred stars (22 CCR § 67384.3).

Set Piece Fireworks
Set piece firework devices are primarily static and typically do not launch into the air. They produce effects at less than 50 feet above ground level.

Trash
All improperly discarded solid material from any production, manufacturing, or processing operation including, but not limited to, products, product packaging, or containers constructed of plastic, steel, aluminum, glass, paper, or other synthetic or natural materials.

ATTACHMENT B- NOTICE OF INTENT

This Notice of Intent form shall be completed and submitted to apply for Authorization to Discharge under NPDES Permit No. CAG994007 (Fireworks General Permit) to waters of the United States.

I. DISCHARGER INFORMATION AND CERTIFICATION

This certification shall be signed in accordance with Attachment D section V.B.2. The Discharger hereby agrees to comply with and be responsible for all conditions specified in the Fireworks General Permit.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
Signature: Date:
Printed Name:
Title:
Discharger Type (Check One) ☐ Public ☐ Private ☐ Other, specify type: New or Previously Authorized Discharger (Check One) ☐New ☐Previously Authorized Discharger Discharger Name:
Mailing Address:
Legally Responsible Person (LRP): The following individual (or any individual occupying the position listed below) may act as the Discharger's duly authorized representative and may sign and certify submittals in accordance with Attachment D section V.B.3. The individual shall be responsible for the overall operation of the regulated facility or activity or an individual position having overall responsibility for environmental matters for the Discharger.
LRP Name and Title:
LRP Email:
LRP Phone Number:

□ Check here if additional Discharger information is attached to this form.

II. BILLING INFORMATION

☐ Check this box if same as Section I (otherwise, complete this section).
Discharger Name:
Mailing Address:
Billing Contact Name and Title:
Billing Contact Email:
Billing Contact Phone Number:

III. DISCHARGE INFORMATION

Receiving Water:
Discharge Frequency: ☐Once ☐Annual ☐Other (please describe): ☐**Project location (address, latitude & longitude information)** Stating means of firework deployment (i.e., barge, and staging area necessary to determine the closest receiving waters).

☐ Check here if information for additional discharge locations is attached to this form.

IV. BEST MANAGEMENT PRACTICES PLAN

Attach a Best Management Practices Plan (Plan) as described in Provision VII.B of this Order.

V. APPLICATION FEES AND MAILING INSTRUCTIONS

Submit check payable to "State Water Resources Control Board" for appropriate application fee to this address:

Los Angeles Regional Water Quality Control Board
340 West 4th Street, Suite 200
Los Angeles, CA 90013

For current fees for general NPDES permit category 3, see Water Code section 2200(b)(9) or visit www.waterboards.ca.gov/resources/fees.

Submit this form (with signature and attachments) via email augustine.anijielo@waterboards.ca.gov or as otherwise indicated on the Los Angeles Water Board's website:
https://www.waterboards.ca.gov/losangeles/water_issues/programs/index.html

ATTACHMENT C- FIREWORKS DISPLAY REPORT FORM

The Fireworks Display Report shall be completed following each fireworks display. The Discharger may attach additional information as necessary. Fireworks Display Reports shall be made available to the Los Angeles Water Board upon request and shall be submitted with self-monitoring reports in accordance with section VIII.C of Attachment E, MRP.

I. GENERAL EVENT INFORMATION

Discharger Name: Event Name:
Event Contact Person Name: Phone Number: Email:
Event Location Address: GPS Coordinates:
Receiving Water Name:
Event Date: Event Start and End Time:

II. FIRING RANGE MAP

Attach an aerial or satellite map identifying the firing range, fireworks fallout area, affected receiving waters, and adjacent coastlines, barges, docks, piers, quays, and any other relevant features or landmarks.

III. PYROTECHNIC OPERATORS

Name	License Number	Date Issued	Expiration Date

IV. FIREWORKS INFORMATION

Aerial Fireworks			Low Level Fireworks		Set Piece Fireworks	
Shell Size	**No. Single Breaks**	**No. Multiple Breaks**	**Type**	**No.**	**Type**	**No.**
25 mm			Mines		Sets	
80 mm			Romans		Devices	
2”			Comets			
3”			Cakes			
4”						
5”						
6”						
8”						
9”						
10”						
11”						
12”						

Net Explosive Weight: pounds (lbs)	

	Were alternative fireworks used? If so, describe:
	Were the entire firing range (including the fireworks launching area and adjacent coastline, quays, docks, and fireworks fallout area), barges (if used), and adjacent surface waters inspected and cleaned of particulate matter and debris from ignited and un-ignited pyrotechnic material within 24 hours following the display? ☐ Yes Date: _____ Time: _____ ☐ No If no, explain:
	Total amount of debris collected from receiving water: _____lbs wet weight _____lbs dry weight (if known)
	Total amount of debris collected: _____lbs wet weight

V. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
Signature:	Date:
Printed Name:	
Title:	
Discharger Name:	
Address:	
Email:	Phone No.:

ATTACHMENT D- STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the CWA and the CWC and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application (40 CFR section 122.41(a)).

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order (40 CFR section 122.41(c)).

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment (40 CFR section 122.41(d)).

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order (40 CFR section 122.41(e)).

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges (40 CFR section 122.41(g)).
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations (40 CFR section 122.5(c)).

F. Inspection and Entry

The Discharger shall allow the Los Angeles Water Board, State Water Resources Control Board (State Water Board), EPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. section 1318(a)(4)(B); 40 CFR section 122.41(i); CWC sections 13267 and 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C. section 1318(a)(4)(B)(i); 40 CFR section 122.41(i)(1); CWC sections 13267 and 13383);
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. section 1318(a)(4)(B)(ii); 40 CFR section 122.41(i)(2); CWC sections 13267 and 13383);

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. section 1318(a)(4)(B)(ii); 40 CFR section 122.41(i)(3); CWC sections 13267 and 13383);
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location (33 U.S.C. section 1318(a)(4)(B)(ii); 40 CFR section 122.41(i)(4); CWC sections 13267 and 13383).
5. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof (40 CFR section 122.41(n)(4)).

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition (40 CFR section 122.41(f)).

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit (40 CFR section 122.41(b)).

C. Transfers

This Order is not transferable to any person except after notice to the Los Angeles Water Board. The Los Angeles Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC (40 CFR sections 122.41(l)(3) and 122.61).

III. STANDARD PROVISIONS – MONITORING (NOT APPLICABLE)

IV. STANDARD PROVISIONS – RECORDS

A. The Discharger shall retain records of all monitoring information, including copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Los Angeles Water Board Executive Officer at any time (40 CFR section 122.41(j)(2)).

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR section 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 CFR section 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 CFR section 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 CFR section 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 CFR section 122.41(j)(3)(v)); and

6. The results of such analyses (40 CFR section 122.41(j)(3)(vi)).

C. Claims of confidentiality for the following information will be denied (40 CFR section 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR section 122.7(b)(1)); and

2. Permit applications and attachments, permits and monitoring data (40 CFR section 122.7(b)(2)).

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the Los Angeles Water Board, State Water Board, or EPA within a reasonable time, any information which the Los Angeles Water Board, State Water Board, or EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Los Angeles Water Board, State Water Board, or EPA copies of records required to be kept by this Order (40 CFR section 122.41(h); CWC sections 13267 and 13383).

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Los Angeles Water Board, State Water Board, and/or EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below (40 CFR section 122.41(k)).

2. All permit applications shall be signed as follows:

a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR section 122.22(a)(1));

b. For a partnership or sole proprietorship: By a general partner or the proprietor, respectively [(40 CFR section 122.22(a)(2)); or

c. For a municipality, State, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA) (40

CFR section 122.22(a)(3)).

3. All reports required by this Order and other information requested by the Los Angeles Water Board, State Water Board, or EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR section 122.22(b)(1));

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position) (40 CFR section 122.22(b)(2)); and

   c. The written authorization is submitted to the Los Angeles Water Board, State Water Board, or EPA (40 CFR section 122.22(b)(3)).

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Los Angeles Water Board, State Water Board or EPA prior to or together with any reports, information, or applications, to be signed by an authorized representative (40 CFR section 122.22(c)).

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   a. "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations" (40 CFR section 122.22(d)).

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program in this Order (40 CFR section 122.41(*l*)(4)).

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Los Angeles Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices (40 CFR section 122.41(*l*)(4)(i)).

D. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be

provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance (40 CFR section 122.41(*l*)(6)(i)).

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR section 122.41(*l*)(6)(ii)):

   Any emergency that occurred which results in fireworks-related trash not being able to be collected following an event.

E. Planned Changes

The Discharger shall give notice to the Los Angeles Water Board as soon as possible of any alterations to the permitted activity (40 CFR section 122.41(*l*)(1)). Notice is required under this provision when:

1. The changes meet one of the criteria for determining whether a facility is a new source in 40 CFR section 122.29(b) (40 CFR section 122.41(*l*)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order, nor to notification requirements under 40 CFR section 122.42(a)(1) (see Additional Provisions—Notification Levels VII.A.1) (40 CFR section 122.41(*l*)(1)(ii)).
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan (40 CFR section 122.41(*l*)(1)(iii)).

F. Anticipated Noncompliance

The Discharger shall give advance notice to the Los Angeles Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with the requirements of this Order (40 CFR section 122.41(*l*)(2)).

G. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.E.3, V.E.4, and V.E.5 above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above (40 CFR section 122.41(*l*)(7)).

H. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Los Angeles Water Board, State Water Board, or EPA, the Discharger shall promptly submit such facts or information (40 CFR section 122.41(*l*)(8)).

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Los Angeles Water Board and State Water Board is authorized to enforce the terms of this Order under several provisions of the CWC, including, but not limited to, sections 13268, 13385, 13386, and 13387.

1. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the CWA, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the CWA, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the CWA, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the CWA, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions (40 CFR section 122.41(a)(2); CWC sections 13385 and 13387).

2. Any person may be assessed an administrative penalty by the Los Angeles Water Board for violating section 301, 302, 306, 307, 308, 318 or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the CWA. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000 (40 CFR section 122.41(a)(3)).

3. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment

of not more than 4 years, or both (40 CFR section 122.41(j)(5)).

4. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both (40 CFR section 122.41(k)(2)).

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural dischargers shall notify the Los Angeles Water Board as soon as they know or have reason to believe (40 CFR section 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR section 122.42(a)(1)):

   a. 100 micrograms per liter (µg/L) (40 CFR section 122.42(a)(1)(i));

   b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4 dinitrophenol and 2 methyl 4,6 dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(1)(ii));

   c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(1)(iii)); or

   d. The level established by the Los Angeles Water Board in accordance with 40 CFR section 122.44(f) (40 CFR section 122.42(a)(1)(iv)).

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" (40 CFR section 122.42(a)(2)):

   a. 500 micrograms per liter (µg/L) (40 CFR section 122.42(a)(2)(i));

   b. 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(2)(ii));

   c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(2)(iii)); or

   d. The level established by the Los Angeles Water Board in accordance with 40 CFR section 122.44(f) (40 CFR section 122.42(a)(2)(iv)).

ATTACHMENT E - MONITORING AND REPORTING PROGRAM (MRP)

40 CFR section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Section 13383 of the CWC also authorizes the Los Angeles Water Board to establish monitoring, reporting, and recordkeeping requirements. This MRP establishes monitoring and reporting requirements which implement the federal and California laws and/or regulations.

I. GENERAL MONITORING PROVISIONS

A. Visual and video monitoring locations shall be established where accurate visual and pictural information can be obtained during and after the fireworks display.

B. The Discharger shall monitor the implementation of best management practices in accordance with Provision VII.B of R4-2023-XXXX

C. Each monitoring report shall state whether there was any change in the discharge as described in the Order during the reporting period.

D. In the event wastes generated from the fireworks display are transported to a different disposal site during the report period, the following shall be reported in the monitoring report:

1. Types of wastes and quantity of each type;
2. Name and address for each hauler of wastes (or method of transport if other than by hauling); and
3. Location of the final point(s) of disposal for each type of waste.

If no wastes are transported off-site during the reporting period, a statement to that effect shall be submitted.

II. MONITORING LOCATION

The Discharger shall establish monitoring locations for each fireworks display event that covers the firing range and adjacent affected surface waters to access implementation and compliance with the BMPs.

III. EFFLUENT MONITORING REQUIREMENTS – N/A

IV. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS – N/A

V. LAND DISCHARGE REQUIREMENTS – N/A

VI. RECLAMATION MONITORING REQUIREMENTS – N/A

VII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

A. Visual Monitoring:

The Discharger shall conduct visual monitoring within one hour following the end of the fireworks event, if feasible and practical. Visual monitoring must be conducted latest in the morning of the day immediately following the fireworks event. Visual monitoring shall occur within and adjacent to the firing range, and at the area most likely to accumulate

fireworks debris based on the prevailing wind, current, and tides. Visual monitoring of the surface water conditions, such as wind (direction and speed), weather (cloudy, sunny, or rainy), direction of current, tidal conditions (high or low), discoloration, oil and grease, turbidity, odor, and floatable or suspended fireworks debris, if any, at the designated receiving water shall be recorded. The results of visual monitoring shall be submitted with the Display of Fireworks Post-Event Report Form in accordance with the schedule in section VIII.C of this MRP.

B. Visual Monitoring applicable for fireworks display from Barges or vessels on Surface Waters.

C. Discharger or its pyrotechnics company shall:

1. Collect video footage of the event, with filming taking place on the barge to capture the extent of debris and potential fallout zone in the immediate vicinity of the barge.
2. Monitor any discharge of fireworks into the water, (i.e., the base-level explosive material discharges), not the display itself;
3. Use more than one video to capture any discharge in the water adjacent to the barge and the potential discharge from the barge itself.
4. Take photos of the barge before and after the show to capture debris fallout.
5. Take photos of the debris collected from the barge cleanup/sweeping efforts.
6. Dive Team/Equivalent Monitoring Device. Take photographs of the bay floor prior to the fireworks display events and as soon thereafter as possible to capture visual evidence of suspended debris and/or debris deposition within the fallout zone.

D. Special Study

In recent years, the Los Angeles Water Board has issued multiple Investigative Orders, pursuant to California Water Code section 13267, to fireworks organizers in Long Beach Harbor and Alamitos Bay to conduct water quality monitoring before fireworks displays to determine baseline and post-display conditions to determine any water quality impacts caused by the fireworks activities. Although water quality data were collected in response to these investigative orders, the data only provided a partial picture of the impacts from the fireworks activities because the sampling was conducted 12 hours after the displays occurred, allowing time for pollutants to move out of the fallout zone and beyond sampling locations. Therefore, a more immediate and comprehensive understanding of the fate, transport, and impacts of residual pollutants from fireworks is necessary.

Thus, the Dischargers shall conduct a special study to determine the impacts of the constituents from fireworks in the fallout zone by collecting samples in “real time” during the fireworks displays. The Dischargers shall submit a work plan within 12 months from the effective date of this Order for approval by the Executive Officer of the Los Angeles Water Board. The Work Plan shall include real time sampling for all the constituents hereby specified: Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Thallium, Tin, Titanium, Vanadium, Zinc, nitrate, bis-phthalate, Total Phosphorous, and Perchlorate within the fall out zone.

Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest minimum levels (MLs) specified in Attachment 4 of the SIP (and included as Appendix A of this Order), or where no methods are specified for a given pollutant, pollutants shall be analyzed by methods approved by the Los Angeles Water Board or the State Water Board. Monitoring results and the report shall be submitted to the Los Angles Water Board within 90 days of the completion of the monitoring.

VIII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) of Order R4-2023-XXXX related to monitoring, reporting, and recordkeeping.
2. Each monitoring report shall contain a separate section titled “Summary of Non-Compliance” which discusses the compliance record and corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. This section shall clearly list all non-compliance with waste discharge requirements.
3. The Discharger shall inform the Los Angeles Water Board well in advance of any proposed activity that could potentially affect compliance with applicable requirements.

B. Fireworks Display Reports

The Discharger shall complete and maintain a Fireworks Display Report (see Attachment C) for each fireworks display. Fireworks Display Reports shall be submitted to the Los Angeles Water Board with the self-monitoring reports required by Section VIII.C. of this MRP within 60 days of conducting of the firework display event.

C. Self-Monitoring Reports

1. The Discharger shall submit SMRs 60 days after each fireworks event. The Discharger shall submit SMRs via email to losangeles@waterboard.ca.gov . If there has been no discharge (i.e., no public fireworks display) during the previous calendar year (January 1 through December 31), the Discharger shall submit SMRs annually by February 15 stating that there was no discharge. SMRs shall include the following:

a. A cover letter with summary of non-compliance;

b. The Fireworks Display Report (Attachment C);

c. The list of fireworks displays and location(s),;

d. Discussion of performance and compliance of the fireworks operations in the reporting period, including any corrective actions taken or planned, such as changes to equipment or operations needed to achieve compliance and any other actions taken or planned that are intended to improve the performance and reliability of the Discharger’s practices;

e. Identification of any violations of this Order or a statement that there were no violations

in the reporting period, and detailed description of the causes of the violations and proposed time schedule for corrective actions taken or planned to resolve the violations and prevent recurrence (if previous reports address the corrective actions, then reference the earlier reports);

f. Visual and video monitoring report;

g. Evaluation of BMP performance; and

h. Signature in accordance with the standard provision on signature requirements in Attachment D of the Order.

2. If SMRs and documents are 10 MB or larger, the documents should be transferred to a disk and mailed to the address listed below.

LARWQCB – Los Angeles Region

320 West 4th Street, Suite 200
Los Angeles, CA 90013
Attn: General Permitting Unit

3. At any time during the term of this General Permit, the State or Los Angeles Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall email electronic copy of SMRs to losangeles@waterboards.ca.gov. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

D. Discharge Monitoring Reports (DMRs) (not applicable)

E. Other Reports ~~(not applicable)~~

1. Special Study Report: Real time samples shall be collected within the firework fallout area and the special study report shall include results of chemical analysis, meteorological conditions on the date of monitoring, sampling methods and sampling devices, analytical methods, and other relevant information pertaining to the monitoring activities. The special study report shall be submitted to the Los Angles Water Board within 90 days of the completion of the special study.

F. Notifications:

At least 14 calendar days prior to each fireworks display; the Discharger shall notify the Los Angeles Water Board, via email to losangeles@waterboards.ca.gov, of its intent to conduct public fireworks display, providing date and location of the event.

ATTACHMENT F - FACT SHEET

TABLES

ATTACHMENT F – FACT SHEET

The California Regional Water Quality Control Board, Los Angeles (Los Angeles Water Board) incorporates this Fact Sheet as findings of the Los Angeles Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order. This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in the State of California (State). Only those sections of this Order that are specifically identified as "not applicable" have been determined not to apply to Dischargers under this Order. Sections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The State Water Resources Control Board (State Water Board) has been authorized by the EPA, pursuant to Section 402 of the Clean Water Act (CWA), to administer the National Pollutant Discharge Elimination System (NPDES) program in California since 1973. The procedures for the State Water Board and the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board) to issue NPDES permits, pursuant to NPDES regulations at 40 Code of Federal Regulations (CFR) Sections 122 and 1231, were established through the NPDES Memorandum of Agreement between the EPA and the State Water Board on September 22, 1989.

Section 122.28(a)(2)(ii) provides for issuance of general NPDES permits to regulate a category of point sources, other than storm water point sources, if the sources within the category: (a) involve the same or substantially similar types of operations; (b) discharge the same types of waste; (c) require the same effluent limitations or operating conditions; (d) require the same or similar monitoring; and (e) in the opinion of the permitting authority, are more appropriately controlled under a general NPDES permit rather than individual NPDES permits. General NPDES permits enable the Los Angeles Water Board to expedite the processing of requirements, simplify the application process for Dischargers, better utilize limited staff resources, and avoid the expense and time involved in repetitive public noticing, hearings, and permit adoptions.

When fireworks are detonated and combusted, firework combustion residue is produced in the form of smoke, airborne particulates, chemical pollutants, and debris including plastic, paper, cardboard, wires, and fuses. This combustion residue can fall into surface waters. Un-ignited pyrotechnic materials including duds and misfires can also fall into surface waters. Evidence gathered by the San Francisco and San Diego Water Boards as well as information submitted to the Los Angeles Water Board establishes that fireworks-related trash is discharged in connection with public fireworks displays.

Chemicals released from the firework combustion residues and un-ignited pyrotechnic materials include, but are not limited to, aluminum, antimony, barium, carbon, calcium, chlorine, cesium, copper, iron, potassium, lithium, magnesium, nitrates, perchlorates, phosphorus, sodium sulfur, strontium, titanium, and zinc. The fireworks residue fallout area on receiving water can vary depending on wind speed and direction, shell sizes (in general, the fallout area is 70 feet per inch of shell diameter), the angle of mortar placement, the type and height of firework explosions and other environmental factors. Once the firework residue enters a water body, it can be transported to waters and coastline outside the

[1] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

fallout area due to the horizontal water movements due to wind shear and tidal effects. However, several years of monitoring reports submitted to the Los Angeles Water Board in compliance with 13267 letters issued for fireworks displays in Long Beach Harbor and Alamitos Bay showed no evidence of sediment or water quality impairment to receiving waters from fireworks shows conducted during New Years Day and 4th of July celebrations.

Section 301(a) of CWA broadly prohibits the discharge of any pollutant to waters of the United States, except in compliance with an NPDES permit. Fireworks residue waste discharged into surface waters constitutes discharge of a pollutant. Therefore, coverage under an NPDES permit is required before residual firework pollutant discharges associated with the public display of fireworks can be lawfully discharged.

Effluent limitations and permit conditions are the two major mechanisms in NPDES permits to regulate discharge of pollutants from point-sources. Effluent limitation, as defined in Section 502(11) of CWA, refers to any restriction established by NPDES authorities in an NPDES permit on quantities, rates, and concentrations of chemical, physical, biological, and other pollutants. The restrictions are commonly effluent limits expressed in numerical values. In some cases, nonnumeric or narrative effluent limitations rather than, or in addition to, numeric limitations are applied in NPDES permits. This Order prohibits discharge of plastic trash associated with firework displays into surface waters, and requires implementation of best management practices (BMPs) in lieu of traditional effluent limitations, to ensure the discharges of residual firework pollutants do not cause pollution or nuisance conditions in surface waters within the Los Angeles Region.

II. DISCHARGE DESCRIPTION

This Order covers residual firework pollutant discharges to waters of the United States associated with public fireworks displays. Dischargers enrolled under this Order conduct public fireworks displays for community celebrations, such as for Fourth of July and New Year's Eve, and entertainment associated with sporting, business, and school events.
Discharge Information

This Order regulates discharges of the residual pollutants from public firework displays (residual firework pollutants) to surface waters within the jurisdiction of the Los Angeles Water Board. Public displays of fireworks are conducted throughout the year at various locations within the Los Angeles Region as part of national and community celebrations and other special events. Additionally, firework displays and pyrotechnics special effects are periodically used in other venues such as business grand openings, special events, school events, sport events, and local fairs. The most significant and widespread use of fireworks displays in the Los Angeles Region are for annual Fourth of July and New Year's Eve events. Firework display sites on or adjacent to urban coastlines, and on surface waterbodies such as lakes are often the preferred setting to provide public access and avoid fire hazards associated with terrestrial display sites.

Fireworks are a class of low explosive pyrotechnic devices used to produce four primary effects: noise, light, smoke, and floating materials (e.g., confetti), for aesthetic or entertainment purposes. Fireworks may be designed to burn with colored flames and sparks including red, orange, yellow, green, blue, purple, and silver.

1. Firework Types

Fireworks can be detonated at ground (set piece or lance work fireworks) or up to over 1,000 feet in the air (aerial fireworks), which decisively determines the sizes of the

residual fallout area. According to their design detonation height, fireworks are grouped into three general categories in this Order:

a. Aerial Fireworks

Aerial fireworks are typically shot into the air by a mortar using a black powder lift charge or propellant. The aerial shell typically consists of a cylinder or spherical cartridge, usually constructed of paper, plastic, or cardboard, and may include some plastic or paper internal components within the shell. The shell casing contains a burst charge, pyrotechnic material that emits prescribed colors and effects when burst, a fuse, and a black powder lift charge. Aerial shells are often combined in fireworks display to create a variety of shapes and colors upon detonation.

The lift charge and shell are placed at the bottom of a mortar partially buried in earth and or placed within a rack. Shells can be launched one at a time or in a barrage of simultaneous launches or launches in quick succession. Shells are typically designed to perform between 200 and 1,000 feet above ground level. Most of the incendiary elements and shell casings burn up in the atmosphere; however, portions of the casings and some internal structural components and chemical residue fall back to the ground or receiving waters.

b. Low-level Fireworks

Low-level fireworks devices consist of pyrotechnic pellets packed linearly within a tube. When the device is ignited, the pellets exit the tube in succession producing a fountain effect of single or multi-colored lights as the pellets burn through the course of their flight. Typically, the pellets burn rather than explode, thus producing a ball or trail of sparkling light to a prescribed altitude, then extinguish. Sometimes they may terminate with a small explosion similar to a firecracker. Other low-level fireworks devices emit a projected hail of colored sparks or perform erratic low-level flight while emitting a high-pitched whistle. Some emit a pulsing light pattern or crackling or popping sound effects. Generally, low-level launch devices and encasements remain on the ground or attached to a fixed structure and can be removed upon completion of the display. They are generally designed to produce effects between 0 and 200 feet above ground level.

c. Set Piece Fireworks

Set piece fireworks are primarily static and remain close to the ground. They are usually attached to a frame that may be crafted in the design of a logo or familiar shape, and illuminated by pyrotechnic devices, such as flares, sparklers, or strobes. Set pieces are typically used in concert with low-level effects or an aerial show, and sometimes act as a centerpiece for the display. Set pieces may have moving parts, but typically do not launch devices into the air. Set piece displays are typically designed to produce effects between 0 and 50 feet above ground level.

2. Firework Chemical Constituents

A partial list of chemical elements used in fireworks for fuels, oxidizers, binding agents, coloration effects and sound effects are provided in the following table. Although monitoring to date in the Los Angeles region has shown no impacts to water quality, public displays of fireworks over or adjacent to surface waters may result in the discharge of residual firework pollutants containing these chemical elements to surface waters at levels that could cause or contribute to cause to an exceedance of a water quality standard in the receiving water.

Table F-1. Firework Chemical Constituents and Functions

Constituent	Function
Aluminum (Al)	Creates silver and white flames and sparks.
Antimony (Sb)	Creates glitter effects.
Barium (Ba)	Creates green colors and stabilizes other volatile elements.
Carbon (C)	Provides fuel as a main component of black powder.
Calcium (Ca)	Enhances fireworks colors; calcium salts produce orange fireworks.
Chlorine (Cl)	Enhances volatility and light emission of color-producing metals.
Cesium (Cs)	Creates indigo colors.
Copper (Cu)	Creates blue colors.
Iron (Fe)	Creates sparks that vary in color according to the heat of the metal.
Lithium (Li)	Creates red colors; lithium carbonate is a common colorant.
Magnesium (Mg)	Creates white sparks or improves firework brilliance.
Phosphorus (P)	Creates glow-in-the-dark effects and burns spontaneously in air; found in some firework fuels.
Strontium (Sr)	Creates red colors and stabilizes fireworks mixtures.
Sulfur (S)	Provides fuel as a main component of black powder.
Titanium (Ti)	Creates silver sparks.
Zinc (Zn)	Creates smoke effects.

Various factors can affect the levels of firework chemical residues in surface waters adjacent to fireworks displays, such as the frequency of firework events, the overall number of ignited fireworks per event, efficiency of perchlorate oxidation which controls the mass of perchlorate introduced to the environment, wind direction, velocity which controls the dispersion and fall-out of firework particles, and number of duds or misfires. All of these factors associated with the detonation of fireworks have a potential to adversely affect or contribute to degradation of water and sediment quality within the receiving water.

3. Discharge Points and Receiving Waters

Under the General Permit, there may be multiple discharge points. Information regarding the discharge points and applicable receiving waters can be found in the completed NOI and will be included in the Notice of Applicability (NOA).

The following table summarizes administrative information related to the facility of dischargers covered under the Order.

Table F-2. Facility Information

Discharger	Any person discharging pollutants associated with the public display of fireworks to surface waters in the Los Angeles Region.
Major or Minor Facility	Minor
Threat to Water Quality	3
Complexity	C
Watershed	Watersheds within Los Angeles Water Board's Jurisdiction.
Receiving Water	Surface waters in Los Angeles and Ventura Counties
Receiving Water Type	Ocean waters, enclosed bays, estuaries, and inland surface waters

4. Fees

Section 2200 (Annual Fee Schedules) of Title 23 of the California Code of Regulations (CCR) requires that all discharges subject to waste discharge requirements shall pay an application fee and subsequent annual fees (if applicable). Section 2200 of the CCR provides Annual Fee Schedules based on threat to water quality and complexity of the discharge.

Residual firework pollutant discharges are classified as Category 3 pursuant to the fee schedule. This category is appropriate because this Order incorporates BMPs to control potential impacts to beneficial uses, requires no treatment systems to meet the Order's terms and conditions, and prohibits residual firework pollutants from causing excursions of water quality objectives. Residual firework pollutants discharges pose no significant threat to water quality.

The annual fee associated with this category can be found on the Water Quality Fees webpage under NPDES Permit Fees (https://www.waterboards.ca.gov/resources/fees/water_quality/#npdes).

III. APPLICABLE PLANS, POLICIES AND REGULATIONS

The requirements contained in the Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to section 402 of the CWA and implementing regulations adopted by the EPA and Chapter 5.5, Division 7 of the California Water Code (CWC) (commencing with section 13370). It shall serve as a NPDES permit for point source discharges of residual firework pollutants from public fireworks displays to surface waters under the jurisdiction of the Los Angeles Water Board. This Order also serves as WDRs pursuant to Article 4, Chapter 4 of the CWC (commencing with section 13260; see in particular section 13263, subd. (i) [general permits]).

States may request authority to issue general NPDES permits pursuant to 40 CFR section 122.28. The State Water Board has been authorized by the EPA to administer the NPDES program in California since 1973. The procedures for the State Water Board and

the Los Angeles Water Board to issue NPDES permits pursuant to 40 CFR Parts 122 and 123 were established through the NPDES Memorandum of Agreement between the EPA and the State Water Board on September 22, 1989.

B. California Environmental Quality Act (CEQA)

Under CWC section 13389, this action to adopt an NPDES permit is exempt from CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code See also *County of Los Angeles v. State Water Resources Control Board (SWRCB)* (2006) 143 Cal.App.4th 985, 1007. Fireworks shows are also existing discharges.

C. State and Federal Regulations, Policies, and Plans

1. Water Quality Control Plans.

The Los Angeles Water Board's *Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan states that the beneficial uses of any specifically identified water body generally apply to its tributary streams.

2. California Ocean Plan

The State Water Board adopted the Water Quality Control Plan for Ocean Waters of California (California Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, 2012, 2015, and 2018. The State Water Board adopted the latest amendment on August 7, 2018, the USEPA approved the amendments on March 22, 2019, and it became effective on March 22, 2019. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean.

3. California Thermal Plan.

The State Water Board adopted the Water Quality Control Plan for Control of Temperature in the Costal and Interstate Water and Enclosed Bays and Estuaries of California (Thermal Plan) on January 7, 1971, and amended this plan on September 18, 1975.

4. Sediment Quality

The State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* on September 16, 2008, and it became effective on August 25, 2009. This plan contains a narrative water quality objective: "Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities in bays and estuaries of California." This objective is to be implemented by integrating three lines of evidence: sediment toxicity, benthic community condition, and sediment chemistry. The plan requires that if the Regional Water Board determines that a discharge has reasonable potential to cause or contribute to an exceedance of this objective, it is to impose the objective as a receiving water limit.

According to the sediment monitoring that SeaWorld conducted in San Diego's Mission Bay from September 2012 through September 2018, fireworks discharges are unlikely to cause or contribute to exceedances of the sediment quality objectives (Annual Fireworks Monitoring Report, SeaWorld, 2019). The potential impacts of fireworks displays in the Los Angeles Region are expected to be significantly less than those in Mission Bay due

to infrequency (once per year) and greater geographic distribution of the fireworks events. This is further supported by several years of monitoring reports submitted to the Los Angeles Water Board in compliance with 13267 letters issued for fireworks displays in Long Beach Harbor and Alamitos Bay. The reports showed no evidence of sediment or water quality impairment from fireworks shows conducted during New Year and 4th of July of each year. Therefore, this Order does not implement sediment quality objectives and does not establish sediment monitoring for discharges governed by this Order.

5. National Toxics Rule (NTR) and California Toxics Rule (CTR).

   EPA promulgated the NTR on December 22, 1992, and later revised it on May 4, 1995, and November 9, 1999. About forty water quality criteria in the NTR applied in California. On May 18, 2000, EPA promulgated the CTR (40 CFR section 131.38). The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was revised on February 13, 2001. These rules contain water quality criteria for priority pollutants.

6. State Implementation Policy.

   On March 2, 2000, the State Water Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the EPA through the NTR and to the priority pollutant objectives established by the Los Angeles Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the EPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control.

7. Antidegradation Policy.

   40 CFR section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified, based on specific findings. The Los Angeles Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in more detail later in this Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR section 131.12 and State Water Board Resolution No. 68-16.

8. Anti-Backsliding Requirements.

   Sections 402(o) and 303(d)(4) of the CWA and section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

9. Endangered Species Act.

   This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the

future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with requirements intended to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the Endangered Species Acts.

10. Trash Amendments.

The State Water Board adopted the "Amendment to the Ocean Plan and Part I Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California" (Trash Amendments) through Resolution No. 2015-0019, which was approved by the Office of Administrative Law (OAL) on December 2, 2015, and became effective upon U.S. EPA approval on January 12, 2016. The Trash Amendments established a narrative water quality objective and a prohibition on the discharge of trash, to be implemented through permits issued pursuant to CWA section 402(p), waste discharge requirements, or waivers of waste discharge requirements.

The Trash Amendments apply to all surface waters of the State, with the exception of those waters within the jurisdiction of the Los Angeles Water Board where trash or debris Total Maximum Daily Loads (TMDLs) were in effect prior to the effective date of the Trash Provisions. The Trash Amendments identify plastic trash, in particular, as a priority, and targeted reductions in marine debris, due to the facts that plastics do not readily biodegrade, constitute the larger percentage of floating trash, and can serve as a transport medium for pollutants and sorb persistent organic pollutants in the marine environment. Ingestion of plastics by birds and marine mammals has been identified as "detrimental," posing a "significant threat," and causing fatalities. The Trash Amendments also acknowledge the threat of micro-plastics, which occur as the result of breakdown of plastic trash in the environment. The Trash Amendments authorize NPDES permitting authorities, such as the Los Angeles Water Board, to require dischargers to implement any appropriate trash controls in areas or facilities that may generate trash. This Order incorporates the requirements of the Trash Amendments through discharge prohibitions and requirements to develop and implement BMPs to prevent the discharge of trash, in particular plastic trash, to surface waters.

11. Environmental Justice and Advancing Racial Equity.

When issuing or reissuing regional or statewide waste discharge requirements or waivers of waste discharge requirements, the state board or a regional board shall make a concise, programmatic finding on potential environmental justice, tribal impact, and racial equity considerations related to the issuance. The finding shall be based on readily available information identified by staff or raised during the public review process and include the information specified in paragraphs (1) and (2) of subdivision (b). (Water Code § 13149.2, effective Jan. 1, 2023). Water Code section 189.7 requires the Los Angeles Water Board to conduct outreach in affected disadvantaged and/or tribal communities. The Los Angeles Water Board is also committed to developing and implementing policies and programs to advance racial equity and environmental justice so that race can no longer be used to predict life outcomes, and outcomes for all groups are improved.

This General Order regulates residual firework pollutant discharges associated with the public display of fireworks to surface waters -- mostly harbors, bays, and ocean fronts -- where previously no specific regulations from the Los Angeles Water Board were

implemented. The General Order aims to provide level guidance, regulation and accountability to fireworks shows conducted over receiving waters throughout the region. Based on historical public fireworks display locations, the areas around the fireworks displays in Los Angeles County don't have disadvantaged communities as defined in Water Code section 189.7(d)(1), but there are multiple tribal communities. The area around the one known historical fireworks display in Ventura County has a disadvantaged community and tribal communities. The areas around fireworks displays in Los Angeles County have Cal EnviroScreen scores ranging from 5-38, which indicate that the surrounding communities are not disproportionately impacted by pollution burden. A Cal EnviroScreen score of 81 is reported for the Ventura county location, which indicates the surrounding community may be disproportionally burdened by pollution.

The Los Angeles Water Board has therefore conducted outreach consistent with Water Code section 189.7 by reaching out to surrounding communities and tribal communities about this Order. Additionally, the Board considered any environmental justice concerns within the Board's authority and raised by interested persons with regard to those impacts. In accordance with the Water Boards' efforts to advance racial equity, the Order requires the Permittee to meet water quality standards to protect public health and the environment, thereby benefitting all persons and communities within the Region. Therefore, the Los Angeles Water Board anticipates that the issuance of this Order will not result in water quality impacts to disadvantaged or tribal communities or raise environmental justice concerns.

D. Impaired Water Bodies on CWA Section 303(d) List

The State Water Board prepared the California 2020 and 2022 Integrated Report based on a compilation of the Los Angeles Water Boards' Integrated Reports. These Integrated Reports contain both the Clean Water Act (CWA) section 305(b) water quality assessment and section 303(d) list of impaired waters. In developing the Integrated Reports, the Water Boards solicit data, information, and comments from the public and other interested persons. On January 19, 2022, the State Water Board approved the CWA Section 303(d) List portion of the State's 2020 and 2022 Integrated Report (State Water Board Resolution No. 2022-0006). On May 11, 2022, the EPA approved California's 2020 and 2022 list of water quality limited segments requiring a TMDL under CWA section 303(d) for the Los Angeles Region as well as the rest of California. The CWA section 303(d) list can be found at the following link: https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html The Los Angeles Water Board has adopted trash TMDLs for fifteen watersheds and water bodies: Los Angeles River Watershed, Ballona Creek, Malibu Creek Watershed, Santa Monica Bay Nearshore and Offshore, San Gabriel River East Fork, Revolon Slough and Beardsley Wash, Ventura River Estuary, Machado Lake, Lake Elizabeth, Lake Hughes, Munz Lake, Peck Road Park Lake, Echo Park Lake, Lincoln Park Lake and Legg Lake. The discharges regulated through this Order are not expected to contribute to any water quality impairment because the requirements of Provision VII.B of this Order will sufficiently control potential pollutant discharges.

E. Related Fireworks Regulatory Agencies

1. Office of the California State Fire Marshal.

California's Fireworks Law, passed in 1938, established the Office of the State Fire Marshal (SFM) as the fireworks classification authority in California.

Fireworks are classified through laboratory analysis, field examinations and test firing of items. As part of the program, SFM requires the licensing of all pyrotechnic operators, fireworks manufacturers, importer-exporters, wholesalers, retailers, and public display companies. Pyrotechnic operators, who discharge fireworks at public displays or launch high powered and experimental rockets, must also pass a written examination and provide proof of experience. The State's Explosives Law authorizes the California State Fire Marshal to adopt regulations for the safe use, handling, storage and transportation of fireworks in California. The laws and regulations governing the transportation, use and storage of fireworks in California are contained in:

a. State Fireworks Law, California Health and Safety Code, Section 12500 – 12728;

b. State Fireworks Regulations, Title 19, California Code of Regulations (CCR), Chapter 6;

c. Storage, Title 27, Code of Federal Regulations (CFR) part 55, Sub-part K; and

d. Hazardous Materials Transportation, Title 13, CCR.

2. California State Department of Toxic Substances Control.

In light of the risks to public health and the environment posed by perchlorate releases, the California Legislature adopted the Perchlorate Contamination Prevention Act of 2003, amending Chapter 6.5 of Division 20 of, the Health and Safety Code and requiring the California Department of Toxic Substances Control (DTSC) to adopt regulations specifying BMPs for perchlorate and perchlorate-containing substances. The perchlorate BMP regulations were adopted on December 31, 2005 and are contained in CCR, Title 22. Social Security Division 4.5. Environmental Health Standards for the Management of Hazardous Waste Chapter 33. Best Management Practices for Perchlorate Materials Article 1, § 67384.1 - § 67384.11. These regulations provide at § 67384.8 (c), Special Best Management Practices for Flares and Pyrotechnic Perchlorate Materials, that:

"Within twenty-four (24) hours of a public display of fireworks or the use of dangerous fireworks, the pyrotechnics operator, in addition to complying with title 19 of the California Code of Regulations, section 1003, shall, to the extent practical, collect any stars and un-ignited pyrotechnic material found during the required inspection of the entire firing range."

3. United States Coast Guard.

The United States Coast Guard (USCG), pursuant to 33 CFR 100, implements a Marine Safety Program designed to ensure the safety of vessels and recreational boaters on navigable United States waters during fireworks display events. The USCG issues Marine Event permits to parties sponsoring or hosting public display of fireworks marine events that have the potential to endanger marine safety. An Application for Approval of Marine Event must be submitted to the USCG or approval no later than 135 days prior to the event if the applicant does not meet criteria specified in 33 CFR 100.15 (c), or 60 days prior to the event if the applicant does meet the criteria. After approving plans for the holding of a fireworks display event, the USCG is authorized to promulgate special local regulations as necessary to ensure public safety on navigable waters immediately prior to, during, and immediately after the approved fireworks event. Such regulations may include a restriction on, or control of, the movement of vessels through a specified fireworks display area.

4. South Coast Air Quality Management District.

The South Coast Air Quality Management District (AQMD) is the air pollution control agency for all of Orange County and the urban portions of Los Angeles, Riverside and San Bernardino Counties. The AQMD historically has not required permits for equipment associated with fireworks displays at theme park activities or annual celebrations. AQMD Rule 219- Exemptions From Written Permit Requirements, specifically exempts pyrotechnic equipment from written permit requirements. AQMD prohibitory Rule 4–4 - Open Burning, also provides exemption from rule provisions for various fireworks and pyrotechnics activities. Ventura County Air Pollution Control District has no similar rules.

5. United States Department of Transportation.

Prior to transportation into and within the United States, all explosives, including fireworks, must be classed and approved by Department of Transportation (DOT). Federal hazardous materials (hazmat) transportation law (Federal hazmat law; 49 U.S.C., 5101 et seq.) authorizes DOT to issue classification documents in accordance with the Hazardous Materials Regulations (HMR; 49 CFR, parts 100 -185). All fireworks must be in compliance with, and meet the terms and conditions of, the American Pyrotechnic Association (APA) Standard 87-1 (which is incorporated by reference as part of the HMR, or be submitted to a DOT-approved laboratory for examination and classification (see 49 CFR 173.56(b)). If approved, fireworks are assigned an explosives classification number by the Associate Administrator of Hazardous Materials Safety.

Approval holders also must comply with the rules set forth by the USCG; United States Customs and Border Protection; Bureau of Alcohol, Tobacco, and Firearms; as well as the Consumer Product Safety Commission.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations. Section 122.44(a) requires that permits include applicable technology-based limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

As most recently evaluated in *Coastal Environmental Rights Foundation v. Naples Restaurant Group, LLC* (2023 C.D. Cal.) ___F.Supp.3d ___ (Case No. 2:21-cv-09172-MCS-JEM), mortars constitute a point source from which discharges of residual firework pollutants, such as debris and chemicals, may occur. This Order does not establish effluent limitations but requires BMPs and establishes prohibitions.

A. Discharge Prohibitions

Based on 40 CFR section 122.21(a) and Water Code section 13260, which require filing an application and Report of Waste Discharge before discharge can occur, Section IV.1. of the Order prohibits discharges of any waste at a location different from the location(s) listed in the NOA.

Based on California Water Code section 13263, which requires the Los Angeles Water Board to prescribe WDRs that prevent nuisance conditions, Section IV.2. of the Order

prohibits discharge of pollutants so as to create pollution, contamination, or nuisance as defined by Water Code section 13050.

B. Technology Based Effluent Limitations

Section 301(b) of the CWA and implementing EPA permit regulations at 40 CFR section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards in the receiving water. The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs). USEPA has not developed ELGs for this type of industry or discharge. Section 402(a)(1) of the CWA and section 125.3 of the CFR authorize the use of best professional judgment to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern.

C. Water Quality Based Effluent Limitations

1. Scope and Authority

Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards in the receiving water.

2. Applicable Beneficial Uses, and Water Quality Criteria and Objectives

Typical beneficial uses covered by this Order include the following:

a. Inland surface waters above an estuary – municipal and domestic supply, industrial service and process supply, agricultural supply, groundwater recharge, freshwater replenishment, aquaculture, warm and cold freshwater habitats, inland saline water and wildlife habitats, water contact and noncontact recreation, fish migration, and fish spawning.

b. Inland surface waters within and below an estuary – industrial service supply, marine and wetland habitats, estuarine and wildlife habitats, water contact and noncontact recreation, commercial and sport fishing, aquaculture, migration of aquatic organisms, fish migration, fish spawning, preservation of rare and endangered species, preservation of biological habitats, and shellfish harvesting.

c. Coastal Zones (both nearshore and offshore) – industrial service supply, navigation, water contact and noncontact recreation, commercial and sport fishing, marine habitat, wildlife habitat, fish migration and spawning, shellfish harvesting, and rare, threatened, or endangered species habitat.

Water quality criteria and objectives to protect these beneficial uses are described below:

a. Basin Plan - The Basin Plan specifies numerous water quality objectives to protect aquatic life, human health, and other beneficial uses. These objectives include the primary and secondary maximum contaminant levels for waters designated for use as domestic or municipal supply.

b. CTR - The CTR specifies numeric aquatic life and human health criteria for numerous priority pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries. Some human health criteria are for consumption of “water and organisms” and others are for consumption of “organisms only.” Waters with the municipal or

domestic supply beneficial use designation are subject to the “water and organisms” criteria.

c. Ocean Plan- The Ocean Plan specifies water quality objectives to protect the quality of ocean waters for use and enjoyment. The beneficial uses of the ocean waters that shall be protected include industrial, recreation, navigation, and aquatic life. This plan is applicable to both point sources and non-point sources of waste discharges to the ocean.

3. Determining the Need for WQBELs

a. Available Information

The need for WQBELs in the Order is evaluated based on the pertinent EPA regulations and SIP requirements for a reasonable potential analysis (RPA). Available water quality information for the RPA includes data collected from fireworks water quality monitoring conducted in the Los Angeles Region (San Pedro Bay and Alamitos Bay Fireworks Water Quality Monitoring reports in 2017, 2018, and 2022) and the San Diego Region (Annual Fireworks Monitoring Reports, SeaWorld, 2013 – 2019).

The Los Angeles Water Board issued several Investigative Orders from 2017 to 2022, for July 4th-related firework display activities conducted at Boathouse on the Bay, Queen Mary and Big Bang on the Bay events in the Long Beach harbor area. The investigative orders required surface and depth-discrete water samples, which were collected and analyzed before and after firework displays. Post-event samples were taken at different depths of the receiving waters. Parameters typically found in fireworks were analyzed, including Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Thallium, Tin, Titanium, Vanadium, Zinc, bis-phthalate, Total Phosphorous, and Perchlorate. No statistically significant evidence from the post-event samples indicated that concentrations of the analyzed parameters were higher than those in the pre-event samples from any of the fireworks events.

Receiving water and sediment monitoring were conducted by SeaWorld San Diego (SeaWorld), from September 2012 through September 2018, to evaluate the potential impacts of its fireworks-related discharges to Mission Bay in the San Diego Region. The effects of SeaWorld’s fireworks displays on Mission Bay are representative of worst case conditions compared to the Los Angeles Region firework shows because SeaWorld conducts far more fireworks events each year than the few events typically scheduled within the Los Angeles Region, occurring primarily on major holidays, like the 4th of July or New Years holidays.

The table below presents the most stringent applicable water quality criteria and objectives and estimated receiving water concentrations for the receiving waters potentially affected by authorized fireworks discharges. Metals are expressed in total recoverable concentrations. There is no reasonable potential for any of the pollutants considered to exceed a water quality criterion or objective because the estimated receiving water concentrations do not exceed the most stringent criteria and objectives.

Table F-3. Water Quality RPA (SeaWorld, 2012 – 2018)

Pollutant	Unit	Governing Criterion/Objective	Estimated Receiving Water Concentration
Aluminum	µg/L	200	80
Antimony	µg/L	6.0	0.23
Barium	µg/L	1,000	10
Copper	µg/L	8.2	7.5
Iron	µg/L	300	32
Perchlorate	µg/L	6.0	2.5
Phosphorus, Total	µg/L	No criteria	250
Potassium	mg/L	No criteria	450
Strontium	mg/L	No criteria	8.4
Titanium	µg/L	No criteria	72
Zinc	µg/L	86	14

b. Water Quality Objectives from Basin Plan

TMDL-based Wasteload Allocations (WLAs) are the main water quality objectives in Basin Plan applicable to this Order. The Los Angeles Water Board developed TMDL-based WLAs for metals, nutrients, toxic organic compounds in the major rivers and its tributaries in the Los Angeles Water Board Region. Discharges to a receiving water with an established TMDL limitation are considered to have shown a reasonable potential for the pollutants to be present in the discharge at levels that would cause or contribute to a violation of water quality standards.

The Los Angeles Water Board is required to ensure that the effluent limitations in this Order are "consistent with the assumptions and requirements of any available wasteload allocation for the discharge." (40 CFR section 122.44(d)(1)(vii)(B).) Although TMDLs apply to discharges authorized under this Order, none of the TMDLs for metals, nutrients, or toxic organic compounds or supporting staff reports indicate that discharges from the public fireworks displays authorized under this Order are significant sources of the relevant pollutants.

In addition, based on the relevant data gathered in the Los Angeles Region and the instantaneous, intermittent short-term nature of discharges from the public fireworks displays, the Los Angeles Water Board determined that discharges regulated under this Order meet section 122.44(d)(1)(vii)(B) requirements because (1) applicable TMDLs do not identify specific waste load allocations for discharges from fireworks displays activities and these discharges do not significantly impact water quality, and (2) more stringent requirements than those included in this Order are not needed to address impairment of surface waters with TMDLs.

If the Executive Officer determines that any existing or any newly adopted WLAs must be implemented through TMDL-specific permit requirements for discharges from

fireworks displays, the Discharger will be required to maintain enrollment under this Order until the Los Angeles Water Board issues an individual or general NPDES Permit for those discharges to which the WLAs apply. Alternatively, if future TMDLs are adopted that address pollutants that are likely to be in discharges from fireworks displays and allocate waste loads specifically to Dischargers regulated under this Order, the Los Angeles Water Board may consider adding TMDL-specific permit requirements to this Order in a subsequent permit amendment per the reopener provisions or during permit reissuance.

The Los Angeles Water Board has developed minerals water quality objectives for waterbodies in the Los Angeles Region. These water quality objectives do not require or contemplate a reasonable potential analysis at the permit development stage.

c. Water Quality Criteria from CTR

SIP section 1.3 sets forth the reasonable potential analysis (RPA) procedures used for this Order for assessing whether a priority pollutant in the CTR has reasonable potential to exceed a water quality objective. The same procedures are used as guidance for other firework pollutants of concern. There are three triggers in determining reasonable potential:

Trigger 1 is activated if the maximum effluent concentration is greater than or equal to the lowest applicable water quality objective.

Trigger 2 is activated if the receiving water concentration is greater than the lowest applicable water quality objective *and* the pollutant is detected in effluent.

Trigger 3 is activated if a review of other information indicates that a WQBEL is needed to protect beneficial uses.

Additionally, Section 1.3 of the SIP recognizes that a reasonable potential analysis at the permit development stage is unnecessary if a TMDL has been developed and WLAs assigned to the discharge.

Trigger 1 is not applicable to the Order because the residual firework pollutants are present and dispersed over the receiving water after solid fireworks are delivered to the air. “Maximum effluent concentration” used in Trigger 1 does not exist in the fireworks context.

There are water quality impaired waterbodies in the Los Angeles Region in which concentrations of pollutants regulated under this Order are greater than the lowest applicable water quality objective. Since the Order covers residual firework pollutants discharges to any and all waterbodies in the Los Angeles Region, Trigger 2 is activated for all discharges under the Order.

There is no other information available indicating a WQBEL is needed to protect beneficial uses. Therefore, Trigger 3 is not activated.

4. WQBEL Calculations

WQBELs in NPDES permits are generally calculated in the numeric form following procedures contained in EPA’s *Technical Support Document for Water Quality-Based Toxics Control (TSD) of 1991* (USEPA/505 /2-90-001) and the SIP. When numeric effluent limitations are infeasible, in accordance with 40 CFR 122.44(k), best management practices shall be included in applicable NPDES permits to control or abate the discharge of pollutants. Since the residual firework pollutants are present

only after the delivery of fireworks to air and are not in the form of liquid effluent, it is infeasible, pursuant to the TSD and/or SIP procedures, to calculate numerical effluent limitations for the residual firework pollutants discharge covered by the Order. Accordingly, applicable water quality criteria and objectives are translated to the narrative BMPs as permit conditions in the Order.

A. Final Effluent Limitation Considerations

1. Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(*l*) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. There is no backsliding issue in the Order since it sets forth a first time NPDES permit to regulate the discharge of residual firework pollutants in the Los Angeles Region.

2. Antidegradation Policies

The State Water Board established California's Antidegradation Policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal Anti-Degradation Policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing high quality of waters is maintained unless degradation is justified based on specific findings. The Los Angeles Water Board's Basin Plan implements, and incorporates by reference, both the state and federal policies.

In accordance with State Water Board Administrative Procedures Update No. 90-004, the potential for degradation is evaluated by comparing the receiving water quality likely to result from the new permit to the water quality baseline. The water quality baseline is the best receiving water quality that has existed since 1968 when considering Resolution No. 68-16 or since 1975 under the federal policy, unless subsequent lowering was due to regulatory action consistent with State and federal antidegradation policies. If poorer water quality was permitted, the most recent water quality resulting from permitted action is the baseline water quality. For purposes of this analysis, existing water quality is assumed to be the best that has existed since 1968 and 1975. Water quality in 1968 and 1975 was worse than it is now because most Clean Water Act controls, such as the secondary treatment standards for municipal wastewater treatment, were not yet in place. Fireworks displays have taken place, unregulated, for decades, and no poorer water quality has been permitted. Therefore, the permitted discharge under this Order is consistent with the federal Anti-Degradation provision of 40 CFR Section 131.12 and State Water Board Resolution No. 68-16 and will improve water quality in the Los Angeles Region by virtue of implementing discharge prohibitions and requiring BMPs that will reduce impacts of residual firework pollutants to surface waters.

3. Stringency of Requirements for Individual Pollutants

This Order's restrictions on individual pollutants are no more stringent than required to implement Clean Water Act requirements.

This Order's requirements protect water quality standards, including beneficial uses and water quality objectives approved pursuant to federal law. EPA approved most Basin Plan beneficial uses and water quality objectives prior to May 30, 2000. Beneficial uses and water quality objectives submitted to EPA prior to May 30, 2000, but not approved

by EPA before that date, are nonetheless "applicable water quality standards for purposes of the Clean Water Act" pursuant to 40 CFR 131.21(c)(1). EPA approved the remaining beneficial uses and water quality objectives, so they are applicable water quality standards pursuant to 40 CFR 131.21(c)(2).

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Discharges covered under the Order must conform to applicable water quality standards and shall not cause an exceedance above any applicable narrative or numeric water quality objective in the receiving water, including but not limited to all applicable provisions contained in:

1. Water Board's Basin Plan, including beneficial uses, water quality objectives, and implementation plans;
2. State Water Board plans and policies for water and sediment quality control including:
   a. Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries (Thermal Plan);
   b. Water Quality Control Plan Ocean Waters of California (Ocean Plan), including beneficial uses, water quality objectives, and implementation plans;
   c. Amendment to the Ocean Plan and Part I Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California;
   d. Water Quality Control Plan for Enclosed Bays and Estuaries of California – Sediment Quality Provisions (Sediment Quality Provisions), including the narrative objectives for sediment quality;
   e. Water Quality Control Policy for the Enclosed Bays and Estuaries of California;
   f. Policy for Implementation of Toxics Standards for Inland Surface Waters, and Enclosed Bays, and Estuaries of California; and
   g. Statement of Policy with Respect to Maintaining High Quality of Waters in California (State Water Board Resolution No. 68-16);
3. Priority pollutant criteria promulgated by EPA through:
   - National Toxics Rule (NTR), 40 CFR 131.36, (promulgated on December 22, 1992, and amended on May 4, 1995, and November 9, 1999); and
   - California Toxics Rule (CTR), 65 Federal Register 31682-31719 (May 18, 2000), adding section 131.38 to 40 CFR.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

40 CFR 122.41 provides conditions that apply to all NPDES permits. They are the Standard Provisions of this Order listed in Attachment D. The Dischargers enrolled in this Order permit shall comply with all the Standard Provisions as applicable.

40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFRs 122.41(j)(5) and (k)(2) because the enforcement authority under the California Water Code is more

stringent. In lieu of these conditions, this Order incorporates by reference California Water Code section 13387(e).

Because the discharge of residual firework pollutants does not share typical attributes of facilities engaged in wastewater discharge, some Standard Provides in Attachment D, such as conditions on bypass and compliance schedules, are not applicable.

B. Discharge Prohibitions

40 CFR 122.42 provides additional conditions applicable to specified categories of NPDES permits. In the NPDES permit regulation, these categories are specified as "Existing manufacturing, commercial, mining, and silvicultural dischargers", "Publicly owned treatment works", "Municipal separate storm sewer systems", "Storm water discharges", "Concentrated animal feeding operations", and "Public notification requirements for CSO discharges to the Great Lakes Basin". This Order doess not fall within any of the specified categories and, therefore, does not include additional conditions.

C. Special Prohibitions

In addition to conditions required for all and specified categories of NPDES permits, 40 CFR 122.43 requires establishment of conditions on a case-by-case basis, to provide for and ensure compliance with all applicable requirements of CWA and regulations. Special Provisions are established in this Order that apply to all discharges of residual firework pollutants to surface waters in the Los Angeles Region.

D. Best Management Practices

As discussed in section IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS of the Factsheet, it is infeasible to establish numeric effluent limitations for the residual firework pollutant discharges from fireworks displays. Therefore, BMPs are required in lieu of effluent limitations to control and abate residual firework pollutant discharges and serve as special permit conditions in the Order, in accordance with 40 CFR section 122.44(k).

The BMPs are derived from 22 CCR section 67384.8, guidance targeting perchlorate-containing fireworks (see Massachusetts Department of Environmental Protection, Fireworks Best Environmental Management Practices, May 2011), NPDES orders governing fireworks in other regions, and other applicable authorities cited herein. These guidance and authorities are relevant to preventing, controlling, and responding to discharges associated with fireworks. The BMPs reflect best available technology economically achievable (BAT) and best practicable treatment control technology (BPT) to reduce or prevent discharges of pollutants in a manner that reflects best industry practice, considering technological availability and economic practicability and achievability.

E. Reopener Provisions

Pursuant to 40 CFR 122.62, this Order may be modified, revoked and reissued, or terminated for cause. Reasons for modification may include new information on the impact of discharges regulated under this Order, promulgation of new effluent standards and/or regulations, adoption of new policies and/or water quality objectives, and/or new judicial decisions affecting requirements of this Order. In addition, if receiving water quality is threatened due to discharges covered under this Order, the Order may be

reopened to incorporate more stringent requirements addressing the constituents creating the threat.

VII. PUBLIC PARTICIPATION

The Los Angeles Water Board has considered the issuance of WDRs that will serve as a General NPDES permit for Discharges of Residual Firework Pollutants from Public Fireworks Displays to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties. As a step in the WDR adoption process, the Los Angeles Water Board staff developed tentative WDRs. The Los Angeles Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Los Angeles Water Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and provided them with an opportunity to submit their written comments and recommendations. Notification was provided through email and public notice.

The public had access to the agenda and any changes in dates and locations through the Los Angeles Water Board's website at http://www.waterboards.ca.gov/losangeles.

B. Written Comments

Interested persons were invited to submit written comments concerning these tentative WDRs as provided through the notification process electronically at losangeles@waterboards.ca.gov with a copy to Peter.ho@waterboards.ca.gov.

To be fully responded to and considered by the Los Angeles Water Board, written comments were due at the Los Angeles Water Board offices by 5:00 p.m. **on May 4, 2023**.

C. Public Hearing

The Los Angeles Water Board held a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	May 25, 2023
Time:	9 AM
Location:	Junipero Serra Building (Carmel Room) 320 West 4th Street, Los Angeles, CA 90013

A virtual platform was also available for those who wanted to join online. The directions were provided in the agenda to register or to view the Board meeting.

Additional information about the location of the hearing and options for participating are made available 10 days before the hearing. Any person desiring to receive future notices about any proposed Board action regarding this Discharger, please contact Peter.ho@waterboards.ca.gov, to be included on the e-mail list.

Interested persons were invited to attend. At the public hearing, the Los Angeles Water Board heard testimony, if any, pertinent to the discharge, WDRs, and NPDES Permit. For accuracy of the record, important testimony was requested in writing.

D. Waste Discharge Requirements Petitions

Any person aggrieved by this action of the Los Angeles Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320

and California Code of Regulations, Title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Or by email at waterqualitypetitions@waterboards.ca.gov

For instructions on how to file a petition for review, see: http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

E. Information and Copying

The Tentative Permit and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Los Angeles Water Board by calling (213) 576-6651.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding this Order was invited to contact the Los Angeles Water Board, reference this Order, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Peter Ho at (213) 620-2093 or at Peter.ho@waterboards.ca.gov.

RESPONSE TO COMMENTS

Tentative WDRs/NPDES Permit For Discharges Of Residual Firework Pollutants From Public Firework Displays To Surface Waters In Los Angeles And Ventura Counties

Tentative Order No. R4-2023-XXXX
NPDES No. CAG994007

Comment Letter dated May 4, 2023, from Collier Walsh Nakazawa LLP

#	Comments	Response	Action Taken
A1	Proposed Requirements [on visual monitoring and pollution control measures] focus on collection of data rather than mitigation or prevention. For the 2022 Big Bang on the Bay, Event Organizers were ordered to implement a similar visual monitoring program in an effort to provide data to the LA Water Board as it assessed whether to move forward with developing and implementing a NPDES General Permit for fireworks shows. Event Organizers understood that the 2022 visual monitoring requirements assisted the LA Water Board's investigation, rather than prevent or mitigate the risk of pollution. Moreover, the cost of implementing said visual monitoring program was $5,429.82 and a continuing obligation to do the same would be cost prohibitive and serve only to provide redundant data.	As a preliminary matter, the Los Angeles Water Board notes that the Tentative Order is designed to require in-the-field activities that will reduce discharges. The Los Angeles Water Board acknowledges that Event Organizers' visual monitoring program assisted the Los Angeles Water Board in developing an NPDES General Permit. The visual monitoring requirements are intended to determine compliance with the discharge prohibition of wastes including plastic trash to navigable waters during fireworks displays. The visual monitoring requirements also serve as a tool to determine compliance with BMP implementation and its effectiveness. Every fireworks event has different environmental circumstances, such as temperature and wind velocity on the date of the fireworks event, which might cause low breaks or malfunctioning of mortars. Thus, the Los Angeles Water Board finds that visual monitoring for every fireworks display is necessary.	No revisions.

#	Comments	Response	Action Taken
A2	Event Organizers question how the weight of the aerial shells and pyrotechnic device further pollution mitigation and/or prevention efforts.	As incendiary devices, fireworks explode and disperse material over a large area. The weighing of fireworks before launching serves as a baseline metric to determine how much material is being launched in the air and dispersed. When the discharger recovers a certain percentage of debris and trash generated by the firing of pyrotechnics, it could be considered as a part of a mitigating action. While it may be difficult to recover all the contents being fired in the air, weighing the fireworks before firing serves as a baseline metric to determine how much recoverable debris may be expected.	No revisions.

Comment Letter dated May 4, 2023, from CERF, Heal the Bay, Los Angeles Waterkeeper, and Surfrider Foundation

#	Comments	Response	Action Taken
B1	The prohibition of fireworks containing plastic is practical and economically feasible. Plastic should be prohibited in all shows. Per Dr. John Steinberg, dischargers' own pyrotechnic expert, using fireworks that do not contain plastic outer casings or have non-biodegradable inner components "is easily achieved." There are no particular advantages to using fireworks that contain	Section IV of the Tentative Order prohibits the "discharge of plastic trash to waters of the United States." The Los Angeles Water Board agrees that this prohibition is practical and economically feasible. This prohibition is also consistent with the Basin Plan, the Statewide Trash Amendments and numerous Trash TMDLs in the Los Angeles Region.	Revision was made.

#	Comments	Response	Action Taken
	plastic versus those without plastic. As such, it is reasonable to prohibit the use of fireworks that contain plastic without any exceptions for practicality or economic reasons.	To avoid specifying the manner of compliance (Water Code § 13360), the Tentative Order does not foreclose the possibility that dischargers may be able to use plastic fireworks but implement BMPs that would successfully eliminate discharges of plastic to surface waters by their use. That said, in the event that discharges are unable to employ technologies that could catch or retrieve all plastic trash, the Tentative Order includes provisions governing fireworks made of biodegradable materials. Plastic trash in the Tentative Order is considered a non-biodegradable material. A definition of "biodegradable" is added into Attachment A of the Tentative Order to clarify the meaning of it.	
B2	The draft permit neglects to mandate an analysis of alternative fireworks options regarding both chemical constituents, such as perchlorate, and alternative firing ranges. We respectfully request that this analysis be comprehensive and obligatory.	Section VII.B. of the Tentative Order requires dischargers to prepare a Best Management Practices Plan (Plan). The Plan shall include pollution prevention, pollutants identification, and pollution control measures to avoid and/or mitigate potential impacts to receiving water quality. The Tentative Order requires the dischargers to use alternative fireworks materials and/or select an alternative debris fallout location as well as using other oxidizers instead of perchlorate while developing the Plan. The Tentative Order has been revised to state: "The Discharger shall prepare a BMP Plan	Revisions were made to section VII.B of the Tentative Order.

#	Comments	Response	Action Taken
		(Plan) that describes procedures to ensure that residual firework pollutants discharges will not adversely affect receiving waters. While developing the Plan, an analysis of alternatives should be conducted to determine the BMPs. The Plan, along with the alternative analysis, shall be submitted as a component of the NOI to the Los Angeles Water Board."	
B3	The fireworks permit should require the cleanup of all event-related material, not just non-biodegradable material, and an appropriate debris cleanup or any mitigation measures to offset the environmental impact of the fireworks display.	Pollution Control Requirements in the Tentative Order already require cleanup of all event-related material. (See Pollution Control Requirements 11, 12, 14 and 15.) In addition, Pollution Control Requirement 14 and 16 are revised to further clarify the cleanup of all event-related materials. Requirement 14 has been revised to state, "Collect all non-hazardous solid waste resulting from the set-up, firing, and strike of the public display, including wires, boxes, and packaging, and properly disposed of the solid waste. <u>Pick up fireworks debris on the nearby shoreline in the morning of the day immediately following the fireworks event</u>." Requirement 16 has been revised to state, "Ensure that any <u>floatable degradable</u> and non-biodegradable components of the fireworks-related waste are collected after the event."	Revision was made.
B4	It is important to acknowledge that fireworks displays near or on a waterway inevitably	The comment seeks to place the responsibility of cleanup of all fireworks display *observers* –	No revisions.

#	Comments	Response	Action Taken
	result in significant pollution from attendees…. Dischargers must assume responsibility for all indirect debris caused by the fireworks display, including debris left behind by attendees on beaches or in boats.	essentially all beach-related trash from the 4th of July or New Year's Eve - onto the fireworks display company. The Los Angeles Water Board does not find that the fireworks operator has sufficient control over all beachgoers to impose such a requirement.	
B5	The trajectory and angle of the fireworks should be directed away from waterways. While the visual monitoring outlined in Attachment E section VII.A of the draft permit can help identify debris after the show, it is essential to consider these factors in discharge trajectory. Meteorological data is readily available and accurate as well as typical fallout zones; therefore, trajectories should account for this well-established science.	The Los Angeles Board disagrees that the general permit should require that the trajectory and angle of the fireworks be directed away from waterways. However, the Los Angeles Water Board agrees that meteorological data should be considered in the determination of trajectories, angle of the fireworks, and typical fallout zones. As the commenter stated, section VII.A of the MRP of the Tentative Order requires the dischargers to conduct visual monitoring in consideration of meteorological data. Section VII.B of the Tentative Order also require the dischargers to select "firing range locations and designs that reduce residual firework pollutant discharges" and "an alternative debris fallout location to eliminate or reduce residual firework pollutant discharges to waters of the United States." However, to further clarify the requirements, section VII.B of the Tentative Order, Pollution Control Requirement 4, is revised to state, "Select firing range locations <u>based on readily available meteorological data</u> and designs that reduce residual firework	Revisions were made.

#	Comments	Response	Action Taken
		pollutant discharges." In addition, the Pollution Prevention requirement is revised to state "select an alternative debris fallout location <u>based on readily available meteorological data</u> to eliminate or reduce residual firework pollutant discharges to waters of the United States."	
B6	Dischargers must engage in monitoring their discharges to enable a fate and transport study that can provide a better understanding of the impacts of fireworks and inform future mitigation measures. To achieve this goal, it is recommended that a passive deposition sampler, wipe test, or similar procedure should be used to characterize the scope and type of discharges to water.	The Los Angeles Water Board agrees that additional monitoring of the fallout zone is appropriate. Section VII.F and MRP of the Tentative Order has been updated with additional monitoring requirements for dischargers to conduct sampling in "real time" within the fallout zone to better assess the impacts of the chemical constituents of fireworks during fireworks displays.	Revisions were made.
B7	A barge wall or other barrier should be included in the permit to mitigate discharges from the launch site. Dr. John Steinberg includes this measure as "easily achievable," where he suggests that a "retaining wall [be] around three of the four sides contain fuses and other debris to the surface of the barge." Dischargers should be required to implement a fence or alternative barrier to prevent low-level discharges from the launch from entering receiving waters. For example, the Port of San Diego requires barges to be	Section VII.B Pollution Control Requirement 8 already contains provisions concerning deployment of containment measures for the same purpose. However, the Los Angeles Water Board agrees that it is broadly defined, and has revised Pollution Control requirement 8 to clarify the requirements as follows, "Prior to fireworks displays, ~~deploy containment measures to collect and~~ <u>set up a retaining wall/fence or other barrier around three of the four sides of the launch site</u> to control the mobility of fireworks	Revision was made.

#	Comments	Response	Action Taken
	equipped with a fire-retardant debris barrier that extends six feet (6') in height, with openings no larger than ¼ inch, around the perimeter of the fireworks launch area to contain and capture debris.9 Although section VII.B.7 of the draft permit requires containment measures generally and broadly, this language does not specify the type of containment measures that would be adequate for a barge. The Board should require walls of at least 6 feet in height surrounding the barge.	debris and particulate matter, and to avoid fuses and other debris falling into the surface water." The Los Angeles Water Board has avoided further specification of details concerning barriers to ensure compliance with Water Code Section 13360, which states that a regional water board may not "specify the design, location, type of construction, or particular manner in which compliance may be had with that requirement".	

Comment Letter dated May 4, 2023, from Pyro Spectacular

#	Comments	Response	Action Taken
C1	Using alternative fireworks as an absolute requirement is not possible. Such fireworks are not commercially available. While attempts have been made to substitute perchlorate containing fireworks, those attempts have not proven successful on the scale necessary to ensure safety and commercial viability.	The Tentative Order does not require the use of alternative fireworks as an absolute. The Los Angeles Water Board also acknowledges that non-perchlorate fireworks are still in development and we are unaware of the commercial availability of non-perchlorate fireworks. As part of the BMP evaluation and implementation, dischargers should continue to search for such alternatives, as new alternatives could become available anytime in the future, and then use those alternative fireworks to the extent practicable and economically achievable.	No revisions.

#	Comments	Response	Action Taken
C2	Requiring fireworks crew to handle cameras and other recording devices distracts them from their primary duties. Only crew members may be aboard an active fireworks barge. This means that a separate camera crew is not permitted either aboard the barge or in the safety zone around the barge. Taking videos and other similar evidence gathering activities is distracting and dangerous to those involved in the fireworks. Crews need to be thinking about fireworks safety, not how they might look in the video or where a particular video might show up or be misused.	The Tentative Order does not require fireworks crews to handle cameras and other recording devices. The use of stationary tripods and related devices such as GoPro cameras can be used to safely capture video recordings as required without posing any risks to the operating crew. The photographic devices can be set up and secured in multiple locations covering the angles necessary to capture the extent of debris and potential fallout area in the immediate vicinity of the barge, and water adjacent to the barge.	No revisions.
C3	Requiring fireworks crews to immediately sweep the launch area after a display exposes them to the risk that a hang fire (an unlaunched aerial shell) will explode and injure that crewmember. ….The clean-up must begin after a reasonable cool down period established by the operator-in-charge based on the circumstances then present and only after the fireworks have been cleared from the launch area.	The Los Angeles Water Board agrees that potential safety risks exist to fireworks crewmembers sweeping the launch area immediately after the fireworks displays due to possibilities of explosion of a hang fire (an unlaunched aerial shell) or malfunctioned mortars. Thus, Pollution Control requirement 14 is revised to state: "<u>When the fireworks have been cleared from the launch area</u>,~~ immediately following the public display of fireworks,~~ rake or sweep the decks of each barge or floating platform that contained fireworks to gather fireworks debris and prevent it from being deposited into the water".	Revisions were made.

#	Comments	Response	Action Taken
C4	Requiring fireworks companies to collect visual and other evidence for a small, litigious sector of the environmental community's use against the fireworks industry and display hosts in recent and ongoing efforts to collect attorney fees in litigation is not aligned with the interests of justice. ……. The use of federal law for the purpose of generating environmental litigation by attacking celebrations that have been conducted for centuries, and threatening to sue hosts to obtain a permit that is not readily available is abhorrent to the concept of justice. As noted in the proposed order, there is no significant risk to the receiving waters, and placing people in personal danger to collect pictures is excessive and on balance unnecessary.	Please see the response to comment to A1.	No revisions.
C5	It is important to emphasize that while responsible environmental groups may have concerns about fireworks, this does not mean that all fireworks displays are inherently harmful or should be regulated to the point that it becomes a safety concern. It is possible to have a constructive dialogue that recognizes the value of both fireworks celebrations and environmental protection, and seeks to find a balance between the two. As noted in the opening paragraphs of this letter, so far, the	The Los Angeles Water Boards' primary priority is protection of water quality from fireworks pollutants. However, constructive dialogue among parties is encouraged to ensure that July 4th and New Years' celebrations can proceed in an environmentally friendly way. In response to the comment, the Los Angeles Water Board staff reached out to other regulators such as the Coast Guard and the State Fire Marshal and had a meeting with the State Fire Marshal. For safety reasons, the State Fire Marshal recommended using the shipping manifest	Revisions were made.

#	Comments	Response	Action Taken
	conversation seems to be more of a monologue in which the fireworks industry and other regulators are not even spectators, let alone participants.	weights of the fireworks instead of live weighing of the fireworks, and Section VII.B Pollution Control requirement 16 is revised accordingly. The State Fire Marshal further suggested to use the term “Safe and Sane fireworks” instead of “consumer fireworks” because the term “consumer fireworks” is vague. A definition of “Safe and Sane fireworks” is added to Attachment A of the Tentative Order, and the term “consumer fireworks” in section II.A of the Tentative Order is replaced with “Safe and Sane fireworks.”	
C6	The selection of the firing range is a given in all cases. If other locations, e.g., land sites, were available they would have been chosen because the cost of mounting a barge firing site is far greater. Alternative locations do not offer the viewing or safety area of that selected in the NOI. If the location is not acceptable to the Board, then alternative, less effective sites might be considered.	See responses to comment B5	No revisions.
C7	Inspecting areas for safety doesn’t seem to be within the jurisdiction of the Water Board.	The comment suggests that the Los Angeles Water Board does not have jurisdiction to *require* safe practices as part of the BMPs. The text of the Order is intended to recognize that staff will consider measures that protect the	No revisions.

#	Comments	Response	Action Taken
		health and safety of everyone present (which would include operating crew members).	
C8	If deployment of containment measures prior to a display is intended to mean something other than a boat to help find any debris after the display, we object because such deployments can delay, impair, or even prevent rapid access to and escape from the barge in the event of an emergency. Such measures are also hazards to navigation, particularly in the dark where heavy boating traffic may be present for the display.	*"Deploy containment measures"* means the use of walls/netting on the firing area and the securing of wires and other pyrotechnic devices on the barge in order to prevent firework debris from falling into the water. To clarify the meaning of this requirement, Pollution Prevention requirement 8 is revised. Please also see response to comment B7.	Revision is made.
C9	The need for BMP effectiveness evaluations after every display is excessive. Annual review is more than enough and probably excessive at that. The standard BMPs have been practiced for more than a decade, and few problems have been seen.	BMPs need to be evaluated during each discharge event to ensure the strategies included in the BMP are deployed at each individual event, to esure the objective of the plan is achieved, and to learn what can be improved. Each event and site present its own individual challenges. Evaluating BMPs after each event allows the discharger to determine what measures were effective for that particular event.	No revisions.
C10	It is not legal to remove labels from display shells whatever they are constructed of. Outer plastic coverings (bags) may be safely removed. It is not clear how the qualifiers	Removing the outer plastic coverings or bags should be carried out before shooting and exploding the fireworks devices. However, section VII.B, Pollution Control requirement 10	Revisions were made.

#	Comments	Response	Action Taken
	"prior to use" and "before they are launched" differ. Fireworks are not "detonated."	of the Tentative Order is revised to address safety and regulation concerns in removal of labels from display shells (Section 988 of the Title 19 of California code of Regulation). In addition, the qualifier "prior to use" and "the word "detonated" are removed.	
C11	Describing how fireworks will be "secured" is vague. They are loaded, fired, and cleared as required by state law and regulation, consistent with industry codes and standards.	Securing fireworks is simply ensuring debris is reduced when firing occurs. If these processes are already included within industry standards and best practices, dischargers will not need to do anything new other than document these processes.	No revisions.
C12	The weight of the fireworks is based on the weight of the loaded packing boxes shipped to the site. There is no individual weighing of devices. It is not possible to indicate on the plan the percentages of waste that will be created.	These measurements provide an estimation of the waste that may be expected. While not completely accurate, there is a clear correlation between the amount of fireworks being consumed and the amount of waste generated. Dischargers will not be required to individually weigh the fireworks; however, the more accurate the estimate of total weight is, the better the estimate of wastes generated. The Tentative Order has been updated to allow use of shipping manifest weight instead of live weighing of the fireworks.	Revision is made.
C13	The transmittal list did not include members of the fireworks industry such as Coast Guard, and State Fire Marshal.	The Los Angeles Water Board staff reached out to interested parties who have previously indicated interest in this issue and subsequently	Revisions were made.

#	Comments	Response	Action Taken
		reached out to the Coast Guard and State Fire Marshal. The Tentative Order has been revised based on their suggestions. Please see response to comment C5.	

Comments Received from Sierra Club's Los Cerritos Wetlands Task Force and Puvunga Wetlands Protectors

#	Comments	Response	Action Taken
D1	We question the rationale for allowing "residual firework pollutant discharges associated with the public display of fireworks" to be "lawfully discharged" by granting NPDES permits for such displays. Fireworks in general, and fireworks shows in particular, emit pollutants that are known to be hazardous to public health and to the environment, including to surface waters, marine life, and wildlife. Categorizing public displays of fireworks as "minor discharges" to be permitted on a case by case basis, ignores the cumulative impacts of an expanding industry operating in coastal zones and coastal waters already severely impacted by pollution. we request that Discharges of Residual Firework Pollutants from Public Fireworks Displays to Surface Waters in Los Angeles and Ventura not be "lawfully discharged" but instead be prohibited.	The Los Angeles Water Board has authority to designate activities as major or minor. The Los Angeles Water Board classified the fireworks display general permit as a minor discharge permit because there is no discharge flow rate associated with the discharge. Discharge flow rates of less than 1 million gallons per day for municipal facilities or less than 50,000 gallons per day of discharge from industrial or other non-municipal facilities are considered minor discharges. In addition, as a practical matter, fireworks shows over surface waters are currently taking place in two to four locations in the region and only occur twice per year. The Los Angeles Water Board understands the commenter's concerns about potential for water quality impairments related to fireworks shows over receiving waters.	No revision.

#	Comments	Response	Action Taken
		The Los Angeles Water Board issued investigative orders, pursuant to California Water Code section 13267, to fireworks organizers in Long Beach Harbor and Alamitos Bay to monitor water quality before and after the fireworks displays. According to the monitoring reports submitted to the Los Angeles Water Board in 2017, 2018, and 2022 and reports submitted to the San Diego Regional Water Board (Annual Fireworks Monitoring Reports, SeaWorld, 2013 – 2019), the Los Angeles Water Board has not found evidence that the fireworks displays caused water quality impairment to receiving waters from perchlorate or metals. However, previous water quality monitoring did not provide water quality impacts during the fireworks displays. Thus, the Los Angeles Water Board added a special study requirement to conduct real time monitoring of water quality during the fireworks displays. (See response to comment B6). At this time, we do not have data specific to the quantity of trash related to firework shows; however, the post fireworks display reports submitted to the San Diego Water Board after the July 4th fireworks displays in 2021 suggests large quantities of trash are associated with fireworks shows. The Los Angeles Water Board has determined that trash (and plastic trash in particular) related to fireworks shows	

#	Comments	Response	Action Taken
		must be regulated to avoid impacts to beneficial uses.	
D2	Under RECEIVING WATER LIMITATIONS, the Tentative Plan states that, "The discharge shall not cause or contribute to any of the following…..Toxic or other deleterious substances in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration." However, the focus of the Tentative Waste Discharge Requirements appears to be limited to regulating a) the composition of the fireworks themselves, b) the manner in which fireworks displays are conducted, and c) how applicants will document compliance with a and b. Monitoring is limited in both time and scope and the selection of those tasked with monitoring is left up to the discharger.	The comment appears to be concerned that the discharge is causing deleterious effects as a result of discharges of chemicals. See response to comment D1.	No revision.
D3	We request that, if not prohibited outright, public fireworks discharges should be regulated with a greater concern for public safety, marine life and wildlife.	Many agencies regulate fireworks shows to ensure the shows are conducted in a manner that is protective of public safety, the environment and marine life and wildlife. The Tentative Order is limited to areas within the Los Angeles Water Board's jurisdiction (and so	No revision.

#	Comments	Response	Action Taken
	Such displays should be prohibited where water and or air quality is already impacted by pollutants, where marginalized populations live and/or recreate, and/or where marine life and wildlife populations are already at risk, near breeding and nesting sites (especially during nesting/breeding season). CA law prohibits the “harassment” of wildlife, and the consequences of sound waves from explosive devices are known to harm multiple marine species and bird species.	does not address decibel levels or air quality) but does contain a provision requiring compliance with the Endangered Species Act (section III.C.9 of Attachment F of the Tentative Order), which prohibits harassment of threatened and endangered species. The staging of firework shows as authorized under this Order does not excuse the Discharger from obtaining appropriate authorization from all other responsible agencies.	
D4	Fragmenting the regulatory process allows individual agencies to deny responsibility for regulating toxins by looking to others to act in the public interest. The Tentative Plan states that “The AQMD historically has not required permits for equipment associated with fireworks displays at theme park activities or annual celebrations” and future states that “AQMD Rule 219-Exemptions From Written Permit Requirements, specifically exempts pyrotechnic equipment from written permit requirements.” This is an admission of the failure of another CA agency to adequately regulate toxic	See responses to comments D1 and D3.	No revision.

#	Comments	Response	Action Taken
	emissions, even as the evidence is irrefutable that failure to do so has, does, and will cost lives.		
D5	The Sierra Club questions the use of BMPs as the best way to prevent discharges of pollutants.	The Los Angeles Water Board agrees that BMPs historically used are not sufficient to prevent discharges of plastic trash, which is why the Tentative Order prohibits the use of fireworks containing plastic components, unless the dischargers submit a BMP plan that contemplates complete capture of all plastic trash. These measures, along with traditional BMPs, will minimize or eliminate the amount of trash and debris impacting beneficial uses. See also responses to D1 and D3, regarding the impacts of chemicals in fireworks (perchlorate and metals).	No revision.
	The Los Angeles Waterboard staff initiated a few changes including AB2108 findings.	Section III.C.11 of Attachment F of the Tentative Order now includes a finding regarding AB 2108 notice requirements.	Revisions were made.

Los Angeles Regional Water Quality Control Board

May 19, 2023

TO ALL INTERESTED PARTIES

REVISED TENTATIVE ORDER AND RESPONSE TO COMMENTS FOR DISCHARGES OF RESIDUAL FIREWORK POLLUTANTS FROM PUBLIC FIREWORKS DISPLAYS TO SURFACE WATERS IN LOS ANGELES AND VENTURA COUNTIES (NPDES NO. CAG994007)

Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) staff have revised the tentative WDRs and NPDES permit dated April 4, 2023, based on written comments received by the May 4, 2023, public comment deadline. A copy of the revised tentative Order and written responses to all comments received are enclosed. Changes to the tentative Order appear in strikeout and underlined format. Written comments are not being solicited regarding the revised tentative Order.

Enclosed are copies of the following:

1. Revised tentative waste discharge requirements, consisting of:
    a. Board Order;
    b. Attachment A–Definitions
    c. Attachment B–Notice of Intent
    d. Attachment C–Fireworks Display Report Form
    e. Attachment D–Standard Provisions
    f. Attachment E–Monitoring and Reporting Program
    g. Attachment F–Fact Sheet
2. Response to Comments

In accordance with administrative procedures, the Los Angeles Water Board at a public hearing to be held on **May 25, 2023, at 9:00 a.m., at 320 W 4th Street, Carmel Room, Los Angeles, California, 90013**, will consider the enclosed revised tentative requirements and comments submitted in writing regarding the revised tentative Order. A virtual platform is also available for those who want to join online. Please follow the directions provided in the agenda to register or to view the Board meeting. The date and location of the May Board meeting are subject to change and updates will be provided on the Los Angeles Water Board's website approximately one week prior to the meeting (http://www.waterboards.ca.gov/losangeles/board_info/agenda/index.shtml).

The Los Angeles Water Board will hear any testimony pertinent to the revised tentative Order. It is expected that the Los Angeles Water Board will take action at the hearing; however, as testimony indicates, the Board, at its discretion, may order further action by staff.

If you have any further questions, please contact Peter Ho at Peter.Ho@waterboards.ca.gov.

Sincerely,

Augustine Anijielo
General Permitting Unit, Supervisor

Enclosures: Tentative NPDES Permit for Residual Firework Pollutants from Public Fireworks Displays to Surface Waters

cc: See Mailing List

Mailing List
(via email only)

Peter Kozelka, Becky Mitschele, Environmental Protection Agency, Region 9, Permit Branch
Kenneth Wong, Crystal Marquez, Stephen Estes, U.S. Army Corps of Engineers
Corrine Bell, Natural Resources Defense Council
Steve Fleischli, Natural Resources Defense Council
Bryant Chesney, NOAA, National Marine Fisheries Service
Chris Diel, U.S. Fish and Wildlife Service
Jonathan Snyder, U.S. Fish and Wildlife Service
Steve Hudson, California Coastal Commission, South Coast Region
Nat Cox, California Parks and Recreation
Aurora Nunez, Annelisa Moe, Heal the Bay
Ben Harris, Barak Kamelgard, Bruce Reznik, Los Angeles Waterkeeper
Stephan Tucker, Water Replenishment District of Southern California
Robert Wu, Department of Transportation (Caltrans)
Ray Tahir, TECS Environmental
Sara Torres, PG Environmental
Tim Smith, Los Angeles County, Department of Public Works
Angelo Bellomo, Los Angeles County, Department of Public Works
Sierra Club Los Cerritos Wetlands
Coastal Environmental Rights Foundation
Pyro Spectaculars, Inc.
Collier Walsh Nakazawa, LLP
City of Long Beach
Surfrider Foundation
Coast Guard
State Fire Marshal
Los Angeles County Beaches
Long Beach Business District
Jose Diaz, Javier Hinojosa, Department of Toxics Substance Control
Terrence Mann, AQMD
USDOT
Heidi Ortiz, Ventura County Fairgrounds

Amitay, Shahar@Coastal

From: anngadfly@aol.com
Sent: Thursday, June 1, 2023 10:34 AM
To: Amitay, Shahar@Coastal; Ziff, Dani@Coastal
Cc: Anna Christensen; Michael Guth
Subject: Fw: video

Dear Shahar and Dani,

Last July 3, Anna's son George videotaped the Big Bang on the Bay fireworks show from Fuel Dock Road with a night camera. The 25 minute video shows many birds fleeing their nests, not hunkering down, during the blasts. In fact, last year, the biologist was not on Fuel Dock Road during the show. She was there before the show, but left to go over to the Boathouse before the fireworks started. As she reported, she was monitoring the Western Gulls nesting on the docks by the Boathouse during the fireworks. She came back afterwards and asked us volunteers what happened.

No one knows the number of birds which might have become disoriented, frightened or unable to return to their nests because of fireworks. We do know that we have found young birds unable to fly who died trying to escape.

We are unable to download the complete video, but request that this shorter version be included in the staff report.

Thank you,
Ann and Anna


F4_Christensen.video.mov

Amitay, Shahar@Coastal

From: Michael Guth <mguth@guthpatents.com>
Sent: Thursday, June 1, 2023 12:15 PM
To: Amitay, Shahar@Coastal; Ziff, Dani@Coastal
Cc: Anna Christensen; anngadfly@aol.com; Mike Guth
Subject: Sierra Club prelim comments on today's meeting re Big Bang on the Bay
Attachments: 6-1-23 Sierra Club Prelim Comments to Big Bang CDP.pdf

Hello Shahar,

I have been working with Anna Christensen to provide, per your request below, the Sierra Club comments and concerns that we would like to share at the meeting today.

I have attached them in pdf. Please do confirm receipt.

Thank you,

Mike Guth (on behalf of Sierra Club State Coast Sub-Committee)

--
Yours Sincerely,
Michael A. Guth
Attorney at Law
(831) 462-8270

Sierra Club Preliminary Comments prepared for telecon meeting with California Coastal Commission Staff with regards to Big Bang on the Bay Event, CDP Application No. 5-23-0383
Agenda Item: Th13a; Applicant: Naples Restaurant Group, LLC; Date of Hearing: 06/08/2023

June 1, 2023

The Sierra Club recommends **DENIAL** of CDP No. 5-23-03383 as conditioned on the basis that this project will have a deleterious effect on local coastal bird rookeries and marine life. The proposed fireworks show will cause air, water, and noise pollution and will be harmful to nesting coastal birds, marine life, and the Alamitos Bay and Los Cerritos Wetlands coastal ecosystems. Fireworks have been proven to have significant negative impacts on air and water quality and on wildlife, including birds and marine life. Evidence shows that fireworks have immediate disturbance effects on wildlife mainly through light and particularly noise – effects that can be long lasting and even deadly. Fireworks also produce significant pulses of highly pollutant material, which can have both immediate and long-term effects that impact the health of wildlife, marine life, and humans. More specifically, this project will have

The significant adverse impacts of the Big Bang fireworks show on marine life and coastal bird rookeries at Alamitos Bay will violate Sections 30230 and 30231 of the Coastal Act. Fireworks shows also constitute a violation of the CA Fish and Wildlife regulations re **Harassment of Animals, Cal. Code Regs. tit. 14 § 251.1** ***Except as otherwise authorized in these regulations or in the Fish and Game Code, no person shall harass, herd or drive any game or nongame bird or mammal.***

Should staff choose to recommend approval of this application, there are further feasible mitigation measures and alternatives that would substantially lessen any significant adverse impacts of the development on the environment. These mitigations include elimination or reduction of fireworks and other aspects of the proposed show, and significantly enhanced nesting site survey, monitoring, and reporting protocols.

The Sierra Club proposes the following additional conditions with regard to the show:

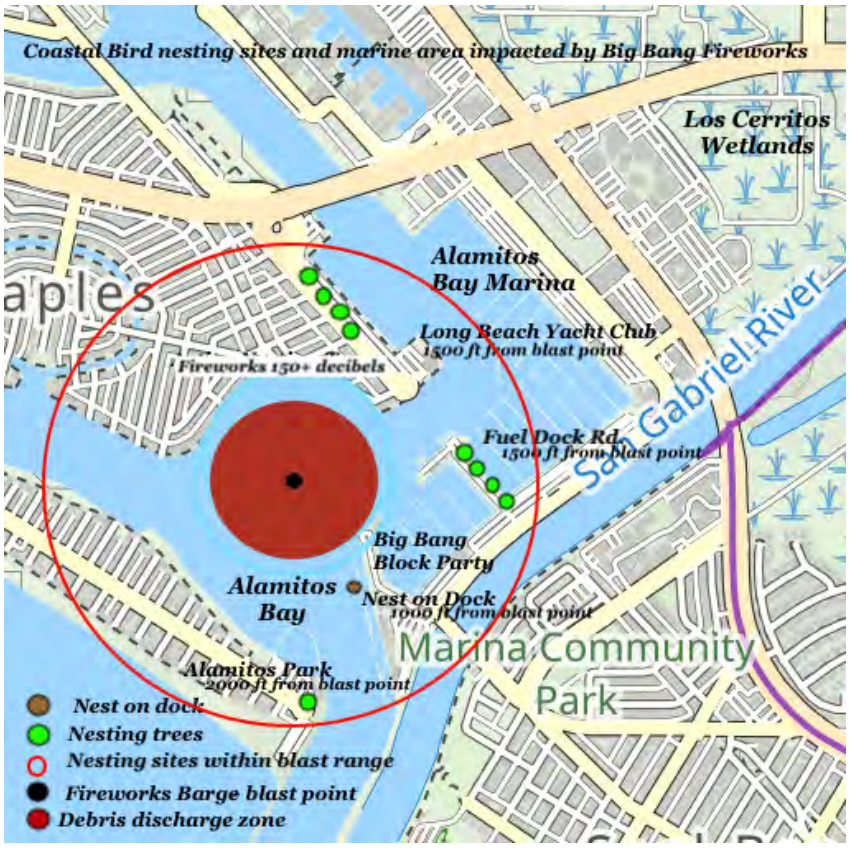
Change date of event to non-nesting season (Oct 1- Dec 31)
No fireworks, drone or laser show only
No military flyovers
Move fireworks barge out of Alamitos Bay
Use only “silent” low volume fireworks
Use only fireworks that do not contain perchlorate
Do not fire test shells
Limit length of fireworks show to 15 minutes.

The Sierra Club proposes the following additional conditions with regard to surveying, monitoring, and reporting:

Use ornithologist for census taking and monitoring of birds
Measure decibel level for active nesting sites on boat dock, on Fuel Dock Rd., and in Alamitos Park.
Monitor nesting sites prior to and during the entire event to determine specific changes in baseline behavior due to crowds, boating, air show, and fireworks.
Videotape active nesting sites on the night before the event, immediately before, and during fireworks

Areas for census data collection and pre and post event monitoring are not clearly determined or mapped in CDP or in Exhibits. In contrast to a construction site, for example, the impacts to nesting sites from fireworks are not neatly captured within a distance of 300 feet. **Areas for census data collection and pre and post event monitoring of birds must include rookery on Fuel Dock Rd, GBH nesting site in Alamitos Park, and rookery in the parking lot of Long Beach Yacht Club (see map below).** To accurately determine potentially impacted

marine life that is not stationary, like fish, turtles, sea lions, seals, dolphins, etc. Alamitos Bay, not merely the debris impact zone, must be surveyed.



With regard to Fuel Dock Rd, the Sierra Club recommends the following conditions: Close Fuel Dock Road to vehicles during event, allow no parking under nesting trees, cordon off nesting trees, guarantee access to LCWTF monitors, and prohibit boaters and their guests from harassing nesting birds and those monitoring nesting sites by sounding horns, yelling slurs at and turning hoses on monitors.

Exhibits should include data from LCWTF on impacts of local fireworks shows to birds, video of birds flushing from nests on Fuel Dock Rd. during 2022 Big Bang event, and video of July 4th, 2022 fireworks show in Harry Bridges Memorial Park.

The Sierra Club appreciates Staff consideration of these preliminary comments.

Sierra Club, Los Cerritos Wetlands Task Force

Amitay, Shahar@Coastal

From: SouthCoast@Coastal
Sent: Thursday, June 1, 2023 12:35 PM
To: Amitay, Shahar@Coastal
Cc: Ziff, Dani@Coastal
Subject: Fwd: AGENDA ITEM 13 A 5-23-0383

From: Allison Torres <allison8torres@gmail.com>
Sent: Thursday, June 1, 2023 12:18:53 PM
To: SouthCoast@Coastal <SouthCoast@coastal.ca.gov>
Subject: AGENDA ITEM 13 A 5-23-0383

Hello, I am writing in opposition for the firework show that hopefully will not be taking place on the 4th of July in Alamitos Bay. Although mesmerizing to look at, fireworks cause great danger to our local marine wildlife that depend on their native habitats. Continuing on with the firework show shows us Long Beach residents that the city isn't serious about their commitment towards restoring native habitats. It shows us that Long Beach isn't committed to honoring their veterans and those who live with PTSD; despite May being Mental Health Awareness Month.

I urge those in position to act on what will have lasting impacts for years to come. This is not just about celebrating for one day, but the harm that we will witness on our marine wildlife, as well as the further harm being caused on Long Beach's residents with PTSD.

Thank you for your time and consideration.

Amitay, Shahar@Coastal

From: Anna Christensen <annachristensen259@gmail.com>
Sent: Thursday, June 1, 2023 3:55 PM
To: Amitay, Shahar@Coastal; Ziff, Dani@Coastal
Subject: Additional info and a question.
Attachments: IMG_5992 (1).MOV; Stickroth_FireworksandBirds_extendedabstract.pdf; Not Just a Flash in the Pan, Impacts of Fireworks .pdf

Dear Dani and Shahar, Thanks for meeting with us today. We wanted you to have the video that was taken during the fireworks show launched from Harry Bridges Park last July 4th which resulted in snowy egret chicks jumping from their nests. Also we found two academic papers on the impacts of fireworks on birds to be very informative. We ask that you not rely solely on the '21 and '22 monitoring reports from the Big Bang fireworks shows, nor paraphrase these biologists' assumptions that the short and long-term impacts to coastal birds were not significant, nor conclude that the 2023 impacts are not likely to be significant.

Also, we forgot to ask if staff will consider including the video of Fuel Dock Rd during the '22 fireworks show in Exhibits. Otherwise we do not know how to send it so that it will be able to be viewed by the Commissioners and the general public. If there is a way to share it as Correspondence, please let me know.

PERSPECTIVE
https://doi.org/10.1071/PC22040
PACIFIC CONSERVATION BIOLOGY

Not just a flash in the pan: short and long term impacts of fireworks on the environment

Philip W. Bateman[A,*], Lauren N. Gilson[A,*] and Penelope Bradshaw[B,*]

For full list of author affiliations and declarations see end of paper

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ABSTRACT

Fireworks are used globally, mostly for recreational purposes, despite overwhelming evidence that they negatively affect wildlife, domestic animals, and the environment. Fireworks cause short-term noise and light disturbance, causing distress in domestic animals that may be managed before or after a fireworks event, but impacts to wildlife can be on a much larger scale. The annual timing of some large-scale fireworks events coincides with migratory or reproductive behaviour of wildlife, and thus may have adverse long-term population effects on them. Fireworks residues also contribute significantly to chemical pollution of soil, water, and air, which has implication for human as well as animal health. Modern technological alternatives to traditional fireworks – both 'eco-friendly' fireworks, and reusable drone and laser-based lightshows – provide safer, 'greener' alternatives that also present a sustainable way forward for maintaining cultural traditions without perpetuating their adverse impacts.

Keywords: bioaccumulation, fireworks, heavy metals, light pollution, noise pollution, perchlorate, pollution, wildlife disturbance.

Introduction

Firework displays are an anthropogenic disturbance that produces both immediate light and noise disturbance and lingering pollution. Aerial fireworks have typical burst heights between 100 and 200 m and can reach 270 m, with burst diameters of 100–150 m, lasting 1–6 s (Zrnić *et al.* 2020). Noise pollution can exceed 85 dB – the level at which harm can occur to human eardrums (Ambade and Ghosh 2013; Wallace 2022). Fireworks are usually associated with particular events and festivals and hence represent relatively brief but intense bursts of noise, light and particulate pollution at certain times of year. Although fireworks can be considered stochastic disturbance events analogous to natural events such as thunderstorms, there has long been recognition that firework displays are highly disturbing to human companion animals (e.g. Gates *et al.* 2019), and there is growing recognition in some communities that firework displays also causes disturbance to wildlife. In ecologically minded communities, e.g. in the Galápagos Islands (Anon 2018), this awareness has sometimes resulted in the banning of fireworks displays.

Animals, both wild and domesticated, that live within or near urban development are exposed to increased human disturbance, noise and light levels, chemical pollution, novel foods, and novel habitat features. In response to anthropogenic influences, some wild animals vacate such areas (urban avoiders) while others benefit to a certain extent, for example from increased anthropogenic food sources, refuge from predators, or novel sources of prey (urban adapters). Some species are obligate synanthropists, living only in urban areas (urban exploiters) (McKinney 2006; Bateman and Fleming 2012; Tryjanowski *et al.* 2020). There is some evidence that urban adapter or urban exploiter organisms can adapt to noise and light (Lowry *et al.* 2013; Fleming and Bateman 2018), and can modulate their behaviour in reaction, e.g. becoming less reactive to loud noises (Lowry *et al.* 2011); however, noise can cause stress hormone increases even in urban

animals (Ditchkoff *et al.* 2006; Shannon *et al.* 2016). There can also be other costs for urban animals: chicks of Western Bluebird (*Sialia mexicana*) in nests exposed to anthropogenic noise and light were both smaller and had poorer body condition than those in control nests (Ferraro *et al.* 2020), while Pinyon Mice (*Peromyscus truei*) trapped across a gradient of anthropogenic noise and light showed lower activity (trap success) in higher light zones and reduced body condition in noisier areas (Willems *et al.* 2021).

Urban wildlife can often have higher tissue levels of pollutants than ex-urban conspecifics, e.g. lead in urban House Sparrows (*Passer domesticus*) (Chandler *et al.* 2004), which may then pose a threat, via bioaccumulation, to raptors preying on sparrows. Anticoagulant rodenticides can bioaccumulate in urban reptiles, with potential consequences for their predators (Lettoof *et al.* 2020).

Here, we present a short review and commentary on what is known about the effects of firework displays on wildlife and the environment, with the aims of elucidating the extent of disturbance and damage they may be causing, and of making some suggestions for how these impacts could be reduced.

Noise and light

That fireworks' noise and light is disturbing and distressing to animals is well known to most pet owners. Noise phobia in dogs is a well-documented response to fireworks (e.g. Dale *et al.* 2010). In a survey from New Zealand, owners reported that 74.4% of companion animals, from horses to small mammals, showed fear responses to fireworks (Gates *et al.* 2019). Horse owners reported increased running in response to fireworks, often associated with fence-breaking and injury (Gronqvist *et al.* 2016). Observation of several mammal and bird species in a German zoo before, during and after 6–8 min long firework displays over two evenings showed increased nervousness, movement, withdrawal to indoor areas (Rodewald *et al.* 2014). Associative learning can induce fear responses to the smells associated with fireworks or even the fall of darkness (Mills 2005).

That fireworks and firecrackers work in frightening animals is shown in their use as hazing tools in both urban and ex-urban areas against birds in crops and at aquaculture sites (e.g. Zajanc 1962; Barras and Godwin 2005; de Carvalho *et al.* 2019), macaques (*Macaca fuscata*) in Japanese villages (Honda *et al.* 2019), and coyotes (*Canis latrans*) in Californian towns (Baker 2007).

It is not surprising then that firework events – occurring intermittently and consisting of unpredictable bursts of light and noise – appear to have negative effects on many species of wildlife. Data from 3 years of weather radar in the Netherlands showed that thousands of birds take flight shortly after fireworks are lit at midnight on New Year's Eve (Shamoun-Baranes *et al.* 2011). Hundreds of thousands of birds are disturbed in this way, flushing them from wetlands where they rest. Similar examples are global: in Poland, urban Eurasian Magpies (*Pica pica*) roost together in larger communal roosts than in ex-urban areas, but roost size sharply and suddenly declines on New Year's Eve due to fireworks (Karolewski *et al.* 2014). On Lake Zurich in Switzerland, New Year fireworks can cause a 26–35% drop in swan, goose, and duck numbers overnight, the numbers recovering over 3–10 days (Weggler 2015). At Lake Constance in Germany, a firework display on the 13 September 2010 caused extreme flight reactions in multiple waterbird species, causing over 4000 waterbirds to flee from the area almost immediately. Many waterbird species are in wing-moult at this time of year, so it is significant that even temporarily flightless birds left the area and stayed absent for over 2 days. As Lake Constance is a recognised refuge for moulting waterbirds, this fireworks display has subsequently been banned (Werner 2015). At Beebe, Arkansas, USA, two powerful displays of New Year fireworks in 2011 and 2012 caused the deaths of thousands of Red-winged Blackbirds (*Agelaius phoeniceus*) that were disturbed from winter roosts at night and, in their flight, collided with each other (Chilson *et al.* 2012).

A thorough review of solicited observations and unpublished data on birds and fireworks gathered by Stickroth (2015; primarily from Germany) indicated that most observations supported a negative response by birds to fireworks: Greylag Goose (*Anser anser*), White Stork (*Ciconia ciconia*) and Common Crane (*Grus grus*) consistently reacted the most strongly among species across reports. Although flashing light from fireworks caused reactions at close range, the greatest responses were to the associated noises. Flight was common in response to noises, even in young storks, which jumped out of nests despite being unable to fly. Birds in open country and birds in colonies reacted more strongly than did birds in woodland, which were hypothesised to feel safer under cover. Captive birds that are unable to flee have shown strong physiological stress responses to fireworks: a Griffon Vulture's (*Gyps fulvus*) heart rate went from 50 to 170 bpm when exposed to firework disturbance (Stickroth 2015).

The ecological effects from firework noise can be long term and influence breeding success: in Valencia, Spain, several festivals that include fireworks occur between April and May, and breeding success of House Sparrows (*Passer domesticus*), as measured by ratio of adults to juveniles, was lower in towns hosting festivals than in control towns without festivals. Notably, cancellations of the festivals in 2020 due to COVID-19 resulted in the breeding success of sparrows in both groups of towns becoming equal (Bernat-Ponce *et al.* 2021).

Depending on the time of year, fireworks can influence various aspects of bird behaviour. New Year fireworks in northern hemisphere winters are more likely to influence

congregations of roosting birds, which in the summer months are dispersed around their breeding areas. However, Independence Day (4th July) fireworks are often banned in areas where endangered birds, particularly colonial ones, are breeding, e.g. Western Snowy Plovers (*Charadrius alexandrinus nivosus*) in Washington State, USA (Pearson *et al.* 2008). July firework displays have been implicated in the decline of Brandt's Cormorant (*Phalacrocorax penicillatus*, now in genus *Urile*) colonies (LeValley 2010) in California, USA. Diwali, a festival celebrated with fireworks in October and November across India, occurs during winter bird migration across much of the country, though reports of impact to migrants are not available.

Although most studies on the effects of fireworks, outside of domestic and zoo animals, have been centred on birds, observations have been carried out on California Sea Lions (*Zalophus californianus*), Harbour Seals (*Phoca vitulina*) and Sea Otters (*Enhydra lutris*) in Monterey Bay, California, USA, during and after 4th of July fireworks. Both sea lions and seals, which had been hauled out and resting, took to the water in response to the fireworks but had returned by the next day. Otters were seen in the bay shortly after the fireworks ended and it was assumed that the display only caused a short disruption in behaviour (Thorson and Berg 2007). South American Sea Lions (*Otaria flavescens*) in Chile, exposed to New Year's fireworks when onshore during their breeding season, stopped vocalising, showed alert behaviour, and many left the colony during the display and took over 24 h to return (Pedreros *et al.* 2016). Although the short-term impacts appear similar in these two cases, disruption during breeding is likely to have more significant long-term impact on a species.

Pollution

Fireworks cause pollution, releasing sulfur dioxide, carbon dioxide, carbon monoxide, suspended particles, aluminium, manganese etc., in a black smoke of potassium nitrate, charcoal and sulfur (Sijimol and Mohan 2014). The particulate matter released has a profound and immediate negative effect on air quality, but declines rapidly over the next 24 h (Singh *et al.* 2019). After firework displays, particles released can be five times higher than background levels (Cao *et al.* 2018). In New Zealand, a steep rise in particulate matter has been reported after fireworks, with much of it coming from small, hand-held sparklers (Rindelaub *et al.* 2021). Dangi and Bhise (2020) reported multiple respiratory and allergic responses in residents at a site after Diwali celebration. The toxicity of the particulate matter released is high – tests with mice and human cell cultures indicate high inflammatory responses and adverse effects on cells and lung tissue (Hickey *et al.* 2020).

Of particular concern is the presence of the inorganic anion perchlorate (as potassium perchlorate and ammonium perchlorate), which contributes to the explosions and light associated with fireworks (Wu *et al.* 2011). Perchlorates are water soluble and stable, leaching into water bodies and being taken up by plants after release, and making their way into insects, mammals, amphibians and fishes (reviewed in Sijimol and Mohan 2014). Perchlorate is a major health concern as it inhibits thyroid function in amphibians, reptiles and mammals, decreasing thyroid hormone output – it also has a role in causing reproductive, neurodevelopmental, developmental, immunotoxic, and carcinogenic issues (Utley 2002). Many publications indicate the widespread presence of perchlorate in water, crop plants, milk, and fish (Kirk *et al.* 2003; Dyke *et al.* 2007; Park *et al.* 2007; Isobe *et al.* 2013; Calderón *et al.* 2020; Kumar 2020). While perchlorates do not bioaccumulate and there is evidence that they can sometimes rapidly be expelled from the body (Park *et al.* 2007), they can still make their way into the food chain and to humans (Kirk *et al.* 2003; Sijimol and Mohan 2014; Calderón *et al.* 2020).

Fireworks also deposit a range of heavy metals into soil, air and water, sometimes in large amounts (Moreno *et al.* 2010; Rindelaub *et al.* 2021). These metals from fireworks can be inhalable and therefore an immediate health risk to people (Moreno *et al.* 2007; Fu *et al.* 2021), but they can also bioaccumulate – e.g. in soil bacteria (Rajeshkumar *et al.* 2012), moss (Świsłowski *et al.* 2021), fish and mammals (Baby *et al.* 2010). Bioaccumulation of heavy metals in food can then pass to humans, but can also directly affect the health of other taxa, e.g. Marsh Frogs (*Pelophylax ridibundus*) with high levels of heavy metals and metalloids from a polluted wetland in Bulgaria were anaemic and demonstrated weakened immunity (Zhelev *et al.* 2020). Metals and metalloids from pollution in urban lakes in Perth, Australia, are implicated in low body condition of Tiger Snakes (*Notechis scutatus*) in the worst affected wetlands: such metals bioaccumulate in the snakes, making them available to snake predators (Lettoof *et al.* 2021).

Suggestions

The overwhelming evidence points to fireworks being environmentally highly damaging, having immediate disturbance effects on many animals through light and particularly noise – effects that can be long lasting. They also produce significant pulses of highly pollutant material, which can have both immediate and long-term effects on the environment and translate into health issues for wildlife and for humans (see Fig. 1).

Despite this – and studies indicating the negative effects of fireworks now go back decades – such displays continue to be part of many celebrations globally. Indeed, such displays are arguably increasing in number and intensity: Indian researchers in particular have been at the forefront

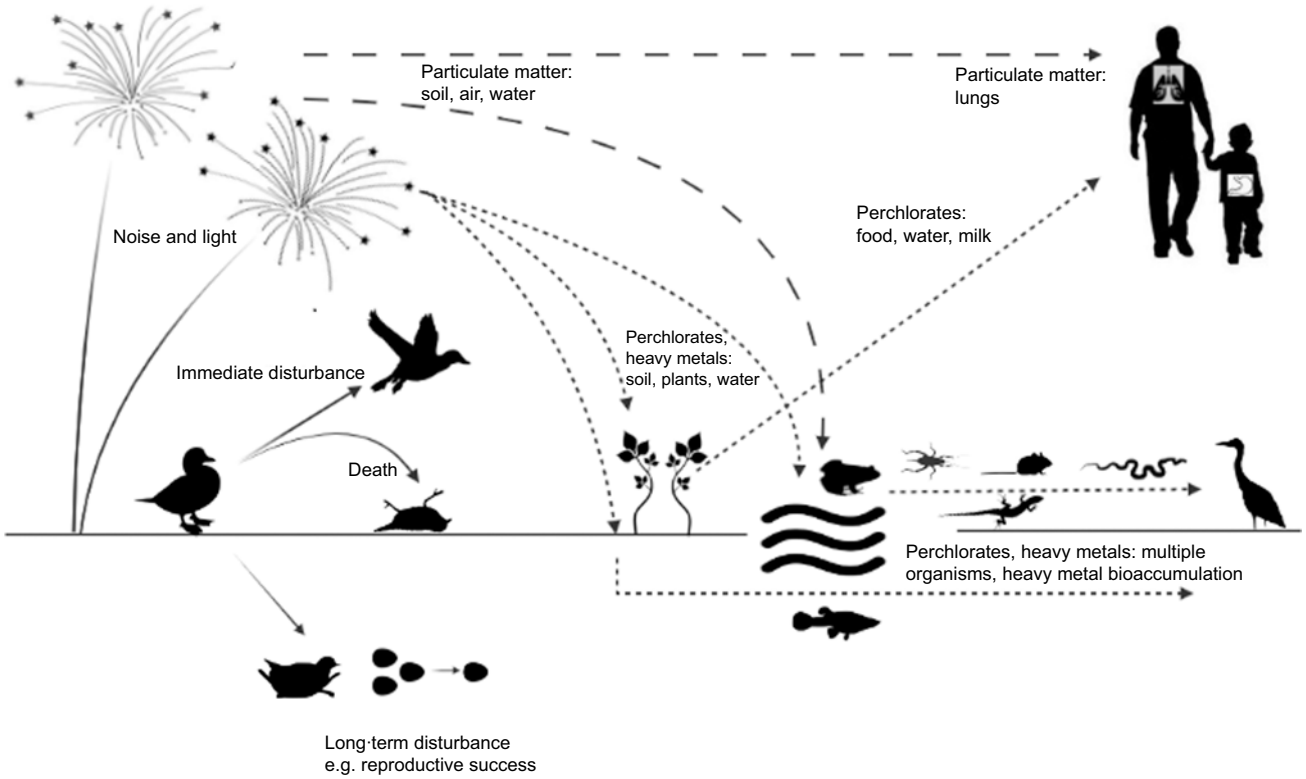

Fig. 1. Conceptual diagram of the effects of fireworks on the environment, from immediate disturbance of birds and other animals, through to rapid pollution of air quality by particulate matter, and deposition of perchlorates and heavy metals into soil and water where they can transfer to humans or bioaccumulate in food chains.

of highlighting the polluting effects of extensive firework displays associated with religious festivals (e.g. Yerramsetti *et al.* 2013; Ambade 2018; Prabhu *et al.* 2019; Singh 2020; Ravindra *et al.* 2022). A UK government report (Office for Product Safety & Standards 2021) indicated that 61% of people surveyed saw fireworks as enjoyable, and 44% saw fireworks as an important part of British culture and did not wish to see bans of displays.

As bans on fireworks are unpopular, what mitigation of the effect of fireworks on the environment can we propose? For pets, in the face of light and noise trauma, there is at least some evidence that horses can be gradually habituated to flashes of light (https://www.bhs.org.uk/go-riding/riding-out-hacking/common-incidents/fireworks/). Otherwise there is little that can be done, particularly as it appears to be noise rather that light that is disturbing (Stickroth 2015). For wild animals, the extensive potential immediate damage to multiple taxa, particularly birds, from firework displays, both short and long term, can only be mitigated by outright bans or by stringent management of timing, intensity and duration of displays attuned to behavioural ecology of affected species (which required both awareness of and availability of data for such species). At the very least, local bans (e.g. Pearson *et al.* 2008; Werner 2015) and consideration of which taxa are likely to be most affected at the time of year of the displays (summer breeding or winter migration) should be implemented.

'Eco-friendly' fireworks, which do not use perchlorate and have lower levels of heavy metals, do exist (Fan *et al.* 2021); the problem lies in their higher cost of manufacturing (Palaneeswari and Muthulakshmi 2012). The future of 'firework' displays may lie in the use of drones or unmanned aerial vehicles. Drones and visible-wavelength lasers for light shows have the benefit of being reusable, have no emissions, and are quiet (Daukantas 2010; Zerlenga *et al.* 2021). Drones come with their own issues for wildlife, however, usually flying at low altitudes where there are most likely to come into contact with wildlife; a review indicated that many taxa react negatively to the presence of a drone (Rebolo-Ifrán *et al.* 2019). Even so, drone light shows are less likely to disturb animals, wild or domestic, with noise, nor do they deposit large amounts of pollutants.

There is a growing recognition that events can be managed in a sustainable way, making use of 'green' practices (Ramely *et al.* 2022), reducing use of plastics, transport etc. Fireworks do not tend to be specifically addressed in such practices: in the face of their undoubted negative environmental effects, this needs to change.

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Data availability. Data sharing is not applicable as no new data were generated or analysed during this study.

Conflicts of interest. The authors declare no conflicts of interest.

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Effects of Fireworks on Birds –A critical Overview

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Effects of Fireworks on Birds – A critical Overview

Stickroth, H. (2015): Auswirkungen von Feuerwerken auf Vögel – ein Überblick. - Berichte zum Vogelschutz 52: 115–149. PDF-Download

A critical overview of the effects of fireworks is provided based on observations of 133 fireworks with 272 documented species-reactions. The occasion for this study arose from individual observations which hinted at such effects, but whose meaning nevertheless could not be assessed due to the lack of a general overview. The observations were compiled using internet and database research as well as surveys among birdwatchers. These were then subjected to critical evaluation in order to determine the likelihood that such effects were the result of fireworks.

70% of the observations came from Germany (primarily chance observations), 18% from the United States of America (to a high extent from planned observation and monitoring) and the remainder came from the Netherlands, Switzerland, Austria and a few other countries. In the portion from Germany, observations came from almost all of the German states – though the southern states of Germany are somewhat underrepresented.

The observations are divided among 88 taxa (species or higher taxa) from different taxonomic or ecological groups (waterbirds s.s., cormorants, geese, Lari families, big wading birds, birds of prey, owls, gamebirds, oscine families and woodpeckers, crows and pigeons). The three most prominent species were the greylag goose, the white stork and the common crane.

Traditionally, fireworks are lit to celebrate the new year, national holidays or large events – though there is an increase in private use (including association celebrations) or for commercial purposes. National firework traditions also vary greatly. In Germany, the legal basis for fireworks is regulated by the “Erste Verordnung zum Sprengstoffgesetz” (1. SprengV, First Ordinance to the Explosives Act).

Disturbance - stimuli and general effects

Lighting fireworks in the environment of wildlife represents a human-caused disturbance stimulus, which – depending on the type of firework, exposure, distance and time of year as well as the species-specific and individual sensitivities of the exposed species – can have varying disturbance effects. Birds react to the visual stimuli (flash and light “storms”) as well as to the acoustic stimuli (muffled to loud bangs, shrill whistling sounds, etc.) of fireworks.

For some reactions, visual stimuli played only a minor role, particularly at greater distances when noise from the fireworks could barely be heard. However, even at shorter distances, a primarily visual stimulus (for example, signal rocket) can cause reactions up to physical flight. The main effect here though is the surprise effect caused by the sudden flash and light “storm”, which is different than a meteorological storm that birds can detect beforehand due to its slow approach and the drop in air pressure.

Unlike continuous noise, which birds often get habituated to, the acoustic stimuli of fireworks often produced strong reactions and even panic. In 21 cases, the disturbances were primarily acoustic in nature (compared to 4 cases in which the disturbances were

primarily visual). This matches observations that sonic booms and other sudden noise events often lead to startle reactions – though waterbirds apparently react more sensitively than birds of prey and mammals. Strengthened reactions were also observed during hunting season, so that one can assume – at least in part – that the birds associate the disturbances with hunting.

The manner in which birds are disturbed by pulsating bass, sonic booms and deterrents using pulse detonation technology make it very likely that birds perceive even the pressure waves from firework explosions as a disturbance stimulus and find this unpleasant and perhaps even painful. This perception may occur via the paratympanic organ in the inner ear or via the air sacs. Habituation to the pulse detonation technology apparently does not occur– which matches the observation of no habituation to fireworks.

Disturbance stimuli must cross a stimulus threshold before they lead to a reaction. The stimulus threshold is species-specific (e.g. physiology, ecology, adaptation to predation, etc.) and individually determined (e.g. learning through experience, habituation, etc.), thus leading to more tempered or heightened reactions. However, it seems to be questionable, whether the stimuli created by fireworks represent adequate disturbance stimuli sufficient for expedient biological reactions or whether these are not simply achieved as a result of their high-threshold nature and surprise effect. The simultaneous appearance of various types of stimulus from one and the same source of disturbances (summation) or of identical types of stimulus from different sources (cumulation) have an increased negative effect according to other authors.

A series of similar disturbance stimuli and an increase in the rate of disturbances led to sensitizing and, thus, stronger disturbing effects. Repeated disturbances often led to increased evasion and even to complete abandonment of the area. Typically, the individual and species count sank.

The intensity of the disturbance stimulus determines if it crosses the stimulus threshold: This essentially depends on the height, the volume, and the distance of the fireworks as well as on their perceptibility at the place of disturbance. Shielding structures reduce the strength of the reaction, while reflecting (buildings, dunes, hills, etc.) or sound-carrying structures (water surface) increase it. The height and volume of the fireworks of course depend on the type of fireworks. Large fireworks reach greater elevations, use larger explosive charges, and thus achieve greater intensity as well as create greater disturbance effects. On average, small fireworks or German New Year's fireworks (Silvesterfeuerwerke) had an effect about 5 times as far as firecrackers or bangers, while large fireworks had an effect twice as far as small fireworks or German new year's fireworks.

It cannot be demonstrated with certainty that birds of prey are less susceptible to disturbance than other birds. Single observations, however, seem to support this. Beyond this, the disturbance effects from fireworks were significantly stronger in open country than in the woods. It remained, however, unclear if this is due to the ecologically-determined higher sensitivity of the species in open land or if the open land increases the intensity of the disturbance. Birds that breed in colonies were more sensitive to disturbances during breeding season than the other species studied. All species groups were less affected during winter, presumably because they are in their energy-saving mode.

Direct damage, disturbance effects and consequential damage

Intentional or unintentional direct hits on birds by firework materials have only been documented on rare occasion. Only in individual cases has it seemed sufficiently clear that fireworks were the clear cause of the bird's death or injury. Several case studies and entries in internet discussion forums indicate that such occurrences take place more often than usually thought. In particular, one must assume that intentional targeting with fireworks occurs often. In individual cases, the killing or burning of the animal have been proven. The incidence of hearing damage as result seems unlikely due to the special anatomy of bird's ears. There is no information concerning other damage due to explosion pressure, eye damage or damage by residues of combustion.

Typically, a disturbance stimulus leads the bird to stop its behavior up to that point and instead brings it to a state of vigilance or causes further disturbing effects. However, this is not always an outward reaction. The few studies available on this topic prove physiological reactions (e.g. increased heart rate, hormone release, and other metabolic reactions) and that fireworks cause a stress for the bird, even if they show not a larger reaction (bodily activity, flight, etc.). For partridges, just being woken up at night causes them to use about 5% more of their energy. For a griffon vulture, the heart rate increases from 50 to 170 beats per minute – something which ordinarily only occurs at maximum physical strain.

For the simplest and weakest cases, outward signs of anxiety and fear involve changes in body posture. There is ample proof of increased vigilance (noticing, protecting, etc.), warning cries and contact calls (often emitted in flight), backward head motions, running around, hopping back and forth nervously, sitting down or ducking, motions caused by fear (wincing) and intentional movements. There are no case studies involving possible further reactions such as shaking due to fear or displacement activities.

Flight was the most documented phenomenon, and, where possible, a distinction was made between "normal flight" and panic. Due to lowered visibility at night, fleeing birds were often only heard and species that do not call as much were not noticed. Flight because of fireworks does also not only mean the animals flew away. Many species or individuals fled by flying, running or swimming into protective bank vegetation or to areas far off. This is particularly true for non-flying individual animals or young birds that have not yet learned to fly. In extreme cases, these young birds jumped or fell out of the nest (e.g. storks, heron). Flight also contains within it the danger of aftereffects, meaning that the birds hurt or exhaust themselves; in particular, young birds that have not yet learned to fly become easy prey for predators, have accidents or get lost completely.

The greatest danger comes from the aftereffects of a panic, which comprises a third of all documented flights. Compared to other disturbance effects, flocking birds react more often by taking flight and panicking than the remaining species groups, particularly geese and cranes. After panics, the complete or partial count of birds then returned less often than after "normal flight", and the length of the absence and anxiety was longer. The percentage reduction was on average longer, and 9 of the 10 documented fatalities were attributable to panics. Wayward birds were found at distances of up to 15 km away.

Seagulls and crows, which are flocking birds too, tend to first fly upwards to gain a literal overview of the situation without initially demonstrating full departure flight tendencies.

New Year's Eve fireworks are an exception since they occur over a large area. In the Netherlands during such fireworks, weather radar calculates peak density values of up to 100,000 cm^2/km^2. That corresponds to 666, 2000, and 9090 birds scared off per km^2 in the goose, duck, and small bird size categories, respectively. The birds also flew up to greater heights (as much as 500 meters) than they flew during their normal daily flights. Densely populated areas (in other words, where there are lots of fireworks) in some cases were completely abandoned.

As a result of flight or panic, birds can become disoriented (due to poor visibility, night, fog, etc.), fly into obstacles (buildings, power lines, trees, etc.) and injure themselves or even die. Here, again, it is the flocking birds that are particularly at risk. Single cases have been documented with up to 5,000 fatalities. There is also evidence of white storks being injured or dying as a result of fireworks.

Reproductive success also may be reduced as a result of flight. There are case studies in which the nest was given up or the adult birds returned to the nest so late that the unprotected brood fell victim to weather conditions or predators. The brood can also be damaged during flight, such as when eggs or young are unintentionally pushed out of the nest or crushed in the nest. For cormorants, the loss of young was up to 30 times higher and up to 83% of its total nest loss was determined to have occurred on the night of the fireworks; for heron, the loss of young was much less pronounced. The mortality risk for young birds also then increases when contact with the parental flock – within whose structure the acquisition of food, social behavior and traditions (e.g. roosting sites during migration) are taught – is lost during flight. Observations of these were made among waterbirds and cranes.

Independent of these short-term effects, flight decreases the fitness of individual birds, thus weakening them and making them more susceptible illness or parasites. Due to the loss of time and habitat – that undoubtedly arise as a result of flight –, they also lose sleep for recovering and time for feeding in order to regain energy. The scale of the forced change of place becomes clear when examining those that return after flight or panic: Only in 10% of cases (of 182) did the frightened birds completely return, in 59% of cases they did so partially, and in 30% of cases they did not return at all. This inevitably leads to a deterioration of the animal's energy balance since flying (for geese) consumes about ten times more energy than dietary intake and about twenty times more energy than the basal metabolic rate; changes of location of up to 15 km were observed as were climbs to higher than usual elevations. But the stress alone causes an increase in energy needs. The additional energy expense was calculated into the needs for a day stage on a crane's flight towards France. In such times with high energy needs and a simultaneously poor food supply situation, this can lead to an emergency situation that is life threatening.

There are, as of yet, no studies on the effects of fireworks on the population. While individual fireworks in many cases have a negligible impact on populations, the use of extensive fireworks across a wide area, such as is the case on New Year's Eve in densely populated Central Europe, can lead to population losses. The results of this overview demonstrate that, in varying ways, fireworks increase the risk of mortality for individual birds and, thus, the death rate of the bird population. For populations with an unstable conservation status, negative trend or small population size as well as for sensitive species types (birds that flock or breed in colonies), the conservation status can worsen.

Conclusions

Conclusions and possible consequences are briefly sketched for the handling of fireworks in Germany. The “Bundesnaturschutzgesetz” (German Federal Nature Conservation Act) and “Tierschutzgesetz” (Animal Welfare Act) must be consistently applied in cases where animals are intentionally killed or injured. Despite considerable unknowns regarding the dimensions of the damage for small birds, for the present it is assumed that no regular, significant disturbance by fireworks occurs to common and widespread species. Minimum distances from nest locations are specified for species that are rare or endangered as well as for species that are more sensitive to disturbances and breed in colonies.

For resting areas of international importance, no more than 1% of the area may be affected by fireworks; for areas of regional or national importance, this may be no more than 10% of the area. A minimum distance of 1000 meters is also to be maintained around areas for flocking birds – regardless of the protection status of the species and the area. Particularly for sensitive species, such as the crane, an increased minimum distance of 2000 meters is to be maintained. If reflecting structures exist around the resting areas (e.g. buildings, hills, cliffs and dunes) or if water or other sound-carrying surfaces exist between the resting area and the launching area for the fireworks, the minimum distance must be doubled – and the same applies during hunting season. Power lines must not run within a radius of 1000 meters from the resting area and the launching area for the fireworks.

When approving fireworks, the spacial and temporal effects of the firework display on the environment must be considered. The time interval between 2 firework displays at the same site must be at least 4 weeks, and the physical distance between 2 firework displays on the same day must be at least 10 kilometers. Authorities could increase control of fireworks by implementing regulatory measures (e.g. in national parks and bird conservation areas as well as in the area of bird breeding colonies and bird roosting sites). Extremely loud explosion effects (flash crackers, etc.) and percussive charges along water, along the coast, near protected areas, breeding colonies and roosting sites must be eliminated.

The effectiveness of the measures must be monitored through random spot-checks and then improved as necessary. It must be noted here that simple before and after counts are not sufficient. In every case, the counts must be combined with observations during the fireworks and, as possibilities permit, supported by technical means (night vision devices, video recordings, photography, camera traps, etc.).

Amitay, Shahar@Coastal

From: SouthCoast@Coastal
Sent: Friday, June 2, 2023 2:23 PM
To: Amitay, Shahar@Coastal
Subject: Fw: Agenda Item 13 A 5-23-0383

From: Alyssa Bishop <alyssabishopyoga@gmail.com>
Sent: Friday, June 2, 2023 10:03 AM
To: SouthCoast@Coastal <SouthCoast@coastal.ca.gov>
Subject: Agenda Item 13 A 5-23-0383

Coastal Commission Representatives,
I write to you in hopes that you begin to walk in a beauty way with the positions that you hold. That your decisions radically shift bearing in mind your duty to the future generations and all of life.
We all already know fireworks are toxic to the waters the air and threatening to the animals and war veterans. Precious life you are endangering year after year ignoring the data and science that proves this endangerment to be so.
Year after year I and many others have spoken to you about this. I know you are choosing to ignore the data thus far.
You have this moment and time to start doing the right thing. Stop caring more about the funding, and social pressures.
This is your moment to feel alive and like an actual participant of the earth family.
This decision should be simple as in this case you actually have viable alternatives such as drone light shows. Like come on get with the times.
Please make the right choice on what should be an easy decision.
I write not just on behalf of myself, but I am a representative of the younger generation who is watching your choices and quite frankly thus far it is your decisions that give us little faith in your generations and with the system all together.
You wonder why youth doesn't want to be involved in politics, but look at you all. Ignoring science just because it's legal to do so.
A disgrace honestly.
Prove to us there will be a future. Prove to us you do care about our ability to see birds and submerge into clean water in the next 10 years. Now Is the only time we have. Not next year. This year.
My heart breaks after the 3 years watching the Migratory nesting birds fly from their nests in fear when the Big Bang on the Bay fireworks began. The babies cannot fly yet, so are left to be terrorized until their mother returns after the show.
What if it were your children?
How can you not feel the universal tug of a mother's want to protect their young.
Please remember that life is precious and to be protected. Please begin to do right by nature and to not just be a robot sitting in those chairs with no souls. Because that is what it has felt like these past three years. Heartbreak after heart break. It's time to change and do right by us all.
All my relations,
Alyssa B

Amitay, Shahar@Coastal

From: Michael Guth <mguth@guthpatents.com>
Sent: Friday, June 2, 2023 1:48 PM
To: SouthCoast@Coastal; Hudson, Steve@Coastal; Ziff, Dani@Coastal; Amitay, Shahar@Coastal
Subject: Sierra Club Comment Letter submission Th 13a
Attachments: CA Coastal Commission_Agenda Item13a Sierra Club.pdf

Hello,

Please see the attached comment letter from the Sierra Club on App. No. 5-23-0383, Agenda Item Th13a, Hearing DAt 06/08/2023.

Please do confirm receipt.

Thank you

--
Yours Sincerely,
Michael A. Guth
Attorney at Law
(831) 462-8270

California Coastal Commission
455 Market Street, Suite 300
San Francisco, CA 94105

June 2, 2023

RE: Agenda Item Th13a, Application No.: 5-23-0383 (Naples Restaurant Group)
Hearing Date 06/08/2023

Position: OPPOSE

Dear Chair Brownsey and Commissioners,

The Sierra Club recommends **DENIAL** of CDP No. 5-23-0383 as conditioned on the basis that this project will have a deleterious effect on coastal bird rookeries, on marine life and water quality in Alamitos Bay, and on the Los Cerritos Wetlands system. The CDP fails to determine the impacts of the event on marine life or on coastal birds, nor do the Conditions substantially avoid or mitigate the significant adverse impacts, most especially, of the fireworks show.

Fireworks have been proven to have significant negative impacts on air and water quality and on wildlife, including birds and marine life. Evidence shows that fireworks have immediate disturbance effects on wildlife mainly through light and particularly noise – effects that can be long lasting and even deadly. Fireworks also produce significant pulses of highly pollutant material, which can have both immediate and long-term effects that impact the health of wildlife, marine life, and humans.

DENIAL is justified as significant adverse impacts have not been substantially lessened and additional feasible mitigation measures and alternatives exist that would substantially lessen significant adverse impacts. The Big Bang fireworks show will violate Sections 30001, 30001.5, 30230, and 30231 of the CA Coastal Act and also constitute a violation of the CA Fish and Wildlife regulations re Harassment of Animals, Cal. Code Regs. tit. 14 § 251.1 *Except as otherwise authorized in these regulations or in the Fish and Game Code, no person shall harass, herd or drive any game or nongame bird or mammal.*

DENIAL is a legal option. Protecting "*the biological productivity of coastal waters"* and assessing the *"potential for adverse impacts"* need not be limited to "*listed species and/or protected mammals"* as all coastal birds, mammals, and marine life contribute to the health of coastal ecosystems, including wetlands and bays. The CDP does not take into consideration that coastal bird rookeries require and deserve special protection. Nor is it acknowledged that the lack of such protection has resulted in the decline of the Great Blue Heron Colony of Alamitos Bay and the loss of local nesting sites for snowy egrets and Black Crowned Night Herons as well.

Should the Commissioners choose to recommend approval of this application, there are further feasible mitigation measures and alternatives that would substantially lessen any significant adverse impacts of the development on the environment. These mitigations include elimination or reduction of fireworks and other aspects of the proposed show, and also significantly enhanced nesting site survey, monitoring, and reporting protocols.

The Sierra Club proposes the following additional conditions with regard to the show:

- Change date of event to non-nesting season (Oct 1- Dec 31).
- No fireworks. Drone or laser show only, as both are technically feasible.
- No military flyovers - additional noise and air pollution.
- Move fireworks barge out of Alamitos Bay - inside breakwater, farther from rookeries.
- Use only "silent" low volume fireworks and fireworks that do not contain perchlorate - technically feasible.
- Reduce length of fireworks show to 15 minutes.
- Do not fire test shells: parents will abandon nests earlier increasing exposure of young/eggs to cold/predators.

The Sierra Club proposes the following additional conditions with regard to surveys, monitoring, and reporting:

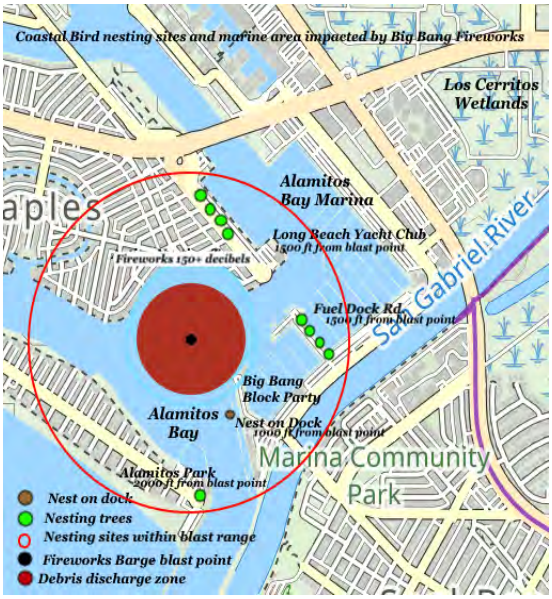
- Use ornithologists for census taking and monitoring of birds, multiple observers should be required.
- Measure decibel levels at nesting sites on dock, on Fuel Dock Rd., in Alamitos Park and LB Yacht Club.
- Monitor prior to, during, and after event to determine impacts of crowds, boating, air show, and fireworks.
- Videotape nesting sites on night before the event, immediately before and during fireworks, and next day.

- Areas for census data collection and pre and post event monitoring of birds must include rookery on Fuel.
- Dock Rd, nesting site in Alamitos Park, and rookery at Long Beach Yacht Club (see map below).
- CDP Exhibits should include video of birds flushing from nests on Fuel Dock Rd. during 2022 Big Bang event.

Areas for census data collection and pre and post event monitoring are not clearly determined or mapped in CDP or in Exhibits. In contrast to a construction site, for example, the impacts to nesting sites from fireworks are not neatly captured within a distance of 300 feet. **All impacted nests but one are between 1000 and 2000 feet from blast site.** To accurately determine potentially impacted marine life that is not stationary, Alamitos Bay as a whole, not merely the debris impact zone, must be surveyed. A small letter report, as proposed by PI in Exhibit 6, is totally inadequate.

The Sierra Club proposes the following conditions with regard to Fuel Dock Rd:

- Close Fuel Dock Road to vehicles during event.
- No parking under nesting trees.
- Cordon off nesting trees.
- Guarantee access to monitors from Sierra Club (Los Cerritos Wetlands Task Force).
- Provide security to prohibit boaters and their guests from harassing nesting birds and those monitoring nesting sites by sounding horns, yelling slurs at and turning hoses on monitors.



Coastal Bird nesting stie and marine areas impacted by Big Bang Fireworks

Errant Assumptions in CDP Analysis

The CDP analysis errs in relying solely on 2021 and 2022 monitoring reports to conclude that the short and long-term impacts of the fireworks show to coastal birds were not significant, and that the 2023 impacts are also not likely to be significant. The presumption of the monitoring biologists was that their limited reporting was able to determine that the Big Bang Fireworks Show did not significantly impact birds. Because these biologists did not personally observe dying or dead birds during the event, they concluded that there were none, in spite of evidence submitted by other parties. They further stated that all birds returned to nesting sites either immediately or the next day. However, since no bird counts were done, this cannot be confirmed. No effort was made to verify if eggs or chicks were impacted by the absence of parents, nor how nest abandonment, stress, and fireworks debris and pollution impacted the overall health of chicks and adult birds.

Regarding gathering evidence of mortality, birds who are flushed from roosting and nesting sites may die or be injured far from the *"vicinity of the project area."* In addition, sole focus on evidence of *"serious injuries and mortality in vicinity of the project area"* ignores the multiple other ways that fireworks are known to impact birds, potentially causing colony collapse over time. See excerpts from two studies in the Attachments:

Summary

The Sierra Club appreciates the opportunity to provide comments on this CDP. The Sierra Club takes issue with the impacts which will result should this application be approved. Should this application be approved, we expect that our proposed further conditions will be fully considered.

Sincerely,

Ann Cantrell

Anna Christensen

Ann Cantrell
Sierra Club Los Cerritos Wetlands Task Force

Charming Evelyn
Chair, Sierra Club California Water Committee

ATTACHMENT 1; EXCERPTS OF PERTINENT PUBLISHED STUDIES

Effects of Fireworks on Birds – A critical Overview, Stickroth, H. (2015)

In varying ways, fireworks increase the risk of mortality for individual birds and, thus, the death rate of the bird population...Unlike continuous noise, which birds often get habituated to, the acoustic stimuli of fireworks often produced strong reactions and even panic...The manner in which birds are disturbed by pulsating bass, sonic booms and deterrents using pulse detonation technology make it very likely that birds perceive even the pressure waves from firework explosions as a disturbance stimulus and find this unpleasant and perhaps even painful... Repeated disturbances often led to increased evasion and even to complete abandonment of the area. Typically, the individual and species count sank...The intensity of the disturbance stimulus determines if it crosses the stimulus threshold: This essentially depends on the height, the volume, and the distance of the fireworks...Birds that breed in colonies were more sensitive to disturbances during breeding season..

Flight was the most documented phenomenon, and, where possible, a distinction was made between "normal flight" and panic...Many species or individuals fled by flying, running or swimming into protective bank vegetation or to areas far off. This is particularly true for non-flying individual animals or young birds that have not yet learned to fly. In extreme cases, these young birds jumped or fell out of the nest (e.g. storks, heron). Flight also contains within it the danger of aftereffects, meaning that the birds hurt or exhaust themselves; in particular, young birds that have not yet learned to fly become easy prey for predators, have accidents or get lost completely...

After panics, the complete or partial count of birds then returned less often than after "normal flight", and the length of the absence and anxiety was longer...As a result of flight or panic, birds can become disoriented (due to poor visibility, night, fog, etc.), fly into obstacles (buildings, power lines, trees, etc.) and injure themselves or even die.

Reproductive success also may be reduced as a result of flight. There are case studies in which the nest was given up or the adult birds returned to the nest so late that the unprotected brood fell victim to weather conditions or predators. The brood can also be damaged during flight, such as when eggs or young are unintentionally pushed out of the nest or crushed in the nest.

The mortality risk for young birds also then increases when contact with the parental flock – within whose structure the acquisition of food, social behavior and traditions (e.g. roosting sites during migration) are taught – is lost during flight.

Flight decreases the fitness of individual birds, thus weakening them and making them more susceptible to illness or parasites. Due to the loss of time and habitat – that undoubtedly arise as a result of flight –, they also lose sleep for recovering and time for feeding in order to regain energy. The scale of the forced change of place becomes clear when examining those that return after flight or panic: Only in 10% of cases did the frightened birds completely return, in 59% of cases they did so partially, and in 30% of cases they did not return at all.

Not just a flash in the pan: short and long term impacts of fireworks on the environment , Philip W. Bateman, Lauren N. Gilson, and Penelope Bradshaw *(2023)*

Fireworks cause short-term noise and light disturbance, causing distress in domestic animals that may be managed before or after a fireworks event, but impacts to wildlife can be on a much larger scale. The annual timing of some large-scale fireworks events coincides with migratory or reproductive behavior of wildlife, and thus may have adverse long-term population effects on them. Fireworks residues also contribute significantly to chemical pollution of soil, water, and air, which has implications for human as well as animal health.

Aerial fireworks have typical burst heights between 100 and 200 m and can reach 270 m, with burst diameters of 100–150 m, lasting 1–6 s. Noise pollution can exceed 85 dB – the level at which harm can occur to human eardrums.

The overwhelming evidence points to fireworks being environmentally highly damaging, having immediate disturbance effects on many animals through light and particularly noise – effects that can be long lasting. They also produce significant pulses of highly pollutant material, which can have both immediate and long-term effects on the environment and translate into health issues for wildlife and for humans

For wild animals, the extensive potential immediate damage to multiple taxa, particularly birds, from firework displays, both short and long term, can only be mitigated by outright bans or by stringent management of timing, intensity and duration of displays attuned to behavioral ecology of affected species (which required both awareness of and availability of data for such species).

Amitay, Shahar@Coastal

From: SouthCoast@Coastal
Sent: Friday, June 2, 2023 4:35 PM
To: Amitay, Shahar@Coastal
Cc: Ziff, Dani@Coastal
Subject: Fw: AGENDA ITEM 13 A: 5-23-0383

From: Matthew Fajardo <mattjfajardo42@hotmail.com>
Sent: Friday, June 2, 2023 4:30 PM
To: SouthCoast@Coastal <SouthCoast@coastal.ca.gov>; SouthCoast@Coastal <SouthCoast@coastal.ca.gov>
Subject: AGENDA ITEM 13 A: 5-23-0383

Hello. My name is Matthew Fajardo, and I am writing in opposition of the fireworks show over Alamitos Bay scheduled on July 4th of this year. Fireworks cause an enormous amount of both air and light pollution, both of which threaten the environment in which we live. Not only that, but the loud noises they produce can be traumatic for autistic and/or epileptic people, as well as those with PTSD. More pets go missing on the 4th of July than any other day of the year, with fireworks being the main culprit.

For these reasons, I am writing in attempt to cease the fireworks show. Not just I, but the people of Long Beach would benefit greatly if it were canceled.

Thank you for reading my message and enjoy the rest of your day.

Regards,
Matthew Fajardo

Amitay, Shahar@Coastal

From: Livia Borak Beaudin <livia@coastlawgroup.com>
Sent: Friday, June 2, 2023 4:49 PM
To: SouthCoast@Coastal
Cc: Amitay, Shahar@Coastal; Kristen Northrop
Subject: Public Comment on June 2023 Agenda Item Thursday 13a - Application No. 5-23-0383 (Naples Restaurant Group LLC, Long Beach)
Attachments: CERF Comments. Item 13a Big Bang on the Bay.pdf; Microplastic abundance in the Thames River during the New Year period.pdf

Please find attached comments on behalf of Coastal Environmental Rights Foundation for the above-referenced item.

Thank you.
~Livia

Livia Borak Beaudin (she/her)

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Encinitas, California 92024
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"Like music and art, love of nature is a common language that can transcend political or social boundaries." — Jimmy Carter

June 2, 2023

Chair Brownsey and Commissioners
California Coastal Commission
455 Market Street
San Francisco, California 94105

Via Email
SouthCoast@coastal.ca.gov

Re: Item Thursday 13a (Naples Restaurant Group LLC, Long Beach)
Coastal Environmental Rights Foundation Comments

Dear Chair Brownsey and Commissioners:

Please accept these comments on Thursday's Agenda Item 13a, the Naples Restaurant Group LLC Big Bang on the Bay Coastal Development Permit (CDP) on behalf of Coastal Environmental Rights Foundation (CERF). CERF is a nonprofit environmental organization founded by surfers in 2008 for the protection and enhancement of California's coastal resources. The purposes of CERF are to aid the enforcement of environmental laws, raise public awareness about coastal environmental issues, encourage environmental activism, and generally act to defend natural resources in coastal areas.

CERF has advocated for agency regulation of fireworks over water (and mostly within coastal areas) for almost 15 years. As the Commission is aware, fireworks can be a lightning rod as they are shrouded in a cloak of patriotism while their negative environmental and social impacts slowly make their way into the mainstream. CERF successfully advocated for the first-in-the-nation National Pollutant Discharge Elimination System (NPDES) Permit for firework discharges over water in the San Diego Region over a decade ago. San Francisco followed suit years later, and just last month, the Los Angeles Region adopted the most rigorous fireworks general NPDES Permit to date.

The Commission is no stranger to the negative impacts of fireworks, having successfully defeated legal challenges to its protection of the sea birds on Gualala Point Island.[1] In that case, and this one, the Commission required a CDP for a temporary fireworks display in the coastal zone. CERF thanks the Executive Director and staff for putting an end to the annual CDP exemptions afforded the Big Bang on the Bay. Though CERF urges the Commission to deny the CDP based on the development's potential impacts to water quality, public access, nesting shorebirds and marine mammals, including threatened green sea turtles, should the Commission approve the CDP, the proposed special conditions will provide some level of protection to sensitive coastal resources and the public.

CERF recently appealed the district court decision referenced in the staff report, but it is important to note the court found the applicant had discharged pollutants in violation of the Clean Water Act.[2] In the context of that litigation, CERF became intimately familiar with the Big Bang on the Bay. We therefore offer some suggested modifications to the Special Conditions to ensure the conditions are successful and the data received is meaningful and accurate.

[1] https://gualalariver.org/wp/wp-content/uploads/2014/01/2010-03-Fireworks-decision.pdf
[2] The applicant's unlawful development hindering public access is consistent with its pattern and practice of ignoring environmental laws.

Because black powder is ubiquitous in aerial fireworks[3] and approximately 50 percent of the combustion product is in the particulate form (and 50 percent is gas), CERF recommends adding sulfur (one of the main components of black powder) to the monitoring suite of chemicals.

In the past, Pi Environmental has conducted the water quality monitoring and debris search post event. Because of their dual role, Pi first conducts water monitoring and thereafter a debris search. This significantly delays the debris search, which is already hindered by boat traffic and tidal influence. CERF therefore suggests the debris search occur with more than one boat and with a vendor/consultant who is not also tasked with conducting water monitoring. Since 2016, Pi has been able to recover only 1.5 pounds of event-related debris (and has thereafter speculated that it may not be fireworks related). CERF also suggests the debris search include photo documentation of debris recovered.

The debris associated with fireworks is dispersed in numerous ways, but into water via two pathways: (1) the low-level debris associated with the launch, and (2) the debris from the fireworks post and during combustion. A brief video of the finale of the 2022 Big Bang on the Bay, taken via GoPro on the barge, is available here, wherein the two different types of "discharge" can be seen. Notably, this year's upcoming show will have approximately 17 to 50 percent more aerial shells than last year's.

To characterize the water quality impact of both these discharges (since the low-level launch debris is closer to the barge itself), CERF suggests an additional water sample taken from the waters within 15 feet of the barge. To enable "real-time" monitoring, an autosampler attached to the barge after it is moored would address potential dilution and masking of impacts due to delayed sampling.

Though the applicant's pyrotechnic vendor may supply fireworks without plastic internal components, the quick-match used to light the fireworks are wrapped in colorful "paper" that is lined with plastic. See, e.g. https://fireworks1.com/Quick-Match-50-meters-p530.html Even when secured to the mortar racks, these quick match components are often launched from the barge and may wind up in the Bay. Microplastics are also found in waters after fireworks displays (see enclosure). Therefore, CERF suggests a trough or container attached to part of the barge to capture launch-level debris and enable an assessment of plastic/microplastic debris.

Thank you in advance for your consideration.

Sincerely,

Livia Borak Beaudin
Legal Director

[3] https://www.atf.gov/explosives/black-powder

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Microplastic abundance in the Thames River during the New Year period

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ABSTRACT

Microplastic pollution is widely studied; however, research into the effects of large-scale firework displays and the impact on surrounding waterways appears to be lacking. This study is potentially the first to look at microplastic abundance in rivers after a major firework event. To assess the impact of the 2020 New Year's firework display in London, a 3 litre water sample was collected over nine consecutive days at Westminster on the River Thames. A total of 2760 pieces of microplastics (99% fibres) were counted using light microscopy, and further analysis was performed on representative plastic samples (354) using Fourier Transform Infrared Spectroscopy (FTIR). Whilst anthropogenic microfibres made up 11%, most microplastic identified (13.3%) were polychloroprene. This study demonstrates the occurrence of a short-term influx of microplastics in the River Thames following the New Year fireworks, which will have an additional detrimental impact on the ecology and aquaculture of the river and neighbouring waterways.

1. Introduction

Plastic production and inefficient waste management schemes and policies have resulted in plastic particles being found in varying sizes (macroplastic (>5 mm), microplastic (<5 mm), nanoplastic (1-1000 nm)) in aquatic and terrestrial habitats (Da Costa et al., 2016; Huang et al., 2020; Hurley et al., 2020; Law, 2017; Peng et al., 2020). Microplastics (MP) with size <5 mm in particular are becoming ever increasingly abundant locally and globally, with their impact widely documented (Browne et al., 2011; Zhao et al., 2018). Microplastics can leach and sorb harmful toxins from the surrounding environment. As a result, MPs can transfer pollutants into organisms and result in bioaccumulation and biomagnification within food chains (Farrell and Nelson, 2013; Miller et al., 2020). Many previous studies have focused on the effect of MPs in the marine environment. However, the focus appears to be shifting to freshwater systems due to rivers being the major pathway of plastic pollution estimated at 1.15 to 2.41 million tonnes per annum worldwide, with 80% of plastic originating from the terrestrial environment (Horton et al., 2017; Lebreton et al., 2017; Meijer et al., 2021).

Freshwater and estuarine ecosystems are essential resources fully utilised as a food and water source, a network for economic development, industry, and agriculture (Carpenter et al., 2011). Due to their connectivity and population density being higher around water systems, rivers have become a significant contributor and pathway for introducing plastics to the sea and making it polluted (Claessens et al., 2011; Willis et al., 2017). A range of sources have been identified for plastic pollution in rivers via natural processes such as flooding and wind (Bruge et al., 2018; Tramoy et al., 2019), and anthropogenic sources such as wastewater treatment plants (WWTP's), human littering, building works and road run-off (Horton and Svendsen, 2017; Kay et al., 2018; Lechner and Ramler, 2015; Seo and Park, 2020). Another less examined potential source is large-scale nationwide firework events that contribute to atmospheric, terrestrial, freshwater and marine pollution due to their explosive nature and use worldwide (Tandon et al., 2008).

The amount of pollution released varies depending on the scale of the firework event. These events can range from small scale celebrations to larger nationwide events. The global Diwali festival, Independence Day in the USA (Seidel and Birnbaum, 2015), and Bonfire Night (gunpowder plot) in the UK are examples of large-scale firework events. One of the

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biggest celebrations worldwide is New Year, celebrated each year with huge firework displays. Research studies such as Moreno et al. (2010) and Greven et al. (2019) have already shown that setting off fireworks results in clouds of smoke which increase the amount of CO_2 and the atmospheric pollution within the immediate area in the short term (Ravindra et al., 2003). These studies have documented that fireworks can on average cause a 42% increase in air pollutants, due to charcoal being the most commonly used fuel (Ravindra et al., 2003; Seidel and Birnbaum, 2015). The amount of plastic varies depending on the type of firework involved. According to Toader et al. (2017), a pyrotechnic mixture like fireworks contains roughly 10% of a natural or artificial polymeric binder. These binders are typically made from either a natural material such as starch or Arabic gum, synthetic material such as shellac, novolac, or synthetic polymers such as nitrocellulose, polybutadiene, polyisobutylene, polyurethane or polyvinyl chloride (PVC) (Naik and Patil, 2015; Poulton and Kosanke, 1995). Rocket type fireworks that explode in the air also have a mortar and a tube sealed at the bottom end to help the firework get enough momentum to lift off the ground (Naik and Patil, 2015). These mortars are made from wrapped paper, high-density polyethene (HDPE), or steel (Poulton and Kosanke, 1995). Rockets also have plastic cones at the top to aid flight (Naik and Patil, 2015).

Toxic substances, metals, plastics, cardboard, and many other materials and compounds have been found around firework display sites (Attri et al., 2001; Baranyai et al., 2014). The resulting particles of plastic, cardboard, smoke and airborne particulates or chemical pollutants tend to accumulate close to the fireworks display area (Azhagurajan and Selvakumar, 2014). Due to rain, surface run-off and subsurface drainage, these particles may reach rivers in these cities, and subsequently impact water resources. The majority of the New Year firework displays take place in cities or are located over water, for example, in the UK (London, Westminster), Australia (Sydney Harbour), Brazil (Rio de Janeiro, Copacabana), Hong Kong (Victoria Harbour), Singapore (Marina Bay).

The 2020 firework display held at Westminster caused a level 4 (moderate) air pollution level, with an air quality index value of 105 (PM 2.5) in the surrounding area of Westminster (The World Quality Index Project, 2021). To compare, the Diwali festival of lights in Delhi in 2019 reached the maximum index value of a hazardous 500 (PM 2.5) for air quality due to the concentrations of airborne pollutants caused by the number of fireworks released (Central Pollution Control Board, 2020). Whilst these pollutants are airborne, they still pose risks to the aquatic environment. Dutcher et al. (1999) and Perry (1999) found that the heavy metals used in pyrotechnic devices can travel 62 miles over two days. It is likely that plastic or MP could similarly cover the same distance once airborne, contributing to atmospheric pollution. These airborne particles eventually settle in and pollute waterways due to being washed down with rainfall. Hence it was expected that an increase in MP concentration in the atmosphere would lead to an increased concentration on nearby land or water after a firework event.

Our study aimed to investigate the impact of London's 2020 New Year firework celebrations on microplastics (MP). The objectives were 1) to quantify the abundance of MP in the River Thames at Westminster where the fireworks were taking place, and 2) to classify MP by shape, colour and polymer.

2. Methodology

2.1. Study area

Water sampling took place on the River Thames at Westminster, London, close to the Millennium/London Eye on the river's south bank

Fig. 1. Location of water sampling site on the River Thames, Westminster, London.

(Fig. 1). The sampling site was chosen due to its proximity to the firework detonation area, expected to have a relatively higher concentration of microplastic from the New Year celebrations. Westminster is a highly urbanised area of London located on the River Thames with a residential population of 254,375 in 2018 (Greater London Authority, 2021). As a result of the businesses and tourist attractions in the area, Westminster's daytime population increases to over a million people (Westminster City Council, 2019). The site is a low lying stretch of the Thames, with Westminster having 4.7 km of River Thames frontage (Westminster City Council, 2008).

The New Year London firework celebrations attracted thousands of people to the area. A total of 86,265 tickets were scanned on the night; however, this does not include residents and businesses within the area who do not need to buy tickets. A total of 12,000 fireworks were set off in roughly 15-minute intervals with a cost of approximately £2 million (Phillips, 2020).

2.2. Water sample collection

Nine samples were collected at high tide from a land-based infrastructure (Fig. 1): 8 samples were collected on consecutive days from 29/10/19 to 5/01/20, covering pre-and post-New Year Day fireworks. One more sample was taken on 23/01/20 to check if the abundance of microplastics had returned to levels observed in the area before the firework event. The New Year Day samples were taken almost 6 h after the firework displays. Surface water samples were collected from a single location on the bank of the river, near the fireworks detonation site that would be most indicative of microplastics input from the fireworks. The surface water at the site of entry to the river could only be reached during high tide. Hence, sampling at the first high tide of the day leading to daily variation in sample collection times (between midnight and 8 AM, Table 1) was rational and the closest timeframe to the New Year fireworks. On each sampling day, three 1 litre bottles of water were collected in Gosselin cornering high-density polypropylene (HDPE) natural rounded plastic bottles. The bottles were sealed on-site to be transported back to the University of East London's Docklands campus for filtering and analysis. Concurrently, rainfall data was gathered using rainfall gauges at a meteorological station close to the site, and downloaded from the weather monitoring system ORP (2020).

2.3. Filtering and contamination controls

The water samples were filtered using a Haldenwanger Porcelain Buchner funnel with Whatman 1001–125 qualitative filter paper circles (11 μm pore size, 10.5 s/100 ml flow rate, grade 1, 125 mm diameter). Strict health and safety protocols and precautions were used in the field during collection and in the laboratory to prevent contamination of samples. Field and laboratory safety protocols were adhered to, such as wearing cotton clothing, cotton lab coats and latex gloves. Cotton clothing was worn at all times except on one occasion when a purple polyester raincoat was used during sample collection. Due to potential contamination from the raincoat used, all purple particles and fibres were discounted if they were identified as polyester during FTIR protocols. Other protocols included covering the filter immediately after filtering to avoid airborne contamination, and reduce the time that samples were exposed to air. Used bottles were washed out with distilled water, and surfaces were cleaned before and after use. The use of plastic equipment was kept to a minimum, but this was not always practical. Hence, quality control tests were carried out for all experiments in this study to test for potential plastic contamination (Table 2): a) dampened filter paper placed on laboratory worktops to check for airborne contamination whilst samples were exposed, which were analysed daily, b) three high density polyethylene (HDPE) bottles rinsed with distilled water and filtered, and c) filtering blanks created using 3 × 3 L of distilled water passed through the filtration setup.

2.4. Classification of microplastics (MPs)

The filter papers were examined under a Keyence digital microscope VH-S3OB with a VH-Z250R/W/T lens attachment at 50× magnification, and observed MPs were classified and counted. Based on "The Guide for Microplastic Identification" (Marine and Environmental Research Institute, 2020), the type of MPs observed were classified into two main types: 1) shape: a) fibre, b) fragment including bead, foam, pellet, and other, and 2) colour (blue, black, red, white, orange, yellow, brown, pink, green, purple, transparent, etc.). The width was also measured to confirm all suspected plastic fell into the microplastic categorisation. For this study, any piece of plastic with a larger width than 5 mm was discounted as they were classified as macroplastic, and length was recorded from the remaining plastic fraction.

A selection of particles was scanned using a Fourier-Transform Infrared Spectrometer (FTIR) (Bruker model Alpha), fitted with a platinum ATR Model with Opus 8.2 software. FTIR scans particles down to 10 μm in size, is used to determine the chemical composition, and it is a popular technique to identify polymers (Alfonso et al., 2021; Uurasjärvi et al., 2021). Due to the limitations of FTIR, and to reduce the number of samples lost in transition from filter system to the FTIR, it was determined that individual particles were required to have a length greater

Table 2
Cross contamination controls - microfibre count and type of colours present a) on desk filters (n = 10) exposed to the atmosphere on a daily basis, b) in distilled water kept in HDPE bottles (3 × 3 L), and c) on filtering blanks where distilled water was run through the filtering set up. Routine observation showed only microfibre on the control sample filters.

Tested for cross-contamination	Microfibre colour				Fourier-transfer infrared (FTIR) tested
	Blue	Black	Red	Transparent	
Desk based filters (10)-atmospheric	3	3	2	0	2 black fibres: polyethylene terephthalate (PET)
Distilled water (3 × 3 L)	1	1	0	0	1 black fibre: polypropylene (PP)
Plastic bottles (3)	0	3	2	0	2 red fibres: high density-polypropylene (HDPE)

Table 1
A comparison of microplastics observed per litre of water sampled in the River Thames at Westminster between the period 29/12/19–5/01/20 and on 23/01/20.

Date	Time of sample collection	Average microplastic fibre (MPF) (±SD)	Average microplastic particles (MPP) (±SD)	Average length (μm) (±SE)
29/12/2019	03:31	21 (0.82)	0.67 (0.94)	986 (3.2)
30/12/2019	04:11	36.67 (10.62)	0	1608.9 (4.98)
31/12/2019	04:40	44.3 (6.44)	0	892.45 (2.03)
01/01/2020	05:43	508.3 (40.45)	2 (1.41)	663.40 (1.6)
02/01/2020	05:45	43.67 (9.04)	2 (2.82)	1437.42 (6.38)
03/01/2020	06:30	52.33 (8.38)	2 (0.82)	1014.4 (4.65)
04/01/2020	07:15	43.67 (2.62)	1.3 (1.25)	1608.81 (9.67)
05/01/2020	08:28	37 (2.16)	0.33 (0.47)	1309.84 (6.65)
23/01/2020	00:29	121.67 (5.58)	2.67 (2.36)	1170.80 (3.29)

than 200 μm. The FTIR analysis was carried out on 354 particles, and enabled identification of shell and biogenic waste that under simple observation can be mistaken as MPs. Spectra were analysed using OpenSpecy (Cowger et al., 2021). Spectra that had no defined peaks (i.e. <55%) were classified as "no hit"; particles were classified by polymer type (i.e. polystyrene, polyethylene), or as 1) natural (i.e. chitin or sand), or 2) anthropogenic microparticle or fibre (i.e. cotton, semi-synthetic cellulose-Rayon). The FTIR equipment and fine tweezers were cleaned with ethanol before and after handling each sample to reduce the risk of contamination and false readings.

2.5. Statistical analysis

Statistical analysis was carried out on the reults data using IBM SPSS Statistics 26 (Statistical Product and Service Solutions) (IBM, 2021). Where microplastic total (MPT), microplastic particles (MPP) and microplastic fibres (MPF) quantities are stated, it refers to the mean value (± SE) of the triplicate samples taken on a given date. Data was standardised to MP mL^{-1} based on 1 L of water collected per replicate. Analysis of Variance (ANOVA) was used to determine relationships between date and MP abundance, based on standardised microplastic (MP) concentrations. Due to a limited amount of rainfall (one event) during the sampling period, it was impossible to conduct statistical analysis to determine the impact of rainfall on MP abundance in the present study.

3. Results and discussion

Microplastics were observed in all samples collected during this study, and a total of 2760 MP pieces were identified. There was variation in abundance (Fig. 2), ranging from the lowest concentration (MPT 22 pieces L^{-1}) observed on 29/12/19 (the first sampling day) to the highest concentration (MPT 510 pieces L^{-1}) observed on 01/01/20, following the fireworks display on New Year Eve. Within 24 h of this peak, MP concentration returned to its pre-firework event range (MPT 34 pieces L^{-1}) observed in samples from 29th to 31st December 2019.

The average MPT abundance over the study period, excluding the 1st January 2020, was 51.2 pieces L^{-1}. The sample taken later in the month, on 23rd January, showed a spike (124.3 pieces L^{-1}) that is more than twice this average abundance value.

The presence of MPs in the River Thames before the New Year event suggests that there are sources and factors to increase the value other than fireworks, which is supported by previous studies on sources of MPs into the River Thames (Horton et al., 2018; McGoran et al., 2017; Rowley et al., 2020). This study is part of a larger ongoing study where samples from 8 sites along the River Thames were collected monthly from May 2019 to May 2021. The maximum microplastics abundance (61 pieces L^{-1}) measured during the study period covering a larger stretch of the river, through all seasons, and at high and low tide, clearly shows that it is highly exceeded by abundance measured (maximum 508 pieces L^{-1}) in samples taken following the fireworks event on the river. Potential sources of MPs within the River could be the result of sewage systems (Browne et al., 2011), personal care products (Rochmann et al., 2016), anthropogenic activities such as swimming, boating, fishing, or littering (Zhang et al., 2015) or tire wear particles (TWP) from road runoff (Goßmann et al., 2021). Sewage system input can take approximately one month for the litter to make its way through the system and exit from the estuary into the sea, potentially explaining why microplastics are already present in the river system (Munro et al., 2019). Rowley et al. (2020) found that microplastic abundance at Putney, a site located upstream of Westminster, increased when Hammersmith pumping station combined sewage overflow (CSO) released higher quantities of sewage into the River Thames. Given the site's central location and busy roads surrounding it, it is important to consider the possibility of TWP entering the river, thus adding to the MP pollution. Previous studies have accounted TWP for 28–45% of MPs in rivers or water sources near roads (IUCN, 2017; Royle et al., 2019).

The hydrodynamics of the river may also explain the daily variation in microplastic abundance during this study. Rowley et al. (2020) also found that roughly 35 thousand MPs per second travel downstream at Putney, and 94 thousand MPs per second at Greenwich. This section of the river at Westminster is also reasonably straight compared to the section at Greenwich, which may mean that the flow is faster, leading to more MPs being dispersed to other areas of the river (Baldwin et al., 2016). This leads to MPs being found throughout the river system and varying flow depths depending on the plastic type and size (Kooi et al., 2017).

One study (Dunn and Friends of the Earth, 2019) reported 84.1 pieces L^{-1} of MP in a water sample taken from a site (not identified)

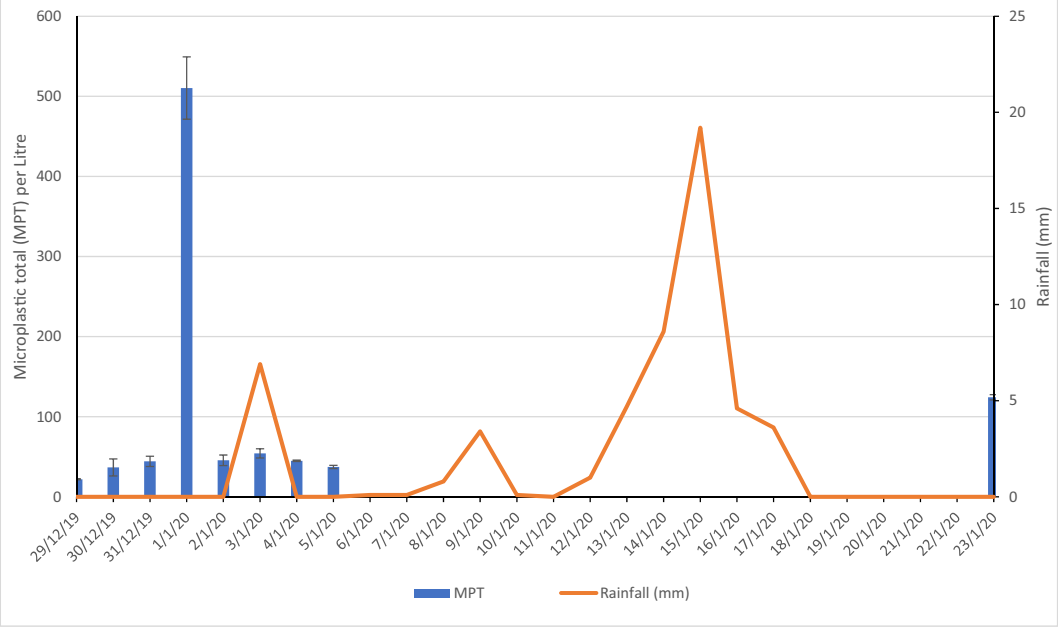

Fig. 2. Mean (±SE) microplastic total abundance (MPT) per litre in water samples collected in the River Thames, Westminster, London on consecutive days at high tide from the 29/12/19 to 5/1/20 and on the 23/1/20 and rainfall (mm) records during the sampling period.

along the River Thames. The study does not inform about the sampling date and the pre-sample conditions such as rainfall, seasonality or tide conditions, making it difficult to compare the data with the current study. Rowley et al. (2020) found an average of 24.8 m^{-3} and 14.2 pieces of plastic m^{-3} at Putney and Greenwich respectively. However, unlike the current study, the authors omitted microfibres in their MPs analysis, so their values may likely be underestimated. Differences could also be due to variations in sampling period, location on the river and other factors, including rainfall intensity and hydrology of the catchment area.

3.1. Impact of New Year firework event

Mean MPT abundance ranged from 21.7 to 44.3 pieces L^{-1} on the three sampling dates prior to the firework event. However, samples collected hours after the firework show a sharp increase in MPT to 510.3 pieces L^{-1} (Fig. 3) (One-way Anova, $f_{1,8} = 12.94$, $P < 0.001$) with an MPF of 508.3 pieces L^{-1} (Table 1). In comparison, MPT abundance measured 24 h prior to the event was 44.3 pieces L^{-1}. Microplastic abundance within 24 h had returned to baseline values whilst there was a slight variation 45.7 pieces L^{-1} (MPT) was deemed to be close enough to pre-firework levels recorded on 31st December 2019. This indicates that fireworks are a significant source of plastics and microplastic debris within the environment and may ultimately contribute to the pollution of rivers. Such pollution after firework events is a known occurrence globally, with microplastics and large amounts of cardboard debris collected in large quantities. In 2016, the National Park Service in San Francisco removed four 50 gallon waste containers full of charred firework fuses, plastic and cardboard pieces after Super Bowl festivals (San Francisco Baykeeper, 2016). Microplastics were not explicitly collected, possibly due to their small size (Choksi-Chugh, 2016). In the same area, after a second firework show, over 30 lb of firework debris washed up at the Aquatic Park beach and continued to wash up for weeks after the event (Choksi-Chugh, 2016). It is possible that peak MP abundance in the River Thames was missed as a water sample was only collected once after the New Year show during our study instead of multiple times over the following 24 h. Sijimol and Mohan (2014) reported that perchlorate concentrations spiked 14 h after a firework show, reaching concentrations between 24 and 1028 times higher than the baseline value.

3.2. Effect of rainfall on microplastics

There was only one rainfall event recorded between 29/12/19 and 05/01/20, but there were multiple rainfall events between the 6th and 23rd January (Fig. 2). In total over the sampling period, there were 11 days of rain events ranging from 0.1 to 19.2 mm rainfall, but a sampling day coincided with a rainfall event only on 3rd January when 6.9 mm rainfall was recorded (ORP, 2020). The highest amount of rainfall during the sampling period (19.2 mm) was recorded on 15th January. Relatively higher MP abundance (124.3 pieces L^{-1}) than found in all other samples except on 1st January was recorded in samples taken a week later, on 23rd January. This spike on 23rd January may be attributed to the rainfall events that occurred between the 12th and 17th January (Fig. 2). However, the absence of more samples taken closer to these dates makes it difficult to imply rainfall as a possible cause for the spike in MP abundance.

There was a 19% increase in MPT abundance from 2nd to 3rd January. However, on the 4th of January, MP abundance had returned to its pre-rainfall value. Previous studies (Hitchcock and Mitrovic, 2019; Hitchcock, 2020; Zhao et al., 2015) have found that rainfall is a significant factor for MPs abundance in rivers. Hitchcock (2020) found that MP abundance was 40 times higher after two days of heavy rainfall than

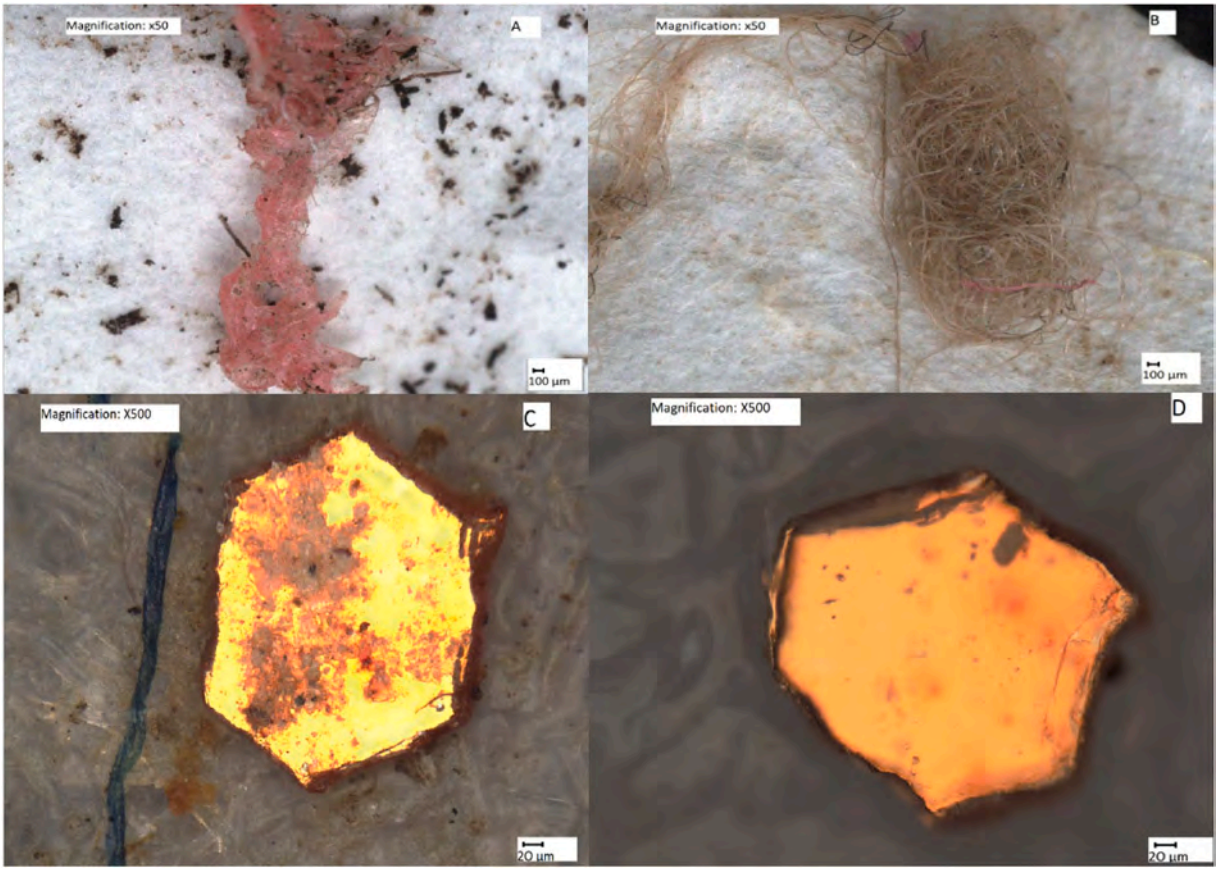

Fig. 3. Types of microplastics observed in water samples collected from the River Thames, Westminster from 29/12/19 to 5/1/20, and on 23/1/20: A) Fragment – has rough or uneven edges with irregular shape, B) fibre – frayed ends, same width throughout, C) fibre and "glitter" – holographic, and D) glitter.

before, increasing from 400 particles m^{-3} to a maximum abundance of 17,833 particles m^{-3} during the peak rainfall. Rainfall increases the turbulence of the water, thus increasing the energy within the river. As a result, MPs are resuspended and likely to be present in more significant numbers than at times of no rainfall when MP's are likely to sink and are stored in the benthos (Horton and Dixon, 2018). Due to a single rainfall event during the study period immediately following the firework event, the effect of flow velocities on MP could not be analysed, and a significant correlation between rainfall and microplastic abundance could not be observed.

3.3. Characteristics of microplastics

The shape, colour and length of MP observed during the present study were recorded. The objective was to classify MP's shape into six groups (fibres, fragments, bead, foam, pellet and other) (Figs. 3 and 4). Fibres (MPF) (98.95%) were the most abundant throughout the study, whilst fragments (1%) and other (glitter) (0.5%) made up the rest; no beads, foam or pellets were recorded (Fig. 4). Whilst fibres were found in every sample, fragments were not found samples taken on 30th and 31st December. Five pieces of glitter were recorded (4 pieces on 1st January and one piece on 3rd January 2020) and classified as "other". Predominant of fibres as found in this study has also been reported by other authors (Salvador Cesa et al., 2017), who reviewed synthetic fibres are in the aquatic enviroment. They can enter rivers through multiple sources, but the most likely is through the clothes shedding fibres during the washing process and entering rivers via wastewater treatment plants. Browne et al. (2011) found that a single garment can produce >1900 fibres per wash. Fibres may also be in high abundance due to sampling close to the River Thames' edge, as this is where the sewage outflows or effluents are likely to discharge (Luo et al., 2019).

In total, nine different plastic colours were recorded: blue, black, red, white and others. Black (93%, 2566 pieces) was the most abundant colour category, followed by red (3.4%, 94 pieces) and blue (2.3%, 64 pieces) throughout the study (Fig. 4). Similar studies on estuaries also show a high abundance of coloured microplastics due to the intense human activities in the area and along the river (Zhang et al., 2018; Zhao et al., 2015).

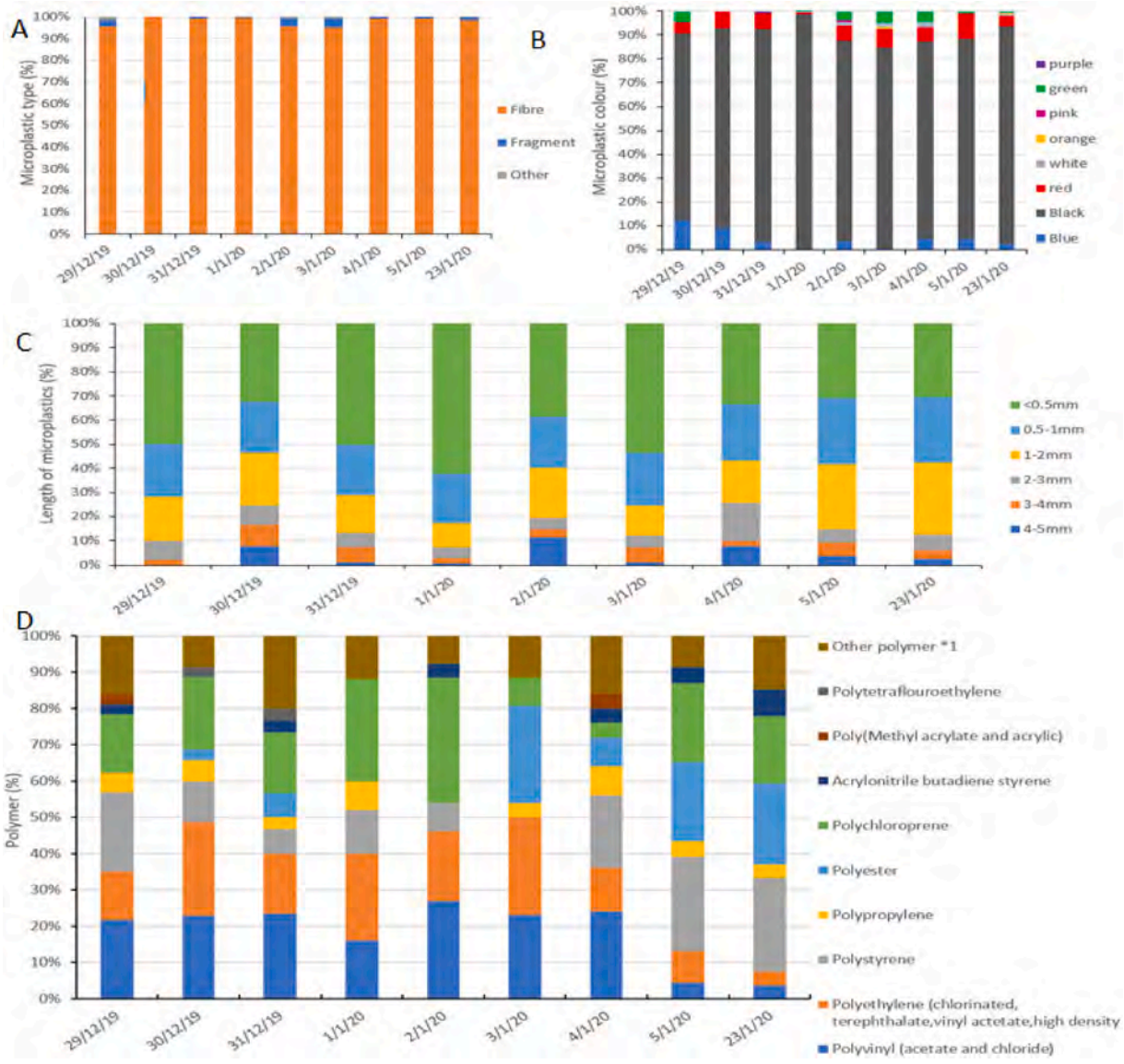

Fig. 4. Measurements of MPs in water samples collected from the River Thames, Westminster from 29/12/19 to 5/1/20 and on 23/1/20: A) abundance of MP types, B) range of colours, C) % composition of MP lengths, and D) % polymer identified via FTIR. *1 Other polymer comprises of the following polymers; cascamite resin glue, polyacetal, polyamide-epichlorohydrin resin, polybutadiene, polybutylene, polydimethylsiloxane, polyethlenimine, polyisoprene chlorinated, and polyphenylene sulfide.

The microplastics were put into five size categories: <0.5 mm, 0.5-1 mm, 1–2 mm, 2-3 mm, 3-4 mm and 4-5 mm. Smaller MP's (<0.5 mm) were in high abundance throughout the study, making up to 50% at times during this study and 62% on the 1st January (Fig. 4). The high presence of smaller MP's may result from fragmentation of larger pieces of plastic within an estuarine system from physical variables (salinity, light and temperature) and microbial degradation (Fernandino et al., 2016). The increase in smaller MP's present on January 1st may be due to fragmentation of firework casing. However, further studies would be needed to confirm this.

A total of 354 MP pieces were taken from the samples and identified using FTIR. As a result, 24 different polymers such as polystyrene, polyethylene and polychloroprene as well as natural material such as sand and chitin (22 pieces), anthropogenic microfibres (38 pieces) were identified; and 41 pieces were unidentified using FTIR (Fig. 4). The most dominant polymers were polychloroprene (e.g. rubber) (13.3%, 47 pieces), followed by polyvinyl chloride (PVC) (13%, 46 pieces) and polyethylene (PE) (12.15%, 43 pieces). These are the most common polymer types produced globally and used worldwide, mainly within the packaging industry (Andrady, 2015). They are commonly identified in aquatic environments, marine and freshwater, and associated with the sediment and organisms (Zhang et al., 2017). Previous studies (Horton et al., 2018; McGoran et al., 2017; Rowley et al., 2020) support results from this study where fibres dominate MP counts and polyethylene (PE) and polypropylene (PP) being recorded. Styrene butadiene (2%, 7 pieces) was also identified, suggesting the presence of TWP in the River Thames (Kreider et al., 2019). The presence of TWP is to be expected due to the location and proximity of main roads to the river, especially within the London region. Boucher and Friot (2017) estimate TWP's contribute to 28% of primary microplastics in the ocean. However, due to the methodological limitations within microplastic studies, TWP's are only mentioned in 1% of environmental studies (Kole et al., 2017).

The types of plastic identified in this study may also be due to the plastic density as only the surface water was sampled. Natural material (6%, 22 pieces) and anthropogenic microfibres (11%, 38 pieces) also made up a percentage of FTIR samples. In total, 11.6% (41 pieces) of samples could not be identified via FTIR.

On visual observation, the water sample on January 1st 2020 was much darker than the sample collected on any of the other sampling days (Fig. 5). After the firework event, three pieces of gold glitter were recorded and later tested with FTIR, and these were identified as PET.

3.4. Cross-contamination

Although plastic laboratory equipment was used, it was limited, and glassware and porcelain equipment were used as much as possible. Due to practicality and safety issues with transporting large amounts of water, high-density polypropylene (HDPE) bottles were used instead of glass bottles. Contamination issues are common and reported among studies due to the nature and size of MPs (Browne et al., 2011; Dris et al., 2016; Foekema et al., 2013; Lusher et al., 2017).

Potential cross-contamination sources were tested for MP from plastic (HDPE) bottles used to hold and transport the environmental samples, and from distilled water used to irrigate the filtering system (Table 2). Three plastic bottles were rinsed with distilled water and then filtered through filter papers to adhere to the same experimental procedure. Filter papers were also used to check for atmospheric contamination in the laboratory. Data from control experiments for contamination were taken into account by subtracting the MP counts (abundance) in controls from the counts (abundance) in the water samples. Although cross-contamination controls were taken due to the size and abundance of microplastics, particularly microfibres, some level of contamination cannot be ruled out.

Contamination control was also performed on distilled water that was used to rinse equipment. Tests conducted on 3 bottles of 3L distilled water showed a total of only 2 fibres; 1 blue and 1 black (Table 1). Desk-based filters (10) contained plastics (8 fibres: 3 blue, 3 black, 2 red) which were considered, as did the high-density polypropylene (HDPE) bottles (5 fibres: 3 black, 2 red). Some fibres from contamination controls were sampled using FTIR (Table 1). Five randomly selected fibres were selected out of the 15 that were found on filters for the cross-contamination controls. Two black fibres were identified as polyethylene terephthalate (PET), one black fibre as polypropylene (PP) and two red fibres as high-density polypropylene (HDPE).

Fig. 5. Observed colour differences of water samples taken from the River Thames, Westminster on the 31/12/19 (clear) and 1/1/20 (dark). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

4. Conclusions

Microplastic pollution leads to a vast range of potential impacts on wildlife and humans, with the leading pollution source being human activities. Many studies have been conducted to examine the effects of human activity on MP abundance in the surrounding environments. A limited number of research studies look at fireworks as a source, and studies that mention fireworks as a source refer to plastic firework casing classified as a macroplastic (Filella et al., 2021; Ory et al., 2020). The results of this study show a clear indication that fireworks are a potential source of MP pollution influx within a short space of time in estuarine environments. A 1,051% increase in MP abundance was observed between December 31st 2019 and January 1st 2020, increasing from 44.3 pieces L^{-1} to 510 pieces L^{-1} within 24 h, with the only major event in the area being the New Year firework celebrations. Although there is no clear link between the impact of rainfall and MP abundance in this study due to a lack of rainfall events, it cannot be ruled out as having an impact on MP abundance within the River Thames. While this study focused on a single large event, it could imply that many local displays throughout the region would have the same effect. This study showed that fireworks can have short and long-term impacts on the environment, not just from an atmospheric pollution point of view, but also plastic pollution in the aquatic environment that needs further exploration. As such, low pollution options or alternatives, e.g., drones, should be considered to prevent or lower the impacts these displays cause. Unfortunately, due to

the Covid-19 pandemic and secrecy of the 2021 New Year celebration plans, the 2020 and 2021 displays could not be conducted and compared to see how the impact on MP abundance varied. However, these displays appear to result in an influx of pollution in one area within a short period, which has unknown consequences on the area's ecology and biodiversity. Furthermore, it will be important to conduct detailed investigation on the vertical and horizontal transport of MPs, and macroplastics that potentially break down and degrade into MPs over time, as well as toxic chemicals that adsorb to the plastics, to evaluate the effects of fireworks on plastic pollution in the River Thames.

CRediT authorship contribution statement

Ria Devereux: Conceptualization, Methodology, Investigation, Writing – original draft. **Elizabeth Kebede Westhead:** Supervision, Writing – review & editing. **Ravindra Jayaratne:** Supervision, Writing – review & editing. **Darryl Newport:** Methodology, Supervision, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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To: Amitay, Shahar@Coastal
Cc: Ziff, Dani@Coastal; Ziff, Dani@Coastal
Subject: FW: Public Comment on June 2023 Agenda Item Thursday 13a - Application No. 5-23-0383 (Naples Restaurant Group LLC, Long Beach)

From: Leslie Purcell <lesliepurcell@gmail.com>
Sent: Friday, June 2, 2023 4:57 PM
To: SouthCoast@Coastal <SouthCoast@coastal.ca.gov>
Subject: Public Comment on June 2023 Agenda Item Thursday 13a - Application No. 5-23-0383 (Naples Restaurant Group LLC, Long Beach)

I am writing to request that the Commission deny this permit for explosive fireworks. Instead, require ***quiet*** fireworks if granting permits for fireworks displays.
This has been done in Europe, per a NY Times article (2016):

"In parts of Europe, quiet fireworks displays have grown increasingly common. In Britain, venues close to residents, wildlife or livestock
often permit only quiet fireworks. One town in Italy, Collecchio, passed a law in 2015 that all fireworks displays must be quiet.
....
The real promise behind quiet fireworks, however, is the possibility that they could reduce the harmful effects of traditional fireworks,
which include stress on animals and damage to people's hearing.

Fireworks can cause birds to panic and flee en masse, said Judy Shamoun-Baranes, a geoecologist at the University of Amsterdam who has studied the effects of fireworks on birds. In 2011, 5,000 red-winged blackbirds fell out of the sky in Beebe, Ark., after fireworks celebrations on New Year's Eve, possibly because the loud noises led them to fly into chimneys, houses and trees.

Loud fireworks also scare larger mammals like deer and coyotes out into roads, where they can get hit by cars, said Lisa Horn, the executive director of West Sound Wildlife Shelter in Washington State.

Ms. Horn's shelter sees an influx of animals after July 4 each year. July 5 is "always all hands on deck," she said. Pet shelters also claim to take in the most runaway dogs each year on July 5.
For people, loud fireworks can lead to hearing loss. The World Health Organization lists 120 decibels as the pain threshold for sound, including sharp sounds such as thunderclaps. Fireworks are louder than that. " https://www.nytimes.com/2016/07/01/science/july-4-fireworks-quiet.html

Please act in the best interests of the public, wildlife and other creatures.
Leslie Purcell

Amitay, Shahar@Coastal

From: SouthCoast@Coastal
Sent: Friday, June 2, 2023 5:39 PM
To: Amitay, Shahar@Coastal
Cc: Ziff, Dani@Coastal
Subject: FW:

From: Z E <zzzmallison@gmail.com>
Sent: Friday, June 2, 2023 5:09 PM
To: SouthCoast@Coastal <SouthCoast@coastal.ca.gov>
Subject:

My name is Zoe Mallison and I am I resident of Long Beach. I spent the last Fourth of July observing how these fireworks effected our Nature and wildlife. I've never been a fan of the holiday in general because it causes my uncle (who served two tours in Iraq) as well as my late Grandfather (who served in the Vietnam war.) Ironically, my partner's family docks their sailboat at the Los Alamitos Bay and I was invited to be one of the people who ignorantly enjoys this painfully loud and toxic disruption. They sat in the boat as I sat beneath a tree designated to me with a heavy heart. I had never experienced this kind of fire work show and when it first started, it startled me even though I knew what was about to happen to Father Sky and Mother Earth and her wildlife. The Snowy Egrets who were residing in the Trees were terrified and all went flying in the opposite direction.Some even leaving babies behind who could've easily fallen to their death. Not all that flew came back (I counted) and I'm not sure where the other two I couldn't

account for ended up, or if they ever came back home at all. I hope whoever reads this acknowledges with compassion that this annual low vibration entertainment is toxic to their very own sky, waters, sea life as well as Birds not to mention ptsd to all animals in the surrounding area. This is our only planet. This is your only home. Respect it with love.

Zoë Mallison