

~~February 16, 2000~~

TO: All Regional and Headquarters Directors
All District Highways Managers
All Directors, Major Projects

SUBJECT: USE OF EXPLOSIVES IN OR NEAR FISH AND FISH HABITAT

BACKGROUND:

Detonating explosives in or near water produces shock waves that can be lethal to fish, fish eggs and larvae, and marine mammals by rupturing swim bladders and adding egg sacs. The noise and shock effects of explosives may be intensified if ice or hard substrates are present.

Explosives have the potential to physically and/or chemically alter fish and marine mammal habitats. Rock may block or alter water flow regimes. Sedimentation may cover spawning areas and reduce or eliminate fish food sources. The by-products of explosives may include ammonia or similar compounds that are toxic to fish and other aquatic life forms.

The Fisheries Act and its regulations are enforced by Federal Department of Fisheries and Oceans (DFO), and are designed to protect fish and fish habitat from activities, such as the use of explosives, where they may threaten fish or fish habitat.

PROCEDURES AND GUIDELINES:

Please refer to the most current copy of "**Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters**" by the Department of Fisheries and Oceans and **Section 195.07.03** of the **Standard Specifications for Highway Construction**.

It is imperative that any use of explosives on MoTH projects in or near fish and fish habitat comply with the Fisheries Act and its regulations.

Any Ministry personnel anticipating the use of explosives in or near fish habitat should consult with the DFO as early as possible in the planning process to help identify potential issues before irrevocable commitments (such as contracts for equipment or services) are made and to avoid any unnecessary delays or the need to obtain a DFO authorization for the use of explosives.

If an environmental assessment is performed, or a referral is submitted on construction projects, the effects of blasting near fish habitat should be considered. Where work is located near fish habitat, blasting issues should be discussed at pre-construction meetings.

The DFO has advised that it will generally respond to requests for review or to referrals within 30 working days of notification. The timeframes required for advice should be discussed with nearest DFO regional/area authority and the Ministry Blasting Consultant and/or Contractor.

It is imperative, the Blasting Consultant and/or Contractor consider the following measures in order to eliminate the need for a DFO authorization for explosive work:

- The Blasting Consultant and/or Contractor use charge weights per delay within permissible DFO guidelines when near fish habitat,

- DFO setback distances from centre of detonation to fish habitat and spawning habitat are met,
- The DFO instantaneous pressure change (overpressure) guideline limit of 100kPa (14.5 psi) is not exceeded,
- The DFO peak particle velocity guideline of 13 mm/second in a spawning bed is not exceeded,
- Subdividing large charges, if possible, into a series of smaller discrete detonations or explosions using time-delay detonation initiators (a procedure known as decking), and
- If multiple charges are required, using time-delay detonation initiators to reduce the overall detonation to a series of discrete explosions with explosion time delays greater than 25 ms.

In consultation with the DFO Regional/Area authorities, and only as permitted by DFO Regional/Area authorities, the following should be considered to reduce the impact of explosives on fish and marine mammals and their habitats:

- Conducting explosive work when fish and/or marine mammal activity or sensitivity is lowest,
- Using bubble curtains/air curtains to disrupt the shock wave,
- Using noise generating devices, such as an air compressor discharge line, to scare fish and/or marine mammals away from the site, and
- Removing or excluding fish and/or marine mammals from the work area before the blast occurs.

NOTES:

- (1) If an unforeseen need to use explosives arises, DFO service standards may be waived and a review completed as expeditiously as possible so as not to unduly delay a project. Further, DFO service standards are waived in the event of an emergency where lives and/or property are threatened. In such cases, the amount of information required may be reduced due to the urgency of the situation. Any verbal request for an authorization must be followed by a written confirmation of the project details.
- (2) Where applicable, if an authorization is issued by the DFO, the Blasting Consultant and/or Contractor may be required to issue a "Notice to Mariners" and a "Notice to Fishers" as directed by the DFO and/or Canadian Coast Guard. DFO Area/Regional authorities are prepared to assist in contacting the Canadian Coast Guard. The DFO encourages that the public be notified of the intended activities through local papers, fisherman broadcasts or other appropriate media.
- (3) A DFO authorization does not relieve the applicant of responsibilities to obtain other required approvals and/or permits.

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