



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
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July 24, 2013

Via electronic and first-class mail
bwhite@MassCEC.com

Bill White
Director, Offshore Wind Sector Development
Massachusetts Clean Energy Center
55 Summer Street, 9th Floor
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RE: New Bedford Harbor State Enhanced Remedy - South Terminal Project Blasting

Dear Mr. White:

I am writing in response to your June 27, 2013 email regarding EPA's June 13, 2013 letter, in which EPA set forth the conditions on blasting for rock removal that would likely be included in any formal modification of the Final Determination for the South Terminal Project. You requested clarification of Condition 7, related to maximum explosive weights. As you know, EPA has been in technical discussions with the Commonwealth's engineering consultants, focused on the question of whether Condition 7 in our June 13, 2013 letter could be modified to require that the total weight of the explosive charge "per delay" (i.e., per delayed charge) be no more than 50 pounds, rather than limiting the total weight of all explosive charges per shot to no more than 50 pounds.

After detailed review and discussions of the JASCO acoustic modeling report and supporting studies, and in light of technical memoranda submitted last week to EPA from JASCO (dated 7/12/13) and Apex (dated 7/17/13), we have concluded that Condition 7 can be modified to specify that no more than 50 pounds of explosive per delayed charge with a minimum time delay of 25 milliseconds (ms) between charges be used. We believe this modified condition, coupled with the other conditions previously specified and discussed below, should assure no adverse pressure and impulse effects on fish.

The delay time between detonations is a critical factor in our determination that Condition 7 can be modified to limit the weight of explosives per delayed charge, rather than the total weight of explosives per shot. This is because the JASCO acoustical modeling study analyzing pressure and impulse impacts from blasting at South Terminal modeled the effects of a single explosive charge. The technical question under consideration was: at what length of delay time can we safely assume that the impacts of multiple, delayed charges become non-additive, and effectively result in impacts similar to discrete, single charges?

This question was addressed in the July 12, 2013 memorandum from JASCO to Chet Myers of Apex, entitled *Underwater Acoustic Modeling of Explosive Rock Removal Operations for the Marine Commerce South Terminal in New Bedford, MA*. In it, JASCO refers to its acoustical modeling report, and states that “(f)rom a physical standpoint, the distances to impulse levels for injury criteria (18.4 psi-s) stated in our report can be validly considered as distances for charge weight per delay for delays of 25 ms or greater.” JASCO goes on to state “we recommend a minimum time delay of 25 ms between detonations based on Canadian guidelines for the use of explosives in or near fisheries waters (Wright and Hopky 1998) and experimental results presented by the National Marine Fisheries Services (NMFS; Bullard, J. K. 2012).”

A further detailed description of the analyses and discussions between EPA and the Commonwealth’s consultants is provided in the July 17, 2013 memorandum from Chet Myers of Apex to Mike Marsh of EPA, entitled *Analysis of Time of Integration Associated with Blast Impulse Calculation from JASCO Report*. This memorandum details the analyses of the effects of delayed charges, and makes clear that the technical discussions assumed the recommended 25 ms delay time. As a result, EPA was able to conclude that blasting as a “first resort,” with clean parent substrate left in place and implementation of an adequate fish deterrent system, and using no more than 50 pounds of explosive per delayed charge with a minimum time delay of 25 ms between charges, should result in no adverse pressure and impulse effects on fish.

Upon reaching this conclusion after these lengthy technical discussions, on Friday afternoon, July 19, 2013, EPA was informed by the Commonwealth’s consultants for the first time that a second type of blasting protocol is being proposed for the portion of the blasting area closest to the confined disposal facility (CDF). It is our understanding that this “pre-split” blasting is necessary to provide separation between the areas of “production blasting” for rock removal for creation of deep water quayside berthing areas and the remaining bedrock that will support the future port facility. The Commonwealth’s consultants stated that this pre-split blasting, comprising approximately 15 percent of the blasting required for the project, or approximately 350 of a total of 2550 detonations, will require shorter delay times between detonations than the 25 ms delays that were considered in the analysis of the JASCO acoustical modeling study and subsequently recommended as a result of technical discussions of the pressure and impulse effects of single versus multiple delayed charges.

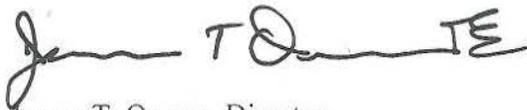
At the present time, the record before us only supports a finding that aquatic life would be adequately protected if blasting is limited to no more than 50 pounds of explosive per delayed charge with a minimum time delay of 25 ms between charges. If the Commonwealth seeks to amend its request for approval of blasting to allow pre-split blasting with shorter delays, the Commonwealth must provide to EPA, in a timely fashion, a complete and detailed description of the proposed blasting protocol, including proposed charge weights and delay times, a detailed explanation of the purpose and need for shorter delay times (and other corollary changes such as smaller charges), and a detailed technical evaluation of the impacts of the proposed revised blasting protocol, including shorter delay times, on aquatic life.

In the meantime, EPA will continue to process the Commonwealth’s request to modify the Final Determination to allow expanded dredging and blasting as quickly as possible. We anticipate that any final approval of blasting would contain the conditions specified in the June 13, 2013 letter, with the last clause of Condition 7 modified to specify that in no case

shall the total weight of explosive charges exceed 50 pounds per delayed charge, with a minimum time delay of 25 ms between charges. We also expect to add a condition not mentioned in the June 13, 2013 letter, to specify that all blasting must be conducted with the clean parent material left in place. These conditions would apply to both pre-split blasting and production blasting unless and until the Commonwealth provides justification, as previously described, for a change in the delay time for pre-split blasting.

We look forward to working with you to resolve any outstanding issues regarding the South Terminal project.

Sincerely,

A handwritten signature in black ink, appearing to read "James T. Owens". The signature is fluid and cursive, with the first name "James" being the most prominent.

James T. Owens, Director
Office of Site Remediation and Restoration

cc: via email

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Literature Cited

Bullard, J. K. 2012. RE: Route 52 Causeway Replacement & Somers Point Circle Elimination Contract B. Letter to Kostas Svarnas, U.S. Department of Transportation, New Jersey Division. 13 p.

Wright, D.G., and G.E. Hopky. 1998. Guidelines for the use of explosives in or near Canadian fisheries waters. Can. Tech. Rep. Fish. Aquat. Sci. 2107: iv + 34p. <http://www.dfo-mpo.gc.ca/Library/232046.pdf>