



Information Item

Date: August 26, 2009

To: Mayor and City Council

From: Dean Kubani, Director - Office of Sustainability and the Environment

Subject: Environmental Issues Related to the Santa Monica Pier Centennial Fireworks Display

Introduction

On June 23, 2009 City Council authorized the Santa Monica Pier Restoration Corporation (SMPRC) to conduct a fireworks display on September 9, 2009 as part of the Santa Monica Pier Centennial Celebration. At that time City Council also directed staff to provide additional information regarding any environmental issues related to the fireworks display and information on the availability of environmentally friendly fireworks.

Background

The Santa Monica Pier Centennial fireworks display will take place on September 9, 2009 between the hours of 8pm and 10pm with a show time not exceeding 25 minutes. The display will consist of fireworks and pyrotechnics launched from a barge in the Santa Monica Bay and will serve as the grand finale of the Centennial Celebration. The display will be produced by Pyro Spectaculars, Inc, the pyrotechnics company selected in a competitive bid process by the SMPRC in May 2009.

Fireworks displays in the State of California are regulated by the California Health and Safety Code, sections 12500-12726, and Title 19, Chapter 6 of the California Code of Regulations. These regulations primarily address fire safety and public safety related to the use, transportation and storage of the fireworks. For displays in Santa Monica, the Santa Monica Fire Department is the permitting agency designated to ensure that the displays are planned in accordance with state regulations. There are currently no state

or federal permit requirements or regulations that address impacts to the environment related to fireworks displays.

Discussion

The exact chemical composition of the individual fireworks to be used for the Pier Centennial display is not known, however Pyro Spectaculars, Inc. has indicated that they will contain potassium perchlorate, which is an oxidizer used to propel the fireworks, and various metals (such as chromium, copper, mercury, strontium, and zinc) which burn to produce the fireworks colors. The perchlorate propellant and the metals are packed in paper tubes for firing into the air. Once ignited the perchlorate and metals burn and the paper tubes are blown apart and return to the surface. Pyro Spectaculars, Inc. indicates that approximately 6,400 individual fireworks will be ignited as part of the Pier Centennial display.

There is very limited scientific information regarding the environmental and public health impacts related to fireworks displays, and based on this limited information, it is not currently possible to determine specific air quality or water quality impacts that could occur related to the Pier Centennial display. However, one recent US Environmental Protection Agency study found increased perchlorate levels in a lake following several nearby fireworks displays. This indicates that the perchlorate propellant does not entirely combust when the fireworks are ignited. High levels of perchlorate have been shown to inhibit thyroid function, particularly in children and pregnant women, and it has become a concern as a drinking water contaminant. Although other firework propellants do exist, perchlorate has become an industry standard due to its relative stability and increased user safety and it is the predominant propellant used in large fireworks displays.

While it is expected that the majority of the propellant and the metals used in the fireworks will be combusted during the display, it is likely that some perchlorate and various types of metals will reach the water, both as residue on the paper tubes that

they are packed in and from any “duds’ that fail to fully ignite. This will create an unknown amount of perchlorate and metal loading in the ocean water surrounding the barges. It is likely that there will also be a significant amount of paper debris in the water following the show. Staff is unable to determine the specific short- or long-term environmental or public health impacts that this would have, however it is not anticipated that the Pier Centennial display would have any significant acute effects, based on the lack of observed impacts (such as fish kills or human health impacts) from thousands of similar displays conducted over land and water each year throughout the world.

A more environmentally friendly firework has recently been developed that contains nitrate-based oxidants instead of perchlorate. These fireworks produce less smoke and significantly reduce the potential for water contamination. However these fireworks have only just become available commercially and currently cost approximately six to eight times more than conventional fireworks. Staff from the SMPRC has indicated that switching to this type of environmentally friendly firework for the Pier Centennial display is not economically feasible.

Summary

The Pier Centennial fireworks display on September 9, 2009 will definitely have some level of environmental impacts, however it is difficult to determine the level of those impacts due to lack of available scientific data. Staff does not believe that the display will present any acute environmental or public health impacts. Environmentally friendlier alternatives to standard fireworks are now available on the market however they are currently much more expensive and their use for the Pier Centennial display is not economically feasible.

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