

NSE Nova Stone Exporters Inc.

Producers and Exporters of Quality Controlled Aggregate Products

Minister,
Nova Scotia Department of Environment and Labour,
5151, Terminal Road, 5th Floor,
P.O. Box 697,
Halifax,
B3J 2T8

Oct. 9th 2003

Dear Mr. Minister,

re: Whites Point Quarry - Approval # 2002-026397

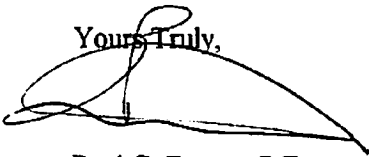
I would refer you to our letter of June 24th 2003 and to various discussions held with Department officials since that time. We have provided more than sufficient information to enable a decision to be made on items 10 h) and 10 i) in the Blasting section of the permit, including a very recent statement on our blasting criteria, and we now insist that a decision be made on the information provided.

We have advised you from the beginning of this process, and reiterate here, that we are committed to acting in full compliance with both the spirit and the letter of all regulations with regard to the operation of this quarry.

We are now of the opinion that we are being unfairly treated in this process and we are currently seeking legal advice with regard to our options. It is our intent to pursue options involving litigation with respect to our ability to operate the 4 Ha quarry in accordance with the permit and will institute such action if the issue of blasting is not dealt with by Oct. 31st 2003.

I am attaching a chronology for your information.

Yours Truly,



Paul G. Buxton P.Eng.,
Project Manager

P.O. Box 465 • Bridgewater • Nova Scotia • B4V 2X6
Tel: (902) 530-2619
Fax: (902) 530-3040
Email: nse@bwr.eastlink.ca

002057

C0560-001

**APPLICATION FOR APPROVAL
OF
BLASTING PLAN**

**Submitted by
Global Quarry Products
October 9th, 2003**

002058

C0560-002

Notes on Blasting Plan Process

Oct. 9th 2003

1. A permit was issued on April 30th, 2002 for the “Construction and operation of a Quarry, at or near Little River, Digby County in the Province of Nova Scotia”. The Approval No. is 2002-026397 (Appendix 1)
2. Terms and Conditions of Approval are attached to the Permit including those for blasting – Section 10.
3. Section 10 h) states “Blasting shall be conducted in accordance with the department of Fisheries and Oceans *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters* – 1998. (Appendix 2)
4. Section 10 i) states “A report shall be completed by the proponent in advance of any blasting activity verifying the intended charge size and blast design will not have an adverse effect on marine mammals in the area. This report shall be submitted to the Department of Fisheries and Oceans (DFO), Maritimes Aquatic Species at Risk Office and written acceptance of the report shall be received from DFO and forwarded to the Department before blasting commences.
5. In order to clarify issues that may concern DFO Nova Stone Exporters (NSE) requested a meeting with DFO and on July 16th, 2002 Jim Ross, Section Head, Habitat Management Division e-mailed indicating that he had set up a meeting for July 25th at the Bedford Institute of Oceanography. (Appendix 3)
6. Paul Buxton, David Kern and John Wall attended this meeting on July 25th representing NSE and attendees from DFO are noted in the attendance register. Appendix 4
7. No minutes were kept of the discussions but blasting was discussed at some length.
8. Paul Buxton and David Kern were given the definite impression that blasting was not a big issue. We were to simply set out on a plan of the quarry set back distances and the maximum charge size referencing the Tables in the Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters – (the guidelines). A comment was also made that DFO itself had little concern as long as fish were not destroyed and referenced the Fisheries Act – (Appendix 5)
9. On Sept. 17th NSE sent three copies of the Blasting Plan to NSDEL and a covering letter (Appendix 6) indicating that the setback distance and charges complied with the Guidelines.
10. In early October NSE received a copy of a letter from Jim Ross to Bob Petrie (NSDEL) dated September 30th 2002 (Appendix 7) indicating that “although the plan seems to be within the Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters, there is insufficient detail to made an assessment on

threatened or endangered marine mammals that may be present at various times of the year. The Ross letter further raised questions with respect to monitoring and how NSW would determine that the area is free of species of concern. There was a further requirement for information on the number and velocity of the detonations, timing of the blasts and the bottom topography.

11. On October 8th NSE sent copies of the blast design, prepared by Archibald Drilling, to NSDEL (Appendix 8). This was acknowledged by NSDEL Oct. 30th indicating that it had been sent to DFO. (Appendix 9)
12. In early November 2002 NSE received a copy of a letter dated Oct. 30th to Bob Petrie (NSDEL) from Jim Ross (DFO) (Appendix 10) indicating that DFO still required bottom data and also a stipulation re: the Terms and Conditions of the Quarry Permit ie: Sections 10a) to 10 i). this latter request was found to be puzzling since NSE was already required to comply with these Terms and Conditions by NSDEL.
13. On Nov., 20th 2002 NSE filed a more comprehensive Blasting Plan dated Nov. 18th incorporating all information requested to date by DFO. (Appendix 11)
14. On Dec. 13th 2002 NSE received a copy of a letter dated Dec. 11th from Jim Ross (DFO) to Bob Petrie (NSDEL) (Appendix 12) following a review of the Blasting Plan dated Nov. 18th. This letter indicated that the information provided was inadequate to give DFO-HMD “*a sufficient level of confidence that fish, marine mammals, and fish habitats will be adequately protected from the effects of blasting operations at the Whites Cove quarry*”. Of particular note in this letter is that fish and fish habitats are specifically mentioned and the issue raised as to the precision of the Guidelines. Note that the Terms and Conditions of the Quarry Permit only require NSE to comply with the Guidelines and address marine mammals. Appended to the letter were specific comments raising a whole set of new issues such as fly rock and sub-lethal effects.
15. Notwithstanding the fact that NSE was now being drawn into whole new areas outside of the Terms and Conditions of the Quarry Permit a decision was made by NSE to attempt to satisfy these questions since they were deemed to have significance with respect to the future application for a permit for a larger quarry.
16. A detailed response to the questions raised in the DFO (DEC 11th) letter and dated Jan. 28th 2003 was submitted to Bob Petrie (NSDEL) (Appendix 13) and copied to Jim Ross (DFO). It should be noted that, since more technical issues with respect to the actual blasting had been asked, NSE had engaged Dyno Nobel North America to provide responses to these issues.
17. Despite many inquiries as to the status no response was received to the Jan. 28th submission until Mar. 27, 2003. A letter from Phil Zamora (DFO) requested clarification of two issues apparently raised by a DFO scientist. (Appendix 14)

18. A letter from Phil Zamora dated April 14th (Appendix 16) and received the same date responding to Global Quarry Products' (GQP) application for a marine terminal (necessary for the larger quarry) under the Navigable Waters Protection Act also refers to the Blasting Plan submitted by NSE. DFO's position seems to be that since GQP is now under an environmental assessment for a marine terminal and a larger quarry, Section 5(2)(d) of the Canadian Environmental Assessment Act would preclude the issuance of any approval for any part of the site even though the approval would be for a different company, NSE, already permitted to quarry. NSE strongly objects to this interpretation.
20. On May 29th 2003 a letter was received from Phil Zamora (DFO) and dated May 29th 2003 (Appendix 17). This letter indicates that DFO has reviewed the Blasting Plan and additional information and has concluded that the blasting will cause destruction of fish. Accordingly DFO enclosed an application for a section 32 Authorization. In addition DFO has now raised the issue of inner Bay of Fundy salmon, an endangered species and the right whale also an endangered species. We have been referred to the Recovery Plans for both of these species. Of particular interest in this letter is the statement that "*Although the protection of most fish is achieved by DFO "Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters" – 1998, the presence of species at risk requires a closer examination than a guideline can provide.*" It appears that although NSE is only required to conform to the Guidelines under the Terms and Conditions of the Permit, DFO is now requiring NSE to achieve some other undefined standard. DFO has also stated in the same correspondence that it has calculated that a horizontal set back distance from the shore of 500 metres would be required to protect iBoF Atlantic salmon of the size that could be found at Whites Point from May to October. We have requested these calculations (Appendix 18). A set back distance of 500 metres from the shore-line in addition to a set back of 800 metres from a building foundation would effectively kill the quarry.
21. On June 6th 2003 a letter (Appendix 18) was sent to Mr. Phil Zamora requesting a meeting with Habitat Management Division of DFO, NSDEL and CEAA to review the overall status of the Blasting Plan. This letter also requested the calculations used to determine the suggested 500 metre set back with respect to the iBoF salmon.
22. On June 12th 2003 a letter (Appendix 19) was received from Mr. Phil Zamora indicating that a meeting was being arranged by CEAA to discuss the Blasting Plan.
23. On June 16th 2003 a letter (Appendix 20) was sent to Mr. Phil Zamora, again requesting the calculations requested on June 6th 2003.
24. On June 24th 2003 a letter (Appendix 21) was sent to Mr. Bob Petrie, NSDEL, setting out NSE's concerns with respect to approval of the Blasting Plan and noting that the failure to act will cause severe economic hardship to NSE.

25. On July 21st 2003 a letter (Appendix 22) was sent to Mr. Phil Zamora, again requesting the calculations requested on June 6th 2003.
26. On July 23rd 2003 a letter (Appendix 23) was received from Mr. Bob Petrie NSDEL, in response to the NSE letter of June 24th 2003. This letter notes that in the opinion of NSDEL condition 10i has not been met.
27. On August 14th 2003 an e-mail (Appendix 24) was sent to Mr. Phil Zamora again requesting the calculations requested on June 6th 2003.
28. On August 15th 2003 an e-mail (Appendix 25) was sent to Mr. Bob Petrie referencing the July 23rd 2003 letter (Appendix 23). Mr. Petrie noted that no response has been received from DFO.
29. On September 30th 2003 a letter (Appendix 26) was sent to Mr. Bob Petrie, NSDEL providing the results of further studies carried out by NSE and further establishing the fact that the Blasting Plan submitted complies with the Quarry Permit.
30. On October 9th 2003 a letter (Appendix 27) was hand delivered to the Minister, NSDEL, indicating that NSE is contemplating legal action to resolve the issue of the Blasting Plan.



Environment
and Labour
Office of the Minister

PO Box 697
Halifax, Nova Scotia
Canada B9J 2T8

Our File Number:
10700-40

DEC 8 - 2003

Mr. Paul Buxton, P. Eng.
Nova Stone Exporters Inc.
PO Box 2113
Digby NS B0V 1A0

Dear Mr. Buxton:

I am writing further to our meeting on October 9, 2003 and your request for an amendment to your Approval #2003-032385, which would enable you to conduct blasting at the White's Cove site.

You refer to conditions 10(h) and 10(i) which state the following:

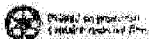
- h) *Blasting shall be conducted in accordance with the Department of Fisheries and Oceans Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters - 1998.*
- i) *A report shall be completed by the proponent in advance of any blasting activity verifying the intended charge size and blast design will not have an adverse effect on marine mammals in the area. This report shall be submitted to the Department of Fisheries and Oceans (DFO), Maritimes Aquatic Species at Risk Office and written acceptance of the report shall be received from DFO and forwarded to the Department before blasting commences.*

We understand that Fisheries and Oceans Canada (DFO) remains concerned that blasting at this location may cause adverse effects to marine mammals, as well as endangered Inner Bay of Fundy Atlantic Salmon.

Once DFO has been satisfied that these potential effects to marine mammals have been mitigated, and they confirm their acceptance that the above criteria have been met, blasting may commence at the site.

At the present time, the Province is participating in a joint panel review with the federal government of the proposed expansion of this operation, and it would not be appropriate to remove these conditions without DFO's consent.

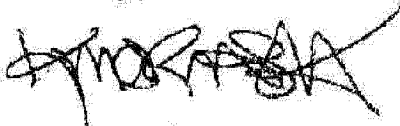
page 2



Mr. Paul Buxton, P. Eng.
Page 2

Should you have any additional questions or concerns about the current approval, please do not hesitate to contact Mr. Kim MacNeil, Regional Manager at (902) 679-6086.

Sincerely yours



Kerry Worast
Minister

cc: Harold Theriault Jr., M.L.A.
Kim MacNeil

** TOTAL PAGE 03 **

002250

C0560-008

NSE Nova Stone Exporters Inc.

Producers and Exporters of Quality Controlled Aggregate Products

Minister,
Nova Scotia Department of Environment and Labour,
5151, Terminal Road, 5th Floor,
P.O. Box 697,
Halifax,
B3J 2T8

Oct. 9th 2003

Dear Mr. Minister,

re: Whites Point Quarry - Approval # 2002-026397

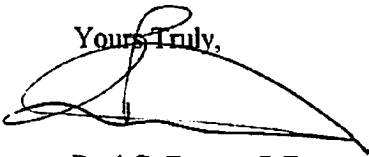
I would refer you to our letter of June 24th 2003 and to various discussions held with Department officials since that time. We have provided more than sufficient information to enable a decision to be made on items 10 h) and 10 i) in the Blasting section of the permit, including a very recent statement on our blasting criteria, and we now insist that a decision be made on the information provided.

We have advised you from the beginning of this process, and reiterate here, that we are committed to acting in full compliance with both the spirit and the letter of all regulations with regard to the operation of this quarry.

We are now of the opinion that we are being unfairly treated in this process and we are currently seeking legal advice with regard to our options. It is our intent to pursue options involving litigation with respect to our ability to operate the 4 Ha quarry in accordance with the permit and will institute such action if the issue of blasting is not dealt with by Oct. 31st 2003.

I am attaching a chronology for your information.

Yours Truly,



Paul G. Buxton P.Eng.,
Project Manager

P.O. Box 465 • Bridgewater • Nova Scotia • B4V 2X6
Tel: (902) 530-2619
Fax: (902) 530-3040
Email: nse@bwr.eastlink.ca

002248

C0560-009

Paul G. Buxton P.Eng.

P.O. Box 98
Annapolis Royal, BOS 1A0

Telephone 902 638 8108
Fax 902 638 3522

September 30, 2003

Mr. R. Petrie
District Manager – Yarmouth
Department of Environment and Labour
13 First Street
Yarmouth, Nova Scotia B5A 2S9

RE: Whites Point Quarry Blasting Plan

Following is additional information concerning items in paragraph 10 h) and 10 i) of your Approval to Construct and Operate – Quarry. Approval No. 2002 – 026397, PID # 30161160.

Regarding item 10 h), our previous submittals confirmed that all blasting would be conducted in accordance with the Department of Fisheries and Oceans “Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters” – 1998. These Guidelines set forth guideline criteria that no explosive is to be detonated in or near fish habitat that is likely to produce an instantaneous pressure change greater than 100 kPa (14.5 psi) in the swim bladder of a fish. Also, no explosive is to be detonated that is likely to produce a peak particle velocity greater than 13 mm/s in a spawning bed during the period of egg incubation. Tables 1 & 2 contained in the aforementioned Technical Report provide setback distances from the centre of detonation of a confined explosive to fish and spawning habitat. These setback distances are essentially based on the weight of explosive charge and type of substrate.

In this regard, site specific investigations were carried out to determine possible effects on fish and fish habitat from blasting during quarry operations. These investigations concentrated on the marine environment since no suitable fresh water fish habitat exists on or near the quarry site. Shock wave propagation from the proposed blast sites to the marine water column were modeled. This investigation was conducted by JASCO Research Limited and LGL Limited (Hannay, David E. M.Sc. and Thomson, Denis M.Sc. “Peak Pressure and Ground Vibration Study for Whites Cove Quarry Blasting Plan” August 2003). Site specific topography, bedrock composition, and bathymetry were used to illustrate a “worst case” situation for quarry blasting in relation to the marine water column. Also, specifications outlined in Global Quarry Products Blasting Plan dated November 18, 2002 were used e.g. weight and type of explosive, shot pattern and spacing, shot hole depth and diameter, and delay sequence. The blast effects model CONWEP (Hyde 1992) was then run to predict the shape of the shock wave pressure at various distances from the detonation site.

002244

C0560-010

Results from the CONWEP model indicate that the proposed 73 meter setback from the detonation of a confined explosive to fish habitat (the ordinary high water line) are not expected to exceed pressures of 50 kPa. Blasting within 3 hours of low tide, as proposed, would further reduce pressures to less than approximately 25 kPa in the water. This is significantly below the 100 kPa guideline criteria. Further, a conservative water depth of one meter at the ordinary high water line was assumed rather than a zero depth. Also, the CONWEP model predicts peak velocity of 13 mm/s corresponding with the ordinary high tide line. As proposed in the Blasting Plan, blasting will be conducted within three hours of low tide or at low tide if conditions permit. The setback from the detonation site to the water column within three hours of low tide would be 118 meters. This exceeds the 100.5 meters required in the guideline criteria. Again, a conservative approach has been taken to reduce risk to potential spawning areas. In summary, proposed setback distances exceed guideline criteria for 100 kPa peak pressure and 13 mm/s ground vibration for fish, fish habitat and spawning areas.

Further, mitigation measures include that the timing of blasting activities is proposed to be within 3 hours of low tide, when atmospheric conditions permit, at low tide. This will result in the maximum setback distance from the marine water column and exceed the guideline criteria set forth in the "Guidelines for the Use of Explosives in or Near Canadian Fisheries waters". Also, the explosive ANFO will be used whenever possible. ANFO has a lower yield per equivalent weight than TNT and will possibly further reduce pressure and vibration in fish habitat. The frequency of blasting is proposed to be once per week initially and once every two weeks during full quarry operation with a duration of generally less than one second per blast. Thus, the frequency and duration of blasting will be transitory and should have minimal effects on fish behavior, fish health or movements.

Monitoring of blasting activities would include video documentation of each blast event and land monitoring for concussion and ground vibration for each blast event. The latter would be done in accordance with the Nova Scotia Department of Environment and Labour regulatory requirements. Also, monitoring of each blast will be conducted at three stations located within nearshore marine waters. Monitoring for peak pressure and ground vibration will be conducted at locations in one meter tidal zone depth and at approximately 170 meters and 500 meters from the detonation site.

Regarding item 10 i), our research recognizes that noise from the detonation of explosives or other man made sources, in addition to natural sources, may cause adverse effects on marine mammals. Some studies indicate excessive noise may induce changes in behavior and effects on hearing which in turn may interfere with breeding activities, locating food, detecting predators, communication, migratory paths and abnormal behavior. General guideline criteria as published in Fisheries and Oceans Canada – Newfoundland Region "Factsheet – Blasting – Fish and Fish Habitat Protection" 1999 indicates blasting activities are not to be carried out in the marine environment within 500 meters of marine mammals. Again, the CONWEP model was used to predict the shape of the shock wave pressure at the 500 meter setback radius to assess possible harassment to marine mammals. An additional more conservative, setback radius will be used if

endangered marine mammals such as the Right Whale have been sighted in the immediate nearshore area. This setback or safety radius for endangered marine mammals would be based on the formula $r = \sqrt[3]{260w}$ (7.28) where r =radius, w =weight of explosive (TNT equivalent in pounds) (ref. Florida Fish and Wildlife Conservation Commission "Endangered Species Conservation Conditions for Blasting Activities" 2001.

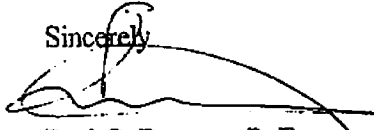
CONWEP model results indicate peak pressure at 500 meters will be approximately 5 kPa in the basalt which corresponds with a peak level in the water of approximately 2 kPa or equivalently 186 dB re $1 \mu\text{Pa}$ peak. Root – mean – square (RMS) levels are typically 5 – 10 dB less than peak level as a result of signal spreading in time due to multi path propagation. The Department of Fisheries and Oceans has recently accepted safety standoff thresholds of 180 dB RMS for toothed whales and 190 dB for Pinnipeds in the vicinity of air gun systems used for seismic explorations. These thresholds represent received levels at which marine mammals could sustain temporary threshold shift (TTS). Temporary threshold shift is a temporary and recoverable increase in hearing threshold, similar to what a human would experience at a loud rock concert. The distance at which TTS could occur is commonly used as a distance for a safety radius around a noise source. The pulse raise time for air gun signals and the blast pressure wave at this range will be similar for these two types of noise source. Consequently, the same 180 dB RMS threshold would be appropriate here.

The proposed 500 meter distance from the point of detonation for a safety radius therefore appears appropriate for Cetaceans. The safety range for Pinnipeds presumably could be approximately one third this range or approximately 170 meters if inverse distance ($1/r$) acoustic spreading transmission loss is assumed. It should be noted that during seismic operations, air guns are shot every 20 seconds for hours on end. In the case of the proposed blasting, the entire event will be over in less than 0.5 seconds. The National Marine Fisheries Service, responsible for implementation of the Marine Mammal Protection Act has ruled that a single, short, noise pulse, such as that caused by an under water explosion does not constitute disturbance (U.S. Federal Register 61 (#234, 4 Dec. 1996, page 64, 337). As outlined in the subsequent paragraph, a conservative approach is proposed to protect marine mammals and in accordance with published guideline criteria. In summary, the proposed 170 meter safety radius for Pinnipeds, a 500 meter safety radius for Cetaceans, and an increased safety radius of 2500 meters if endangered marine mammals are sighted in the immediate area, meet or exceed accepted guideline criteria for the protection of marine mammals during proposed blasting activities at the Whites Point Quarry.

As mitigation measures, blasting will be executed using the minimum weight of explosives and greatest safety radius in relation to the marine environment as conditions warrant. Blasting will not be conducted if Pinnipeds are present within 170 meters of the point of detonation or if Cetaceans are within 500 meters of detonations. If endangered marine mammal species such as Right Whales or Blue Whales are sighted in the nearshore area off Whites Point, the safety radius will be increased to 2500 meters.

Monitoring of each blast will be conducted as outlined previously.

Sincerely

A handwritten signature in black ink, appearing to read 'Paul G. Buxton', written over a horizontal line.

Paul G. Buxton, P. Eng.
Project Manager

Paul Buxton

From: "Bob D Petrie" <petrierd@gov.ns.ca>
To: <paul.buxton@ns.sympatico.ca>
Sent: Friday, August 15, 2003 1:31 PM
Subject: Re: Blasting plan

No formal response as yet. I will send them a note to remind them we are still awaiting clarification.

>>> "Paul Buxton" <paul.buxton@ns.sympatico.ca> 08/14/03 09:09AM >>>
Bob,

Any response yet from DFO re: whether the blasting plan is in conformance with the "Guidelines ..."?
See your letter of July 23rd 2003.

Paul

Appendix 245

10/9/2003

002243

C0560-014

Paul Buxton

From: "Paul Buxton" <paul.buxton@ns.sympatico.ca>
To: "Zamora, Phil" <ZamoraP@mar.dfo-mpo.gc.ca>
Sent: Thursday, August 14, 2003 9:13 AM
Subject: Blasting Plan

Phil,

We are still awaiting details of the calculations re: set back distances as per my letter of July 21st.
When can we expect to receive this information?

Paul

8/14/2003

002242

C0560-015



NOVA SCOTIA
Department of Environment & Labour

Environmental Monitoring & Compliance Division
Yarmouth District Office

Bob Petric, District Manager

19 First St.
Yarmouth, Nova Scotia
B5A 1S6
petriard@gov.ns.ca

Tel: (902) 742-8985
Fax: (902) 742-7786

July 23, 2003

Mr. Paul Buxton, P. Eng.
Nova Stone Exporters Inc.
PO Box 465
Bridgewater, N.S.
B4V 2X6

Dear Mr. Buxton:

This is in response to your letter of June 25, 2003 and your request for us to seek verification from DFO as to whether you have satisfied conditions 10 (h) & (i) contained in Approval #2002-026397.

Condition 10(h) specifically requires that:

"Blasting shall be conducted in accordance with the Department of Fisheries and Oceans Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters - 1998."

By copy of this letter we are requesting that DFO provide confirmation as to whether the proposed blast is in accordance with these guidelines.

Condition 10(i) specifically requires that:

"A report shall be completed by the proponent in advance of any blasting activity verifying the intended charge size and blast design will not have an adverse effect on marine mammals in the area. This report shall be submitted to the Department of Fisheries and Oceans (DFO), Maritimes Aquatic Species at Risk Office and written acceptance of the report shall be received from DFO and forwarded to the Department before blasting commences."

We acknowledge that the report has been completed, submitted to DFO and includes mitigation measures to prevent adverse effects to marine mammals. Many of DFO's subsequent comments relate to species other than marine mammals. We recognize that while these are important issues, these are outside the scope of Condition 10(i) and are therefore not considered when determining whether Condition 10(i) has been met.

With respect to mammals we have reviewed the comments we received from DFO and your responses. As a result of our review we note the following outstanding issues:

1. Seal Colony- In your correspondence of January 28, 2003 you responded to the comments concerning the seal colony at Crowell's Cove (3 km. away). Our understanding of your proposed mitigation is that you plan to visually monitor the 500 m. surrounding the blast for the presence of marine mammals and to halt the blast if any are sighted.

Despite your proposal, DFO continues to express concerns regarding the effects on the colony (ref. letter dated May 29/03 from Zamora to Buxton, Addendum p. 2).

2. Blasting within 500 m. of a marine mammal- Your response indicates that your mitigation will consist primarily of visual monitoring from shore of a 500 m. radius, and avoidance of blasting if mammals are sighted within this area.

Despite your proposal, DFO:

(a) has stated that the area in which mammals could be disturbed by noise may extend beyond the 500 m. discussed in the blasting plan (ref. letter dated May 29/03 from Zamora to Buxton, Addendum p. 2)

(b) also states in their letter of May 29/03 that a redesign of the blasting plan is needed to mitigate "*other potential harmful effects to endangered marine mammals that have been identified by DFO Scientists during our review.*"

Based on the above we are currently unable to conclude that Condition 10(i) has been met.

I must point out that resolution of these issues in no way relieves you of the necessity to address other requirements outlined by DFO respecting the requirements under the *Fisheries Act*. It is your responsibility to ensure that the provisions of the *Fisheries Act* which apply to this matter are satisfied. Although we have acted to seek clarity in this instance, the responsibility and obligation for resolving these issues rests solely with Nova Stone Exporters.

I trust that this is sufficient to address the concerns you have outlined. Please contact me if you have any further questions.

Yours truly,



Bob Petric
District Manager

cc. K. MacNeil
J. Cook ✓
R. Balrum
J. Fanning
P. Zamora- DFO



NSE Nova Stone Exporters Inc.

Producers and Exporters of Quality Controlled Aggregate Products

Fisheries and Oceans Canada,
Habitat Management Division,
P.O. Box 1006,
Dartmouth,
B2Y 4A2

July 21st 2003

Attention: Mr. Phil Zamora

Dear Mr. Zamora,

re: Whites Point Quarry Blasting Plan

Further to your letter of June 11th 2003 and my response of June 16th 2003 we are still awaiting details of the calculations with respect to set back distances to protect iBOF salmon.

We have engaged consultants who are located out of the province to review the blasting plan and it is essential that we have your data to examine.

Your timely response would be appreciated.

Yours Truly,



Paul G. Buxton P.Eng.
Project Manager

P.O. Box 465 • Bridgewater • Nova Scotia • B4V 2X6
Tel: (902) 530-2619
Fax: (902) 530-3040
Email: nse@bwr.eastlink.ca

002239

C0560-018

June 24, 2003

Nova Scotia Department of Environment and Labour
Att: Mr. Bob Petrie, Administrator
13 First Street
Yarmouth, NS B5A 1S9

Dear Mr. Petrie:

Approval Number 2002-026397

I can advise that as of this date Nova Stone Exporters Inc. is in a position to commence production of aggregate under the above noted permit.

Clearing and grubbing of the initial face has been completed and environmental controls including the settling pond have been established.

The Permit issued by the Department of Environment and Labour requires a letter from the Department of Fisheries and Oceans ("DFO") confirming the blasting plan for the 3.9 ha. quarry complies with the "Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters – 1998" ("Guidelines"). Our company has submitted a blasting plan for the 3.9 ha. quarry which complies with the Guidelines and have submitted a report verifying that the intended charge size and blast design will not have an adverse effect on marine mammals in the area. DFO has not issued a letter accepting a report but has never stated any clear position on the plan. We have not been advised by DFO that the blasting plan does not meet the Guidelines but have been engaged in an on-going discussion of criteria outside the terms of the Guidelines. You have been apprised of the delays and frustrations in the approach that DFO is employing by not addressing the blasting proposal for the 3.9 ha. quarry.

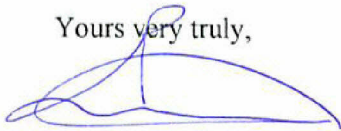
As you know DFO has taken the position that our entering an EA phase for the proposed larger quarry prevents them from taking any action on the 3.9 ha. quarry. We strongly disagree with this position and can now advise that DFO's position is preventing Nova Stone Exporters Inc. from operating the 3.9 ha. quarry. We are writing to you to seek the province's intervention and involvement to have DFO answer the question that the Province has set out in the Permit, which is whether the blasting plan for the 3.9 ha. quarry complies with the Guidelines. If this question is not answered then the Province is permitting DFO to involve our company in a process that is outside the conditions of the permit. In effect, it will be over riding the provincial jurisdiction.

There are serious financial consequences which arise from our inability to operate in accordance with the Permit and we are imploring the Province to stand behind its authority and enforce the conditions of the Permit.

The Company has suffered significant costs due to the delay and the jurisdictional machinations employed by DFO. This Company has acted in good faith and we expect the same of the Province in interpreting and enforcing the Permit. We feel we have satisfied all conditions and we ask that you confirm that for us so that we may proceed with the work contemplated by the Permit. To do otherwise will make the Province complicit in the DFO' conduct.

Failure to act will cause severe economic hardship to the Company and the project. It will also send a clear message on the excessive difficulty and high level of uncertainty that companies face when they seek to invest in Nova Scotia.

Yours very truly,



Paul G. Buxton, P.Eng.
Project Manager
Nova Stone Exporters Inc.



GQP Global Quarry Products

Fisheries and Oceans,
Habitat Management Division,
Maritimes Region,
P.O. Box 1006,
Dartmouth,
Nova Scotia,
B2Y 4A2

June 16th 2003

Attention: Mr. Phil Zamora

Dear Mr. Zamora,

Thank you for your letter received by Fax June 12th 2003.

With respect to the blasting plan for the 3.9 hectare quarry we are still of the view that, since a Permit is in place permitting blasting on the 3.9 hectare quarry, the issue of a larger quarry and its process is irrelevant. This is the primary reason for my request for a meeting with NSDEL, DFO and CEAA.

I heard from Derek MacDonald on Friday the 13th June and he is attempting to set up a meeting in the next two weeks.

With respect to the calculations with respect to the set back distances to protect iBOF salmon we would still like a copy of the calculations before meeting with you. We need

Tel: 902-245-2567

Fax:

Mailing Addresses:

General Interest:

P.O. Box 2113

Digby, NS

B0V 1A0

Billing:

Suite 282, 450 LaHave Street, Unit 17

Bridgewater, NS

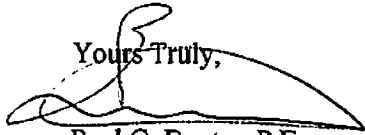
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to find out which consultants to bring to the meeting so that we will have a complete understanding of all the parameters that went into the calculations.

Yours Truly,

A handwritten signature in black ink, appearing to read 'Paul G. Buxton', written over the typed name below.

Paul G. Buxton P.Eng.
Project Manager



Habitat Management Division
P.O. Box 1006
B505, 5th Floor
Dartmouth, NS
B2Y 4A2

Your file *Votre référence*

Our file *Notre référence*

June 11, 2003

Mr. Paul G. Buxton, Project Manager
Global Quarry Products
P.O. Box 2113
Digby, N.S.
B0V 1A0

Dear Mr. Buxton:

RE: Whites Point Quarry Blasting Plan

Thank you for your letter received by Fax on June 6, 2003.

As implied in our letter to you on May 29, 2003, the 3.9 hectare quarry, and the currently proposed Blasting Plan for this quarry, could be viewed as part of the larger project, **Whites Point Quarry and Marine Terminal, Digby County, Nova Scotia**, which is currently undergoing an environment assessment under the Canadian Environmental Assessment Act. To this end, HMD would like to know the purpose of the blast and the intended use of the blasted rock. The status of the Blasting Plan for the 3.9 hectare quarry depends upon how it relates to the larger project.

You have asked for a meeting with Habitat Management Division (HMD), Nova Scotia Department of Environment and Labour, and the Canadian Environmental Assessment Agency (CEAA) to discuss the overall status of the Blasting Plan. The CEAA office has offered to arrange a meeting at their Halifax location. You will be contacted in the very near future regarding this meeting.

.../2

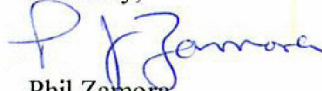
Mr. Paul Buxton

(2)

June 11, 2003

You have also asked about the calculations carried out by HMD which led to the 500 meter horizontal distance from the shore line to the blast location being determined as required to protect inner Bay of Fundy Atlantic salmon. The calculations were performed using a computer simulation model supplied by the developer of the DFO "Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters" – 1998. The results of these calculations are available for your examination. Please call me at (902) 426-4692 to arrange a time when you can meet with us.

Sincerely,



Phil Zamora
Habitat Management Division

cc. M. McLean
D. McDonald
T. Wheaton
C. Myra
B. Petrie



**Fisheries and Oceans
Habitat Management
Division
Maritimes Region**

**Pêche et Océans
Division des gestion de
l'habitat
Région des Maritimes**

Pages to follow : 2

Date : 12 June 03

From Fax : 1-902-426-1489

From Voice # :

From: *Phil Zamora*

To: *Paul Buxton*

Fax # *902 - 245 - 5614*

**Habitat Management
Division, DFO
P.O. Box 1006
1 Challenger Drive,
5th Fl, Polaris Bldg.
Dartmouth, Nova Scotia
B2Y 4A2**

Notes:

*Paul.
Please find attached response letter to
your letter of June 6, 2003
Phil Zamora.*

GQP Global Quarry Products

Fisheries and Oceans,
Habitat Management Division,
Maritimes Region,
1, Challenger Drive,
Dartmouth,
B2Y 4A2

June 6th 2003

Attention: Mr. Phil Zamora.

Dear Mr. Zamora,

re: Whites Point Quarry Blasting Plan

Thank you for your letter and the attached addendum received by Fax on May 29th 2003.

It is our intention to respond to the letter in detail but I believe it would be very useful to hold a meeting in the very near future with Habitat Management Division, NSDEL and CEAA to review the overall status of the Blasting Plan.

However, at this time we request that you forward to us at your earliest convenience the calculations carried out by Habitat Management Division which led to the 500 metre horizontal distance from the shore line to the blast location being determined as required to protect iBOF salmon that you state could be found at Whites Point from May to October (page 1 Addendum - DFO Concerns - Potential Harmful Effects of Blasting at Whites Point).

Yours Truly,


Paul G. Buxton P.Eng
Project Manager

Tel: 902-245-2567

Fax:

Mailing Addresses:

General Interest:

P.O. Box 2113

Digby, NS

B0V 1A0

Billing:

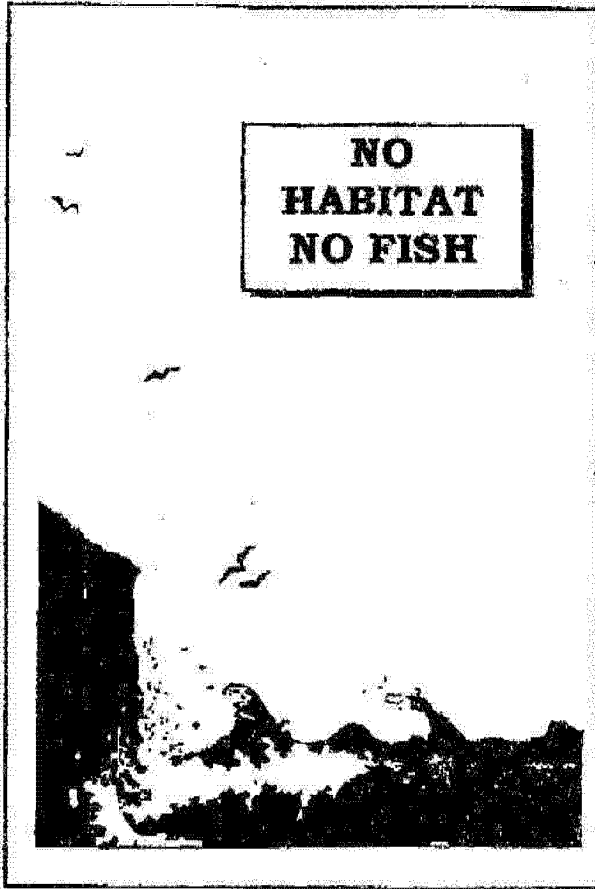
Suite 282, 450 LaHave Street, Unit 17

Bridgewater, NS

B4V 4A3

002231

C0560-026



**Fisheries and Oceans
Habitat Management
Division
Maritimes Region**

**Pêche et Océans
Division des gestion de
l'habitat
Région des Maritimes**

Pages to follow : 8

Date : 29 Mayo 3

From Fax : 1-902-426-1489

From Voice # :

From: Phil Zamore

To: Paul Buxton

Fax # 902 245-5614

**Habitat Management
Division, DFO
P.O. Box 1006
1 Challenger Drive,
5th Fl, Polaris Bldg.
Dartmouth, Nova Scotia
B2Y 4A2**

Notes:

Paul

- Please find attached :*
- 2 pages ① Letter RE Whites Point Quarry Blasty Plan*
 - 2 pages ② Addendum.*
 - 4 pages ③ Application for Authorization to Destroy Fish by Means of Harpoon Fishing*

Phil Z.



Habitat Management Division
P.O. Box 1006
B505, 5th Floor
Dartmouth, NS
B2Y 4A2

Your file *Votre référence*

Our file *Notre référence*

May 29, 2003

Mr. Paul G. Buxton, Project Manager
Global Quarry Products
P.O. Box 2113
Digby, N.S.
B0V 1A0

Dear Mr. Buxton:

RE: Whites Point Quarry Blasting Plan

The Department of Fisheries and Oceans (DFO) has reviewed the document **Whites Point Quarry Blasting Plan**, submitted November 18, 2002 by Nova Stone Exporters Inc., and the additional information submitted January 28, 2003 and March 28, 2003. DFO has concluded the proposed work is likely to cause destruction of fish, contrary to Section 32 of the Fisheries Act which states:

“No person shall destroy fish by any means other than fishing except as authorized by the Minister.”

Works or undertakings resulting in the destruction of fish, by means other than fishing, are prohibited unless Authorized by the Minister of Fisheries and Oceans. An application for a Section 32 Authorization is attached for your submission if you wish to proceed with the proposed work as outlined in the blasting plan. It is important for you to consider that the species of concern is inner Bay of Fundy Atlantic salmon, which is listed endangered by the Committee on Status of Endangered Wildlife in Canada (COSEWIC). The review of your application will include consideration of the recovery plan of this species and an application for a Section 32 Authorization may not necessarily be approved.

.../2

Also, the 3.9-hectare quarry is within the larger area of the proposed **Whites Point Quarry and Marine Terminal, Digby County, Nova Scotia**, which is currently undergoing an environment assessment (EA) under the Canadian Environmental Assessment Act (CEAA). DFO is the federal authority conducting this EA and is subject to laws governing this CEAA assessment including Section 5(2)(d) which requires that an EA of a project be completed before a federal authority "*under a provision prescribed pursuant to paragraph 59(f), issues a permit or licence, grants an approval or takes any other action for the purpose of enabling the project to be carried out in whole or in part.*"

A Fisheries Act Section 32 Authorization is in the Law List Regulations of CEAA and therefore DFO would not be able to issue a Section 32 Authorization for the four-hectare blasting plan until the CEAA assessment for **Whites Point Quarry and Marine Terminal, Digby County, Nova Scotia** has been completed.

You may wish to redesign the blasting plan to mitigate the potential destruction of endangered fish and some other potential harmful effects to endangered marine mammals that have been identified by DFO Scientists during our review. If so, please forward a revised blasting plan, including all mitigation techniques and monitoring methods to be used, to DFO for review. I have attached an addendum, which outlines DFO's concerns for potential harmful effects to fish and fish habitat from blasting at Whites Point. The revised plan should also state clearly, the purpose of the blast and the intended use of the blasted rock.

If you have any questions regarding the review of the blasting plan, feel free to contact me at (902) 426-4692.

Sincerely,



Phil Zamora
Habitat Management Division

Attachment Addendum: DFO Concerns – Potential Harmful Effects of Blasting at Whites Point
Application of Section 32 Authorization

cc. M. McLean
D. McDonald
T. Wheaton
C. Myra
B. Petrie

Addendum: DFO Concerns – Potential Harmful Effects of Blasting at Whites Point**Fish species**

Although the protection of most fish is achieved by DFO “Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters” – 1998, the presence of species at risk requires a closer examination than a guideline can provide.

The inner Bay of Fundy Atlantic salmon is listed endangered by the Committee on Status of Endangered Wildlife in Canada (COSEWIC). Historic fishing, scientific sampling and theoretic modeling indicates that there could be migrating or resident iBoF Atlantic salmon in the Whites Point, Digby Neck area from May until October.

The coastal area of Digby Neck on the Bay of Fundy is a known area of cooler oceanic water entering the Bay of Fundy. These currents enter through the trough north of George’s Bank, are driven to the surface and circulate in a counter clockwise pattern. The cooler portions are located toward the mouth of Bay of Fundy and are preferred habitat areas for Atlantic salmon. These cool water areas fluctuate monthly. Habitat area, suitable for Atlantic salmon, is available in this area during May and June and again in October and November. During July to September the cool water south of Digby Neck is perhaps critical to iBoF salmon. In general from December to April there is virtually no habitat suitable for Atlantic salmon in that area and few migrating Atlantic salmon.

Of particular note is the fact that Atlantic salmon, both post-smolt (50 to 150 g) and adult,(1000 to 2500 g) tend to travel in very close proximity to the shoreline. In fact, many shore mounted stake nets were once fished in the inter tidal zone along the southeast shore of the Bay of Fundy. This fishery was a consistent source of tagged smolt, many from inner Bay of Fundy rivers. The fisheries were closed or restricted since 1983.

Based on these observations it is likely that Atlantic salmon of iBoF could be found in close proximity to the shore line of Whites Point from May to October.

Habitat Management Division (HMD) have calculated that a horizontal set back distance from the shore line of 500 meters would be required to protect iBoF Atlantic salmon of the size that could be found at Whites Point from May to October.

The recovery plan for iBoF Atlantic salmon is described in the document titled **National Recover Strategy for iBoF Atlantic salmon (salmo salar) Populations 2002** and a recovery team is also in place. The recommendations of this recovery strategy must be considered explicitly.

Marine Mammals

The following table shows the marine mammals at risk found in the Bay of Fundy (BoF) that need consideration for potential harmful effects from blasting at Whites Point.

<u>Species</u>	<u>Found in BoF</u>	<u>Species at Risk Status</u>
Northern Right Whale	June – November	Endangered
Blue Whale (occasional sightings)	June – November	Endangered
Harbour porpoise	All Year	Threatened
Fin whale	All Year	Special Concern
Minke whale	All Year	Special Concern
Humpback whale	June- November	Special Concern

The blasting proposal reveals an active whale watching activity and the presence of humpback and right whales at 5 miles from shore. The presence of an endangered species within a few miles of the site requires special consideration. The recommendations of the **Canadian North Atlantic Right Whale Recovery Plan** must be considered explicitly.

Marine mammals are well known to be acoustic animals that react to and are adversely affected by noise. The distance of disturbance of marine organisms by sound may well be beyond the 500m suggested in the proposal.

Additional information submitted for the blasting plan suggested that a colony of Harbour seals at Crowell's Cove is within 3 Km of the blasting. DFO is concerned that there may be potential harmful effects on the colony during the breeding season.

**Appendix IV
Application Form for Authorization to Destroy Fish by Means
Other Than Fishing**

Page 1

**APPLICATION FOR AUTHORIZATION TO DESTROY FISH BY MEANS
OTHER THAN FISHING**

I, the undersigned, hereby request authorization to carry out the works or undertakings described on this application form. I understand that the approval of this application, if granted, is from the Department of Fisheries and Oceans standpoint only and does not release me from my obligation to obtain permission from other concerned regulatory agencies.

If an authorization is granted as a result of this application, I hereby agree to carry out all activities relating to the project within the designated time frames and conditions specified in the authorization.

Applicant's Name (Please Print) _____

Applicant's Business Address _____

Applicant's Telephone Number _____

Applicant's Facsimile Number _____

Applicant's E-Mail Number _____

Date of Application _____

I solemnly declare that the information provided and facts set out in this application are true, complete and correct, and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath. This declaration applies to all material submitted as part of this application.

Applicant's Signature _____

**Appendix IV (continued)
Application Form for Authorization to Destroy Fish by Means
Other Than Fishing**

Page 3

**APPLICATION FOR AUTHORIZATION TO DESTROY FISH BY MEANS
OTHER THAN FISHING (continued)**

Schedule of Operations

Proposed starting date (D/M/Y) _____

Proposed completion date (D/M/Y) _____

The following documents will assist in assessing your application and help expedite its approval. Please check which documents you have attached.

- Map indicating location of project
- Engineering specifications
- Dimensional drawings
- Assessment of fish and marine mammal resources
- Assessment of potential effects of project on fish and marine mammals
- Measures proposed to mitigate potential damage to fish and marine mammals
- Other

**Appendix IV (concluded)
Application Form for Authorization to Destroy Fish by Means
Other Than Fishing**

Page 4

**APPLICATION FOR AUTHORIZATION TO DESTROY FISH BY MEANS
OTHER THAN FISHING (concluded)**

Explosives Contractor (if different from applicant)

Name _____

Address _____

Telephone number _____

Facsimile number _____

Details of Explosives

Type (including trade name) _____

Total weight of explosive to be used (kg) _____

Weight of individual shots/

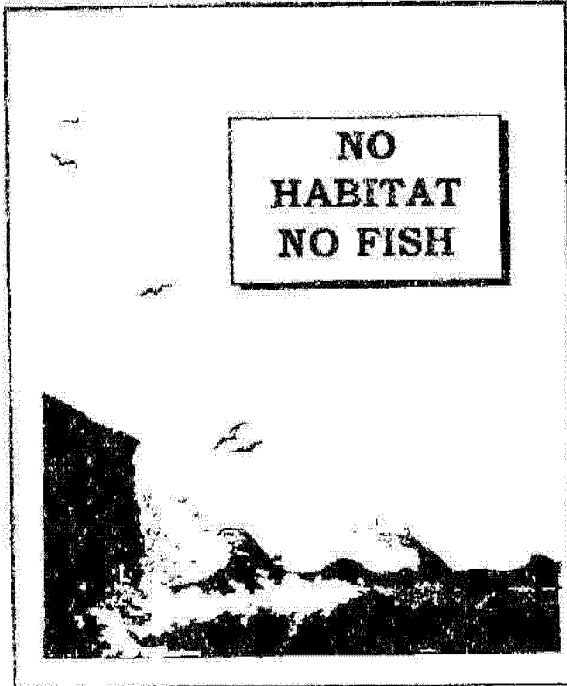
Weight per delay _____

Shot pattern _____

Detonation depth _____

Delay period (msec) _____

Method of detonation _____



Fisheries and Oceans
 Habitat Management
 Division
 Maritimes Region
 Pêche et Océans
 Division des gestion de
 l'habitat
 Région des Maritimes

Pages to follow : 4

Date : 14 April 03

From : Phil Zamora

From Fax : 1-902-426-1489

To : Paul Buxton

From Voice # :

To Fax :

**Habitat Management
 Division, DFO
 P.O. Box 1006
 1 Challenger Drive,
 5th Fl, Polaris Bldg.
 Dartmouth, Nova Scotia
 B2Y 4A2**

To :

To Fax :

To :

To Fax :

Notes: Paul
 Please find attached letter
 regarding Environmental Assessment
 of White Point Quarry & Marine Terminal.
 Phil Zamora.



Habitat Management Division
P.O. Box 1006
B505, 5th Floor
Dartmouth, NS
B2Y 4A2

Your file *Votre référence*

Our file *Notre référence*
03-FCR-020

April 14, 2003

Mr. Paul G. Buxton, Project Manager
Global Quarry Products
P.O. Box 2113
Digby, N.S.
B0V 1A0

Dear Mr. Buxton:

RE: White Point Quarry and Marine Terminal, Digby County, Nova Scotia

Habitat Management Division (HMD) was advised on February 17, 2003 that the above-mentioned project will require an approval under Section 5(1) of the *Navigable Waters Protection Act* (NWPA). This project must undergo an environmental assessment (EA), in accordance with the *Canadian Environmental Assessment Act* (CEAA), before a decision can be made on whether to issue a NWPA approval.

Your document titled "PROJECT DESCRIPTION, WHITES POINT QUARRY AND MARINE TERMINAL" was received for review by Department of Fisheries and Oceans (DFO) on March 24, 2003.

It is our understanding that this project includes a marine terminal designed to handle vessels larger than 25 000 DWT which falls under the CEAA Comprehensive Study List Regulations. The type of screening used for the EA will therefore be a Comprehensive Study (CS).

DFO will manage the EA process as the Responsible Authority (RA) under CEAA. This federal EA process will be harmonized with a provincial EA process. A harmonization agreement, in the form of a Memorandum of Understanding (MOU) between DFO, the Canadian Environmental Assessment Agency, and the Province of Nova Scotia will be developed to govern the joint EA process for this project.

.../2

The "scope of the project" for the purpose of this EA will include the construction, installation, operation, maintenance, modification, decommissioning and abandonment of the quarry and marine terminal. In order to provide scoping information for the CS, DFO will develop a Draft Scoping Document for the project. This document will include a description of the scope of the project that will be assessed, the factors to be considered in the assessment, and the scope of those factors.

The Draft Scoping Document and the MOU will be made available for public comment. Global Quarry Products (GQP) is required to provide a suitable means of acquiring public input on these documents. All public comments must be sent to DFO. In addition, GQP may also make comments on these documents. GQP is advised to contact DFO as soon as possible to develop a suitable public consultation process for this phase. This public consultation process, along with consultation with DFO, other federal departments and the Province of Nova Scotia, will form the basis for finalizing the Scoping Document that will provide the framework for the CS. GQP is responsible for conducting the CS, preparing the Comprehensive Study Report (CSR), and providing the CSR, in both official languages, to HMD and CEA Agency.

It is strongly advised that GQP engage a consultant with extensive experience in conducting environmental assessments under CEAA as early in the process as possible. Experience has proven this to be a more efficient and timely approach with projects of this size, especially when conducting a CS and preparing the CSR. Also please be advised that, although the type of assessment being used for this project is a CS, CEAA (Section 23) includes the provision that the project could be referred to a mediator or review panel.

Under Section 55 of CEAA, DFO is required to maintain a Public Registry for this project. The Public Registry is intended to provide convenient public access to information about an EA. A package with additional information on the Public Registry requirements is attached. Please ensure that you review and understand these requirements. Release of documents to the public will be part of the process. Forms have been provided in the package for your convenience. Please sign and return Form A (and/or Form B, if required), as soon as possible.

.../3

In your project description you mention the four- hectare Blasting Plan, previously submitted by Nova Stone Exporters Inc., and currently under review by DFO-HMD. Since this project is now undergoing an EA under CEAA, DFO will not likely be able to take any action regarding the four- hectare Blasting Plan. Section 5(2)(d) of CEAA requires an environmental assessment of a project before a federal authority “*under a provision prescribed pursuant to paragraph 59(f), issues a permit or licence, grants an approval or takes any other action for the purpose of enabling the project to be carried out in whole or in part.*” Your project description states that one of the primary objectives of the Blasting Plan is to gather specific on-site data for further assessment of potential impacts on the marine environment from blasting operations. Any blasting plan with the objective of supplying information for the EA of the project would need to explain how the plan supports the EA, describing all monitoring methods used and environmental components targeted. The plan would have to be appropriate to the scope of the assessment and meet with DFO’s approval. We advise that such a blasting plan, if required, should be developed after the Scoping Document for the CS has been completed.

Based on the information provided in your project description we have also concluded that your project is likely to result in the harmful alteration, disruption or destruction of fish habitat (HADD). If a HADD is likely to occur, the project can only proceed if an authorization under Section 35(2) of the *Fisheries Act* (FA) is granted. Please find the attached Application for Authorization form to be completed and returned to us. In reviewing your project, we will consider DFO’s *Policy for the Management of Fish Habitat*, which provides that no authorizations be issued unless acceptable measures for any habitat loss are developed and implemented by the proponent.

A requirement of an authorization is that the proponent must prepare a plan to compensate for any alteration, disruption or destruction which is authorized. The compensation plan and its execution must meet the approval of DFO.

.../4

Mr. Paul Buxton

4

April 14, 2003

Depending on information gathered from the EA process, other sections of the *Fisheries Act* may also apply to this project, in particular Section 32. Section 32 gives DFO the authority to prohibit the destruction of fish by any means other than fishing. An application for a Section 32 Authorization will be forwarded to you if and when it is likely to be needed.

If you have any questions in regards to the EA process, the FA Authorization, or any other aspect of our review of this project, feel free to contact me at (902) 426-4692.

Sincerely,



Phil Zamora

Habitat Management Division

Attachments CEAA public Registry Requirements
Application of Section 35(2) Authorization (Application for
Authorization for Works or Undertakings Affecting Fish Habitat)

cc. M. McLean
D. McDonald
T. Wheaton
C. Myra
B. Petrie

002221

C0560-040

Paul G. Buxton P.Eng

P.O. Box 98
Annapolis Royal, B0S 1A0

Telephone 902 638 8108
Fax 902 638 3522

Fisheries and Oceans,
Habitat Management Division,
Maritimes Region,
P.O. Box 1006,
Dartmouth,
Nova Scotia,
B2Y 4A2

Mar. 28th 2003

Attention: Mr. Phil Zamora.

By Fax: 902 426 1489

Dear Mr. Zamora,

re: Whites Cove Blasting Plan

Further to our telephone discussions and your subsequent fax regarding the blasting plan for the Whites Cove quarry I can advise as follows:

I. Reference General Comment #2, Global Quarry Products letter of Jan. 28th 03 in response to Fisheries and Oceans - Habitat Management Division letter of Dec. 11th 02. With reference to the statement "this initial blast represents the most critical blast in relation to the marine environment and will be closely monitored" I can clarify as follows: The initial blast is seen as the most critical because the operational plan for the quarry places this initial blast at the closest distance to the marine environment. The quarry will be developed in a northerly and easterly direction away from the shore line and there is no intent to quarry south of the Whites Cove road.

002215

C0560-041

2. I agree that the statement on page 5 of the Blasting Plan is somewhat confusing. To clarify I can advise that all blasts will be monitored for concussion and vibration in accordance with the Permit issued by the NS Department of Environment and Labour (see Terms and Conditions Section 10 e). Further all blasts will be monitored to ensure that an overpressure of 100 kPa is not exceeded.

3. "Subsequent blasts will be designed on the information gathered from monitoring the initial blast".

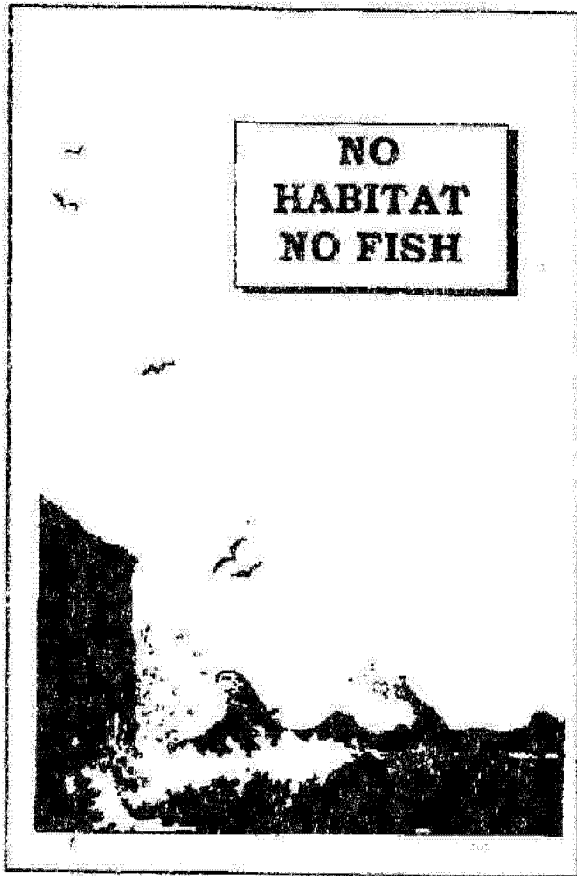
To Clarify. If the limits set out in the Terms and Conditions of the quarry Permit are exceeded or an overpressure in excess of 100 kPa is created by the initial blast then an immediate redesign would take place to lower the charge to meet the stipulated limits. However, if the limits were not exceeded in a statistically significant number of early blasts then a redesign for blasts further away from the marine environment could result in a larger charge being used. An increase in charge based on the results of the initial blast would not take place.

I trust that the above clarifies the issues to your satisfaction.

Yours Truly,

A handwritten signature in black ink, appearing to read 'Paul G. Buxton', written over the typed name below.

Paul G. Buxton



**NO
HABITAT
NO FISH**

**Fisheries and Oceans
Habitat Management
Division
Maritimes Region**

**Pêche et Océans
Division des gestion de
l'habitat
Région des Maritimes**

Pages to follow : 1

Date : 27 March 03

From Fax : 1-902-426-1489

From Voice # :

From: *Phil Zamora*

To: *Paul Buxton*

Fax # *902-638-3522*

**Habitat Management
Division, DFO
P.O. Box 1006
1 Challenger Drive,
5th Fl, Polaris Bldg.
Dartmouth, Nova Scotia
B2Y 4A2**

Notes: *Mr. Buxton*
*Please find attached paragraph from
 a response by Mr. Norman Cochrane, Service
 Branch, DFO.*
*Could you please clarify his
 misunderstanding.*
Thank you
Phil Zamora

002214

General Comment 2 (Response) – I do not fully understand the comment in the last sentence “.. this initial blast represents the most critical blast in relation to the marine environment and will be closely monitored.” Is this blast “most critical” because it will be the only blast closely monitored? (The blasting plan p. 5 seems to imply there will be 3 monitoring stations for the original blast and only one for subsequent blasts – will this be proximate (?) – the wording is unclear!). Or will this blast be unique in being closest to the shoreline or having larger charge weights? Certainly other points in the quarry area are about the same distance from the shoreline. The quarry operator also reserves the right to vary the charge size per hole as blasting objectives warrant to presumably greater than 45 kg/detonation. It is not clear exactly how “Subsequent blasts will be designed based on the information gathered from monitoring the initial blast” or “..all blasts will be designed to meet or exceed the parameters set forth in your Blasting Guidelines” based on data collected on the initial blast. For instance if ground velocities monitored during the initial blast are lower than those predicted from the empirical formulas does this justify modifying the formula for future predictions? (This might be eventually justifiable – but one should have more good quality data than that obtained from one proximate monitoring site during 1 shot to justify it. Depth of shot holes hence possible coupling will vary for future shots).

Site description of prospect description

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C0560-044

GQP Global Quarry Products

January 28, 2003

Mr. R. Petrie
District Manager – Yarmouth
Department of Environment and Labour
13 First Street
Yarmouth, Nova Scotia B5A 2S9

RE: White's Cove Quarry Blasting Plan – Addendum 1

Following are our response to the comments from Fisheries and Oceans Canada – Habitat Management division in their letter of December 11, 2002.

General Comment 1 – Third paragraph of referenced letter.

Response – Please refer to Drawing 1 and Figure 1 in our November 20, 2002 Blasting Plan. The horizontal distance between the ordinary high water mark and the closest explosive charge is 73 meters. This dimension is taken from Scotia Surveys Ltd. Plan No. D6153-02 dated September 20, 2002 – Plan of Quarry Site. Since under normal conditions, no or negligible water column would exist at the ordinary high water mark, this distance is twice the distance indicated in your Blasting Guidelines for the proposed weight of explosives [45kg]per delay from potential “fish habitat” as beginning at the original high water mark seaward. Permanent survey markers are located on-site if more specific measurements are required.

The location of the proposed initial blast is adjacent to the White's Cove intertidal zone- see Drawing 1. This is typical of the closest proximity that blasting will be done in relation to potential “fish and spawning” habitat. It should be noted that the White's Cove

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Bridgewater, NS

B4V 4A3

On-site measurements taken June 4, 2002 indicate an approximate intertidal zone of 91 meters from the original high water mark to low tide elevation. On-site intertidal transects of this particular intertidal zone indicate the upper zonation is primarily cobble substrate with a poorly developed intertidal community of marine organisms. This area lacked a distinct barnacle zone. The mid and lower zones are more stable, composed mainly of bedrock with thick mats of rockweed. Periwinkles, blue and horse mussels, hermit crabs and dog welks were observed in the mid zone with green crabs in the low shore zone. The sub littoral zone was comprised of a dense macroalgal community consisting largely of sugar kelp.

Considering the above, and to provide an added level of conservatism and as a mitigative measure, blasting is proposed to be conducted within 3 hours of low tide. This would provide an approximate 118 meters horizontal distance between the closest point of detonation and potential spawning habitat for most marine organisms. When feasible and considering atmospheric conditions, blasting will be conducted as close to the time of low tide to provide the greatest distance from the tide water column. If the blast can be conducted at low tide, an approximate 164 meters horizontal distance between the closest point of detonation and the water column can be achieved. In either case, the horizontal separation of the blast and potential spawning habitat exceeds the calculated 101 meters separation for the proposed 45 kg weight of explosives per detonation.

Other aspects of mitigation and monitoring of blasts will be addressed as part of the responses to the specific comments as appropriate.

General Comment 2 – Fourth paragraph of referenced letter

Response – The initial blast location is shown on Drawing 1 with details on hole locations, depths and initiation sequence in appendix 1 of the Blasting Plan. The initiation sequence has been revised - see - Proposed Slot 1 Individual sequence attached. This layout and accompanying details is for the proposed initial blast. This initial blast will be monitored for concussion and vibration at locations indicated on Map 2 in the Blasting Plan. Subsequent blasts will be designed based on the information gathered from monitoring the initial blast. Each blast design will likely be different in regard to number of holes, depth of holes, weight of explosives and as blasting moves further away from the marine environment. However, all blasts will be designed to meet or exceed the parameters set forth in your Blasting Guidelines. Again, this initial blast represents the most critical blast in relation to the marine environment and will be closely monitored.

Specific Comment 1 – What is the potential for disruption or harm to the seal colony identified in the report at Crowell's Cove?

Response – The seal colony is approximately 3 km from the blast site. Preliminary identification indicates the seal colony was Harbour Seals [*Phoca vitulina*]. Blasting is presently planned to be conducted through the year with a start-up frequency of once per week and once every two weeks as quarrying progresses. Literature research by our scientific advisor indicates little conclusive data has been published on potential effects

on marine mammals from blasting especially sub lethal effects. Therefore, mitigation will include no blasting within 500 meters of marine mammals or within visual contact from an observer using 7 x 35 power binoculars as stated in your blasting guidelines. Since the seal colony is approximately 3 km from the blast site, a significant, additional separation distance of 2500 meters will exist. The location of the seal colony will be monitored monthly during their breeding season. As indicated in the Blasting Plan, monitoring of concussion and vibration will be conducted for each blast and an onshore observer will be in place to identify the possible presence of marine mammals within 500 meters of the blast site. If marine mammals are sighted within the 500 meters zone, the blast will be delayed until the animals move out of the zone under their own volition as further described on Page 6 of the Blasting Plan.

Specific Comment 2 – The main explosive to be used is ANFO. The (blasting guidelines) state that ANFO explosives are not to be used in or near water.

Response – ANFO will be used and handled by trained blasters and delivered to the site in 25 kg polyethylene bags. ANFO has no water resistance and cannot be used in water. No blasting in water will be conducted. No loading of explosives will be done in the rain and only be used if the boreholes are dry. Blasting will be done with a minimum 118 meters separation from water. Environmental control structures (drainage channels and sediment retention ponds) will be in place between the blast site and the water. Generally, the explosive is completely consumed by the blast with no residue remaining. However, monitoring of surface water at the outflow from the sediment retention pond will be conducted monthly for general chemistry including nitrates.

Specific Comment 3 – The time delay of multiple explosive charges should be greater than 25 ms [Guidelines p. 9]. The Blasting Plan delay specifies exactly 25 ms between adjacent shot holes.

Response – The blasting guidelines states that the delay of multiple explosive charges should be greater than 25 ms.

The Proponent has engaged Dyno Nobel North America to advise on blasting procedures at White's Cove and they have advised that it is not possible to delay all multiple charges by 25 ms in a multiple row blast. This is because at 25 ms there would be too much time in between rows and ground movement would cut off downlines leaving explosives in the muckpile. Dyno Nobel has advised that they doubt the Department of Environment and Labour would permit such a set up due to the danger involved.

Dyno Nobel is of the opinion that the first blast plan submitted on November 18th 2002 would comply with the requirements of the guidelines.

However, the imitation sequence has been modified (see attached) to create a minimum delay of 8 ms. This figure (8 ms) is the figure used in the industry and is noted in the 17th edition of the ISSE Blaster's Handbook (Chapter 38 page 610) - "It has become a common practice in various regulations, criteria and project specifications to consider the maximum charge weight per delay that which detonates with in any given 8 ms time interval".

It is Dyno Nobel's expert opinion that the sequence attached will comply with Guideline 8- "No explosive is to be detonated in or near fish habitat that produces, or is likely to produce an instantaneous pressure change (i.e. overpressure) greater than 100 kPa (14.5 psi) in the swim bladder of a fish."

Dyno Nobel have calculated that 100.98 kPa would be generated from 50 kgs at a 35 meter distance. The blast in question will be 118 meters distant.

It is also Dyno Nobel's expert opinion that the charge of 45 kg and the sequence attached will comply with Guideline 9- "No explosive is to be detonated that produces, or is likely to produce a peak particle velocity greater than 13mms.s-1 in a spawning bed during the period of egg incubation."

Specific Comment 4 – While the 35.6 m set back criterion (ignoring "beaming" effects above) for the approximate shot weight appears to be met for both the initial detonation site and for the projected region of the quarry. The setback distance for the 13 mms maximum ground velocity criterion for spawning habitat is about 101 m (using a 45 kg charge and interpolating using a square root dependence on charge size and data Guideline Table2) and appears not to be met by the proposed initial blast site using the high water mark located 80 - 85 m distant.

Response – As set forth in the response to General Comment 1, the separation distance, especially in relation to potential spawning habitat has been reassessed. This reassessment has taken into consideration the composition of the intertidal zone and tidal cycles. We therefore propose to increase the separation distance between the blast site and a defined water column. The timing of detonations will be coordinated with tidal cycles. This includes limiting blasting to within 3 hours of low tide and considering the least productive upper tidal zone of the intertidal area. This should provide adequate separation for pelagic and ground fish that require a water column and from potential spawning habitat. This provides an approximate 118 meters separation from the blast site which is greater than the calculated 101 meters separation for a 45 kg weight of explosive per detonation. Additionally, when practical and considering atmospheric conditions, blasting will be conducted as close to the time of low tide as possible to provide the greatest separation from the blast and a defined water column. If the blast can be conducted at low tide, an approximate 164 meters horizontal distance between the closest point of detonation and the water column can be achieved.

As stated in your Blasting Guidelines, little or no data exists concerning effects of blasting on shellfish and crustaceans, either lethal or sub lethal. Also, our literature research indicated published data on the effects of blasting on spawning and nursery habitat in the marine environment is limited. We therefore propose to monitor the initial blast using live lobster and a pelagic fish species with a swim bladder in containers on land or in cages within the water column. This monitoring would be conducted on site in the lower intertidal/subtidal zone or on land.

Specific Comment 5 – Will fly-rock, potentially hazardous to wildlife, be generated by the blasting?

Response – Fly-rock will be controlled by using good blasting practices including the correct length of collar, proper stemming material (in this case crushed rock), avoiding loading into crevices or incompetent material, measuring proper burden and spacing (especially face holes) with a laser profiler and using proper delay timing. With a four inch- diameter hole, fly-rock should not travel more than 100 feet from the blast site and would be considered normal forward face-rock movement. Upward movement of rock 50 to 75 feet. Since the blast site and surrounding area will be completely cleared of vegetation, direct effects from fly-rock on wildlife are expected to be negligible. Monitoring of blasts will be done with a video camera.

Specific Comment 6 – One should note that the 35.6 m set back criterion is computed for a 100 kPa pressure pulse. Such a pulse has a high probability of lethal effects on swim bladdered fish, especially at shallow water depths. Sub-lethal effects are not considered. This is a very severe criterion and the report has not considered this.

Response – We agree that swim bladdered fish could be present in the intertidal and sub-tidal zone. As previously discussed the separation distance from the blast site has been increased to approximately 118 meters from a defined water column. Mitigation of potential effects on swim bladdered fish will be achieved by limiting blasting to within 3 hours of low tide to ensure no fish are with in the separation zone. Monitoring of effects of blasting on marine organisms is proposed as mentioned in the Response to Specific Comment 4.

Specific Comment 7 – No mention is made of the projected frequency of future blasting (one per day – once per week – sporadic, on demand?) Some quarry operations are both noisy and of a more or less continuous nature, such as drilling shot holes. Have these aspects been assessed? They should have a bearing on the effects to near-by colonies of seabirds or marine mammals.

Response – The projected frequency of blasting is approximately once per week during quarry start-up and approximately once every two weeks as quarrying progresses. Noise from typical quarry operations is restricted to the range of 50 to 65 dB at the property line, e.g. from drilling, rock processing, hauling, loading etc. It should be noted that unattenuated noise from a rural highway could reach approximately 75 dB on clear sunny days. Mitigation of typical quarry noise in relation to the marine environment will be accomplished primarily through attenuation. The actual physical plant location of the quarry is proposed approximately 250 meters from the shoreline. A minimum 30 meters environmental preservation zone is proposed along the shoreline. Also, a phased program of land restoration is proposed to function as noise attenuation buffers as well as wildlife habitat. Studies indicate a “rough grass” buffer can absorb sound at the rate of 0.5 to 3.0 dB, depending upon frequency per 30 meters. In theory, noise from the quarry operation could be conservatively reduced by 5 to 10 dB when it reaches the shoreline.

As stated in the November 20, 2002 Blasting Plan, monitoring of sound and vibration will be conducted for every blast that would include pre and post (background noise) data gathering. It should be noted that during our on land coast line breeding bird survey and

our on water coastal observations, no breeding seabird colonies, heron rookeries, osprey, bald eagles or any provincially designated at risk species were identified along the coastline. As discussed in the Response to Specific Comment 1, the seal colony located 3 km away at Crowell's Cove is not anticipated to be effected by noise from typical quarry operations due to sound attenuation through primarily forested areas. The nearest land based licensed aquaculture site is 2.5 km away in Mink Cove while the nearest water based aquaculture site is 8 km away south of Tiddville.

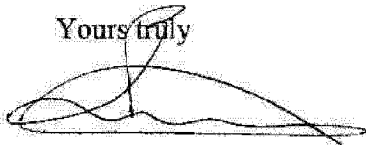
Specific Comment 8 – Blasting within 500 meters of marine mammal.

Response – As indicated on Page 6 of the Blasting Plan and in accordance with the Blasting Guidelines, no explosives will be knowingly detonated within 500 meters of any observed marine mammal. As a mitigation measure, an onshore observer would be posted 1 hour prior to blasting and be equipped with 7 x 35 power binoculars. If marine mammals are sighted the blast coordinator will be notified and the detonation will not take place until the mammals move out of the 500 meter “safe zone” area under their own volition and an “all clear” call is given. If the mammal / mammals are not sighted a second time, the blast would resume thirty minutes after the last sighting. The observer will conduct monitoring of the area for at least one half hour after detonations are complete. Any distressed mammals sighted during this post detonation time would be reported to the area Department of Fisheries and Oceans.

In summary, the proposed initial and subsequent blasts will be conducted to meet or exceed the separation distances specified in Tables 1 and 2 of the Blasting Guidelines. By meeting or exceeding the separation distances, less than 100 kPa for fish habitat and less than 13 mm *sec⁻¹ for spawning habitat guideline criteria should be achieved. Also, no explosives will be knowingly detonated within 500 meters of any observed marine mammals. Mitigation measures and monitoring would be conducted as previously stated. No blasting is proposed in the water.

I trust this answers your questions.

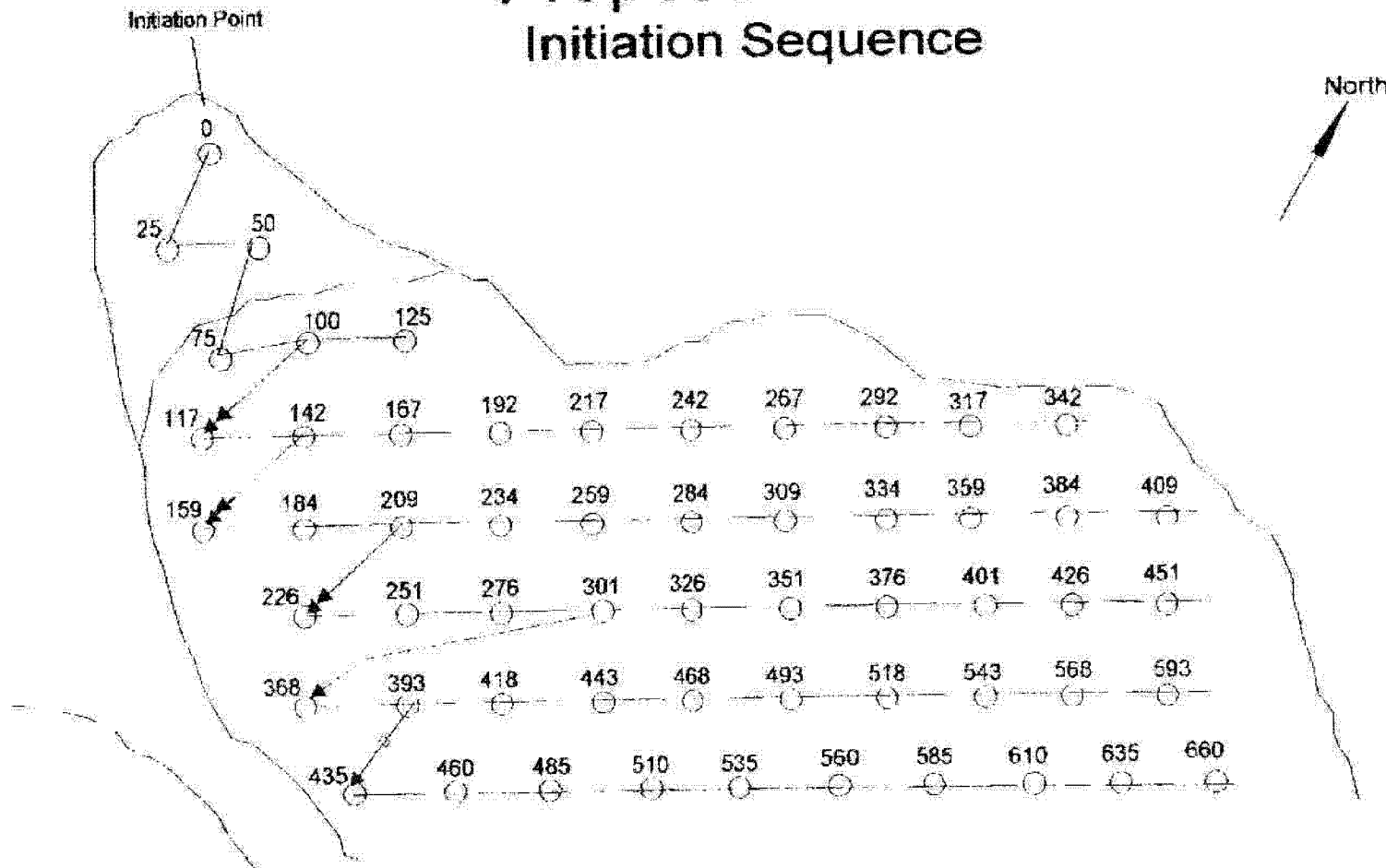
Yours truly



Paul Buxton
Project Manager

cc: Mr. James Ross Section Head
Habitat Management Division Fisheries and Oceans

Proposed Shot 1 Initiation Sequence



Surface timing in milliseconds

- Nonel Snapdet 25/500ms
- ← Nonel Snapline 17ms
- ◀ Nonel Snapline 42ms
- ◄ Nonel Snapline 67ms

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Fisheries and Oceans
Canada

Pêches et Océans
Canada

Habitat Management Division
P.O. Box 1006
Dartmouth, NS
B2Y 4A2

DEPT. OF THE ENVIRONMENT

DEC 13 2002

YARMOUTH DISTRICT
OFFICE
YARMOUTH, N.S.

Your file: /s/

Our file: /s/

December 11, 2002

Mr. R. Petric
District Manager - Yarmouth
Department of Environment and Labour
13 First Street
Yarmouth NS
B5A 2S9

Dear Mr. Petric:

Fisheries and Oceans, Canada, Habitat Management Division (DFO-HMD) has reviewed the Whites Cove Blasting Plan submitted by Nova Stone Exporters Inc. dated November 18, 2002.

The information provided is inadequate to give DFO-HMD a sufficient level of confidence that fish, marine mammals, and fish habitat will be adequately protected from the effects of blasting operations at the Whites Cove quarry.

It is important the proponent understands that the mathematical formulas in the Blasting Guidelines are not designed to give extremely high precision to calculated criteria, but rather provide the framework for a more detailed analysis. For instance, the exact location of the shot site in relation to the water column is not considered. This fact needs to be addressed and makes it all the more important that the proponent ensures a conservative approach with adequate mitigation of the effects of the blast and monitoring to ensure that the mitigation is effective.

It was not possible to ascertain from the documentation submitted if the blasting plan is relevant to the initial blast only (which is described in some detail), or is to be considered a blanket document covering all aspects of subsequent blasting operations at the quarry. Some portions of the plan seem to indicate it applies only to the initial blast; other portions give the impression it is to be considered a blanket plan. DFO-HMD requires clarification of the intent prior to completing our review.

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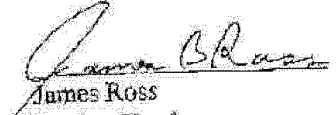
Bob Petrie

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December 11, 2002

More specific comments on the blasting plan are contained in the table following. Once the requested information is received, DFO-HMD will re-consider the blasting plan in light of all the additional information.

Sincerely,


James Ross
Section Head
Habitat Management Division

Attachment

cc: T. Wheaton

Fisheries and Oceans, Canada, Habitat Management Division (DFO-HMD) specific review
of the Whites Cove Blasting Plan submitted by Nova Stone Exporters Inc., dated November 18, 2002.

Area of concern	Specifics of DFO's concern	Need for information
seal colony	What is the potential for disruption or harm to the seal colony identified in the report at Crowell's Cove?	<p>How far is the colony from the blast site?</p> <p>What species were present?</p> <p>What is the seasonal nature of the blasting?</p> <p>Is blasting to be concentrated in time or to occur throughout the year?</p> <p>What mitigation will be in place to protect the colony?</p> <p>What monitoring will be implemented to ensure the mitigation is effective?</p> <p><i>Blasting may have to be restricted in specific months, seasons, depending on specific species present. For instance, if there were a harbour seal breeding colony, blasting may need to be restricted during May and June.</i></p> <p><i>There is evidence that seals are present to some degree year round adjacent to the site.</i></p>
ammonium nitrate-fuel oil (ANFO)	The main explosive to be used is ANFO. The [blasting guidelines] state that ANFO explosives are not to be used in or near water.	<p>What mitigation will be in place to protect against ANFO entering the water?</p> <p>What monitoring will be implemented to ensure the mitigation is effective?</p> <p>Where does surface runoff go?</p>
Timing of multiple delays	The time delay of multiple explosive charges should be greater than 25 ms (Guidelines p. 9). The blasting plan delay specifies exactly 25 ms between adjacent shot holes (blasting plan Fig. 2) but more than one line of shot holes are detonated simultaneously. This amounts to a total of 57 shots over 660 ms or an average time delay of only 11.8 ms. One pair of shots are only, in theory, 1 ms apart (367 and 368 ms delays	<p>How will this effect be avoided, or what mitigation will be in place to protect against these effects?</p> <p>What monitoring will be implemented to ensure the mitigation is effective?</p>

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	respectively). This is sufficiently close to cause addition (approximate doubling) or "beaming" of excess acoustic pressures in particular directions. For a spherically spreading pressure wave this would approximately double the range for a given pressure effect compared to a single isolated detonation.	
35.6m setback	While the 35.6 m set back criterion (ignoring "beaming" effects above) for the approximate shot weight appears to be met for both the initial detonation site and for the projected region of the quarry. The setback distance for the 13 mm/s maximum ground velocity criterion for spawning habitat, is about 101 m (using a 45 kg charge and interpolating using a square root dependence on charge size and the data from Guidelines Table 2) and appears not to be met by the proposed initial blast site using the high water mark located 80 - 85 m distant. The intertidal and subtidal zone in this area is utilized by lobster, scallop, mussels, various species of groundfish, as well as pelagic species such as mackerel. Given the habitat features present and the level of commercial fishing success, it is expected that this area provides spawning, nursery, feeding, shelter and migration areas for the aquatic species noted.	DFO-HMD requires more detailed information to ascertain the impact of the blast(s) or redesign (such as widening of the setback) to ensure that negative impacts will not occur to the se species.
Fly rock	Will fly-rock, potentially hazardous wild life, be generated by the blasting?	How far will fly rock travel? What is the danger to marine mammals? What mitigation will be in place to protect against these effects? What monitoring will be implemented to ensure the mitigation is effective?
Sub-lethal effects of blast	One should note that the 35.6 m set back criterion	It is likely there are swim-bladdered fish in

	<p>is computed for a 100 kPa pressure pulse. Such a pulse has a high probability of lethal effects on swim bladdered fish, especially at shallow water depths. Sub-lethal effects are not considered. This is a very severe criterion, and the report has not considered this.</p> <p>As mentioned previously, the intertidal and subtidal zone in this area is utilized by lobster, scallop, mussels, various species of groundfish, as well as pelagic species such as mackerel. Given the habitat features present and the level of commercial fishing success, it is expected that this area provides spawning, nursery, feeding, shelter and migration areas for the aquatic species noted.</p>	<p>proximity to the site.</p> <p>What mitigation will be in place to protect against these effects?</p> <p>What monitoring will be implemented to ensure the mitigation is effective?</p>
Effects of sound and vibration	<p>No mention is made of the projected frequency of future blasting (one per day – once per week – sporadic, on demand?). Some quarry operations are both noisy and of a more or less continuous nature such as drilling shot holes. Have these aspects been assessed? They could have a bearing on the effects to nearby colonies of seabirds or marine mammals.</p>	<p>What levels of sound and vibration are anticipated in the waters adjacent to the blast site?</p> <p>What mitigation will be in place to protect against these effects?</p> <p>What monitoring will be implemented to ensure the mitigation is effective?</p>
Blasting within 500m of a marine mammal	<p>This criteria is contained in [blasting guidelines]</p>	<p>What mitigation will be in place to protect against this possibility?</p> <p>What monitoring will be implemented to ensure the mitigation is effective?</p>

002205

Paul G. Buxton P.Eng.

P.O. Box 98
Annapolis Royal, BOS 1A0

Telephone 902 638 8108
Fax 902 638 8522

Nova Scotia Department of Environment and Labour,
13, First Street,
Yarmouth,
Nova Scotia,
B5A 1S9

Nov. 20th 2002

Attention: Mr. Robert Petrie, District Manager.

Dear Mr. Petrie,

re: Whites Point Quarry - Blasting Plan

Please find attached a copy of the Blasting Plan, revised in response to letters from DFO dated Sept. 30th and Oct. 30th 2002, prepared for Global Quarry Products and dated November 18th 2002.

If you have any questions please call.

Yours Truly,



Paul G. Buxton P.Eng.

cc: Mr. Jim Ross, DFO

✓ FILE

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C0560-058

Paul G. Buxton P.Eng.

P.O. Box 98
Annapolis Royal, B0S 1A0

Telephone 902 638 8108
Fax 902 638 3522

Fisheries and Oceans Canada,
Habitat Management Division,
P.O. Box 1006,
Dartmouth,
Nova Scotia,
B2Y 4A2

Nov. 20th 2002

Attention: Mr. Jim Ross, Section Head, Habitat Management Division.

Dear Mr. Ross,

re: Whites Point Quarry - Blasting Plan

Please find attached two copies of the Blasting Plan, revised in response to your letters of Sept. 30th and Oct. 30th 2002 to Mr. Robert Petrie NSDOEL, prepared for Global Quarry Products and dated November 18th 2002.

If you have any questions please call.

Yours Truly,



Paul G. Buxton P.Eng.

cc: Mr. Bob Petrie

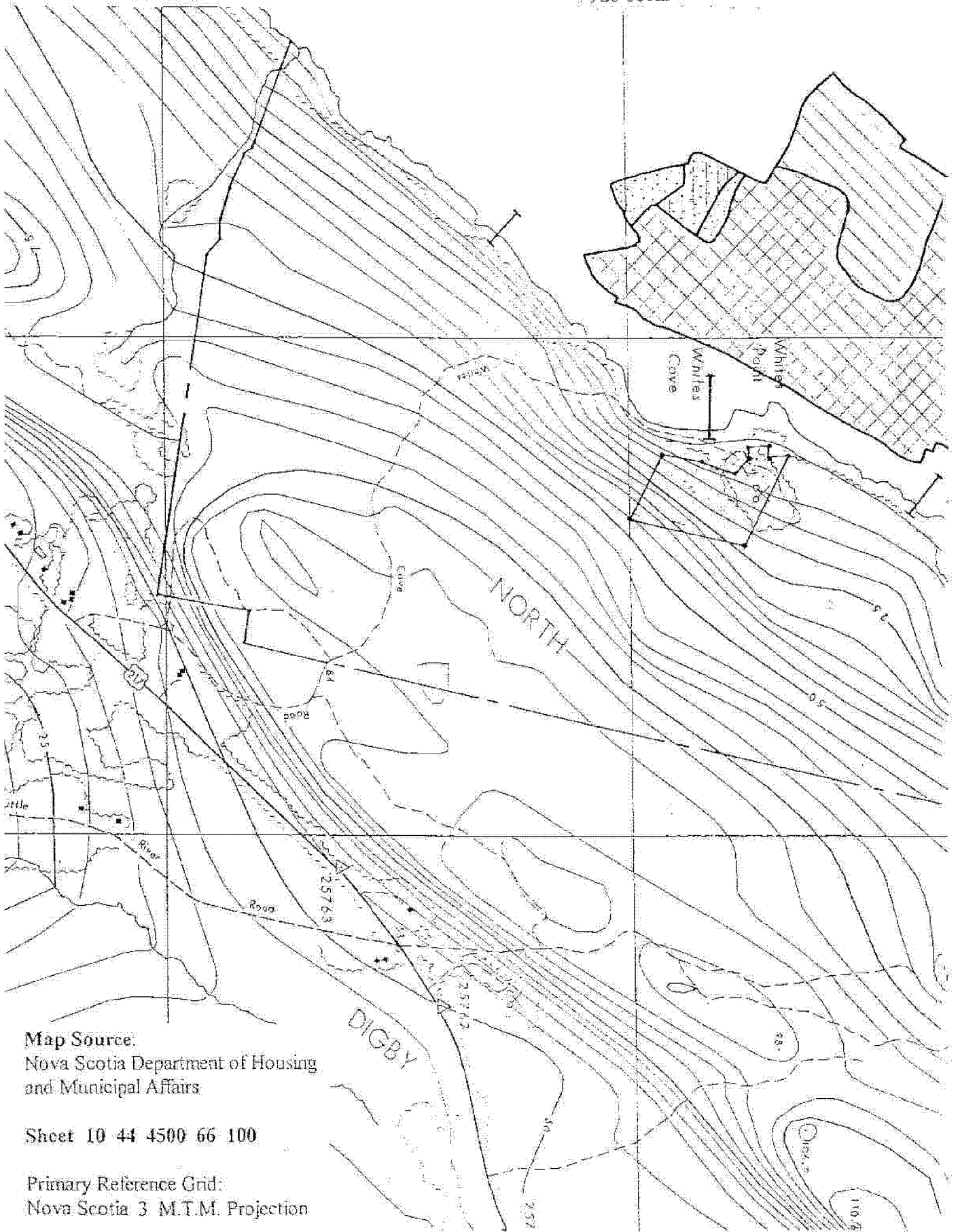
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4 925 000m

4 926 000m



Map Source:
Nova Scotia Department of Housing
and Municipal Affairs

Sheet 10 44 4500 66 100

Primary Reference Grid:
Nova Scotia 3 M.T.M. Projection

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C0560-060

WHITES POINT QUARRY

BLASTING PLAN

**Nova Stone Exporters Inc.
November 18, 2002**

002190

C0560-061

WHITES POINT QUARRY - BLASTING PLAN

Introduction.

An initial blast is proposed to be conducted by Nova Stone Exporters Inc. on the approved 4 hectare quarry site (NSDOE&L Approval No. 2002-026397) at Whites Point, Digby Neck, Digby County in the community of Little River. The approved 4 hectare quarry site is within a larger 155 hectare site as shown on **Map 1**. The location of the specific land blast area is shown on **Drawing 1**. No blasting is proposed in marine waters.

Site Description

The land is composed of the Jurassic North Mountain Basalt along the Bay of Fundy. The basalt rock is well exposed along the coastline and continues seaward into the Bay of Fundy. Outcrops of basalt rock are evident throughout the steeply sloping site. Vegetative cover consists mainly of softwoods. An intermittent watercourse flows down the slope of the North Mountain into a coastal bog and into the Bay of Fundy. This intermittent watercourse is approximately 700 meters north of the four hectare quarry site. This particular watercourse was determined by the Department of Fisheries and Oceans not suitable as fish habitat.

The following description of the intertidal zone is extracted from Michael Brylinsky's report entitled "Results of a Survey of the Intertidal Marine Habitats and Communities at a Proposed Quarry Site Located in the Vicinity of Whites Cove, Digby Neck, Nova Scotia" 30 June 2002. The intertidal zone along the Bay of Fundy shore bordering the property is approximately 3.1 km and consists of a predominately rocky shoreline dominated by basaltic bedrock. Fine sediments are scarce resulting in a lack of sandy beaches and mudflats. An exception to this is the beach within Whites Cove comprised of small boulders at the low tide mark to cobble along the high tide mark. The lack of sediment and the presence of hard substrate provides ideal conditions for the establishment of macroalgal communities which are very well developed along the entire shoreline of the property. Three transects (see **Map 1**) were conducted within the intertidal zone, with one of the transects in Whites Cove. The results of the survey indicate that the intertidal marine communities and habitats present along the shoreline of the property are typical of the rocky shoreline areas of the Lower Bay of Fundy. The predominant habitat and community type is a rockweed community dominated by *Fucus* and *Ascophyllum*. This community is very well developed along the entire shoreline and appears to be in a healthy, prolific condition. There does not appear to be any particularly unique or extraordinary characteristics associated with this shoreline. Local harvesting of periwinkles was observed but no commercial rockweed leases are known to be in place for this area.

The nearshore surficial geology (see **Map 1**) and bathymetry off Whites Cove and Whites Point was investigated in June 2002. Canadian Seabeds Research Ltd. conducted

the investigations. Side scan sonar, video transects and bottom samples were taken in this area. Following are descriptions of the bottom characteristics. As shown on **Map 1**, the area with a thin veneer of sand overlying bedrock also has outcrops of bedrock and boulders observed. The area of surficial sediments consists mainly of coarse to very coarse grained sand. Grab samples in the area contained sand and 15% shell fragments. No sediment bedforms were visible. This area is characterized by a high abundance of boulders ranging in size from less than 1 meter to five meters in diameter. The majority of the area is comprised of bedrock. The bedrock observed is a massive, irregular type with occasional joints and fractures. Boulders are also common throughout this area. Water depths below Chart Datum (LLWLT) in the area of investigation range to over 30 meters. These bottom conditions provide good habitat for lobster which generally occur from 1 meter below low tide seaward. Bottom samples and video transects also revealed the presence of sea cucumbers, sea urchins, crabs, and starfish, all food sources for lobster. Pelagic fish such as Herring are also present in the nearshore shallow waters (less than ten meters) and offshore to depths of 200 meters. Herring nets along the nearshore waters were observed during the summer of 2002.

Marine mammal and seabird surveys were conducted during July and August along the coast and nearshore (approximately 1 nautical mile offshore). The surveys extended from East Ferry to Sandy Cove along the Bay of Fundy coast and nearshore. Frequency of the surveys was once a week for a total of nine trips. No endangered Right Whales were observed during these trips, however, three Minke Whales were sighted south of Whites Cove. A significant seal colony was observed in the vicinity of Crowells Cove north of the quarry site and Harbour Seals were frequently observed in the waters along the shoreline in Whites Cove and off Whites Point. Records from a local whale watching cruise vessel indicate little whale watching activity along the coast near the quarry site. However, an area approximately five nautical miles offshore just east of the existing inbound shipping lane produced good whale sightings comprising approximately 60% Finback, 30% Humpback, and 10% Right Whales during the first weeks of August 2002. Seabirds observed along the coastline were mainly Double-crested Cormorants, Common Eider, and Black and White-winged Scooters.

As indicated on **Drawing 1**, an initial blast is proposed within the approved four hectare quarry site. Following are particulars relating to the initial blast.

Technical Design

The technical blast design (**Appendix A**) was prepared by Paul Caza, Site Manager for Dyno Nobel Ltd. All Dyno Nobel blasters receive intensive training in safety, blast design, handling of explosives, etc. Dyno Nobel blasters have a minimum of Class 2 certification for the province of Nova Scotia. As shown in Appendix A, **Figure 1**, the drill pattern for the proposed initial shot 1 would be 9 feet by 9 feet with hole depths as shown. Explosives would be mostly An/FO with a primer and initiated with 25/500 Snapdets and delayed with Snaplines. Initiation sequence is shown on **Figure 2**, Appendix A. The load per hole or delay is about 100 lbs or 45kg. An/FO loads at 4.6 lbs/ft. As shown in **Table 1**, Appendix A. Using the Holmberg Equation, and a K factor

of 400 (based on actual blast results in a basalt quarry in the Digby area), with the nearest structure over 1120 meters from the blast area and a slightly larger weight of explosive, the predicted ground vibration would be 1 mm/s. This is within the 12.5 mm/s limit set forth in Table 2 of the Approval document at the nearest structure not located on the site.

Also, concussion is estimated to be 128 dBA or less within 7 meters of the nearest structure not located on the site as set forth in Table 2 of the Approval document. Dyno Nobel's experience at other rock quarries indicates noise levels of less than 128 dBA from the area of detonation are routinely achieved, even with more significant explosive charges. More specifically, a recent rock blast using a 4 inch hole loaded at 214 kg/delay with an average collar of 7 feet produced 88 decibels at 1,460 meters and 122.4 decibels at 420 meters. In this case, the location of the blast area is approximately 1120 meters from the nearest structure. Existing site conditions will further reduce sound levels from the source to receiver. Noise will be attenuated by the distance from the source, the upslope change in elevation (over 65 meters), and the predominate evergreen tree cover. Under certain conditions, research indicates a reduction of 40 decibels can occur over a distance of 300 meters from the source. Also, since the site is made up of predominately evergreen vegetation, the characteristics of evergreen trees have the ability to screen out the sound levels most sensitive to human ears. Studies indicate noise can be reduced by 7 decibels by a 30 meter width of tree planting. Finally, as the quarry operation progresses, the rock faces will deflect sound waves upward thus dissipating the noise as compared to a more direct horizontal transmission of sound waves.

The frequency of monitoring will be every blast for ground vibration and concussion.

Pre-Blast Survey

The proposed Facility (four hectare quarry) including the initial blast area, is not located within 800 meters of any structure as defined in 1j) of the Approval document (see **Map 2**). Therefore, a pre-blast survey, including a water quality analysis of all structures within 800 meters of the initial blast and subsequent blasts within the four hectare quarry will not be conducted at this time. Also, paragraph 9biii) of the Approval document indicates the Approval Holder shall not blast within 800 meters of the foundation or base of a structure located off site. This was mentioned to a NSDOE&L inspector while on-site and agreed a pre-blast survey was not required for the four hectare quarry.

Climate Conditions

Before conducting any blasting, an assessment of climatic conditions will be carried out by calling the Greenwood Weather Service (902) 765-5040. Also, since weather conditions on-site can change rapidly along the Bay of Fundy, no blasting will be conducted if there is a thermal atmospheric inversion, low cloud cover, or fog conditions present or seen to be approaching.

Time of Blasting

No blasting will be conducted on Sunday, on a statutory holiday prescribed by the Province, or on any day between 1800 and 0800 hours.

Monitoring

Nova Stone Exporters Inc. (the Approval Holder) will have a third party monitor the initial blast and all subsequent blasts for concussion and ground vibration to ensure the limits in Table 2 paragraph 10 of the Approval document are not exceeded. Proposed monitoring stations for the initial blast will be located as indicated in Table 2. Two additional monitoring stations are proposed for the initial blast. The location of the three proposed monitoring stations are shown on **Map 2**.

Reporting

A monthly summary of results of monitoring for concussion and ground vibration will be submitted to the NSDOE&L.

Guidelines – Fishery Waters

All blasting will be conducted in accordance with the Department of Fisheries and Oceans (DFO) “Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters” – 1998. As shown on **Drawing 1**, the proposed minimum setback is 35.6 meters from fish habitat (ordinary high water line) and indicated as a “no blast zone”. This is based on Table 1 page 15 of the aforementioned “Guidelines” for an explosive charge of 50 kg confined in rock substrate. Actually, the proposed weight of explosive is less than 50 kg per delay and the setback distance is greater than 35.6 meters from fish habitat to the centre of detonation. Using Table 1 and the equation in Appendices II and III of the “Guidelines” to calculate the pressure transmitted to the water medium by the explosive charge (less than 50kg and at a distance of over 35.6 meters), the pressure generated would be less than 100kPa. Any blasting during spawning season for species such as lobster and herring will be conducted in accordance with Table 2 of the “Guidelines”. This procedure will be used for all subsequent blasts to ensure pressure of less than 100kPa is transmitted to the fishery waters.

Marine Mammals

Some studies indicate excessive noise may have adverse effects on marine mammals, especially whales. Effects on hearing which in turn can interfere with breeding activities, locating food, detecting predators, communication, migratory paths, and abnormal behavior have been reported when whales are exposed to high sound levels. Other studies such as those conducted by the U.S. Navy on Low Frequency Active Sonar contend sound pressure levels of 180 decibels are acceptable. Also, experiments have been conducted to induce noise of up to 200 decibels to deter marine mammals from

finfish aquaculture sites and certain types of fishing nets. Thus, the scientific debate continues concerning the effect of noise on marine mammals and appears to be inclusive.

To address potential concerns regarding noise and marine mammals, in relation to the proposed blasting activities, a 500 meter observation zone (500 meter safety radius from the detonation area) – see **Map 2** shall be established as suggested in “Factsheet – Blasting- Fish and Fish Habitat Protection” Department of Fisheries and Oceans – Newfoundland Region, 10/12/2002 in relation to marine mammals. An onshore observer shall be in place at least one hour prior to the start of the scheduled blasting to identify the possible presence of marine mammals within this zone. This observer shall remain in place until at least one half hour after detonations are complete. The observer will wear polarized sunglasses, be equipped with binoculars, and a two way radio or cellular phone to communicate with the blast coordinator. If threatened or endangered marine mammals are sighted in the safety zone, the blast coordinator will be notified and the detonation will not take place until the animals move out of the safety radius under their own volition and an “all-clear” call is given. If the animal/animals are not sighted a second time, the blast would resume thirty minutes after the last sighting.

As research continues regarding possible effects of noise on marine mammals, the above procedure will be reviewed from time to time with the Habitat Management Division of the Department of Fisheries and Oceans.

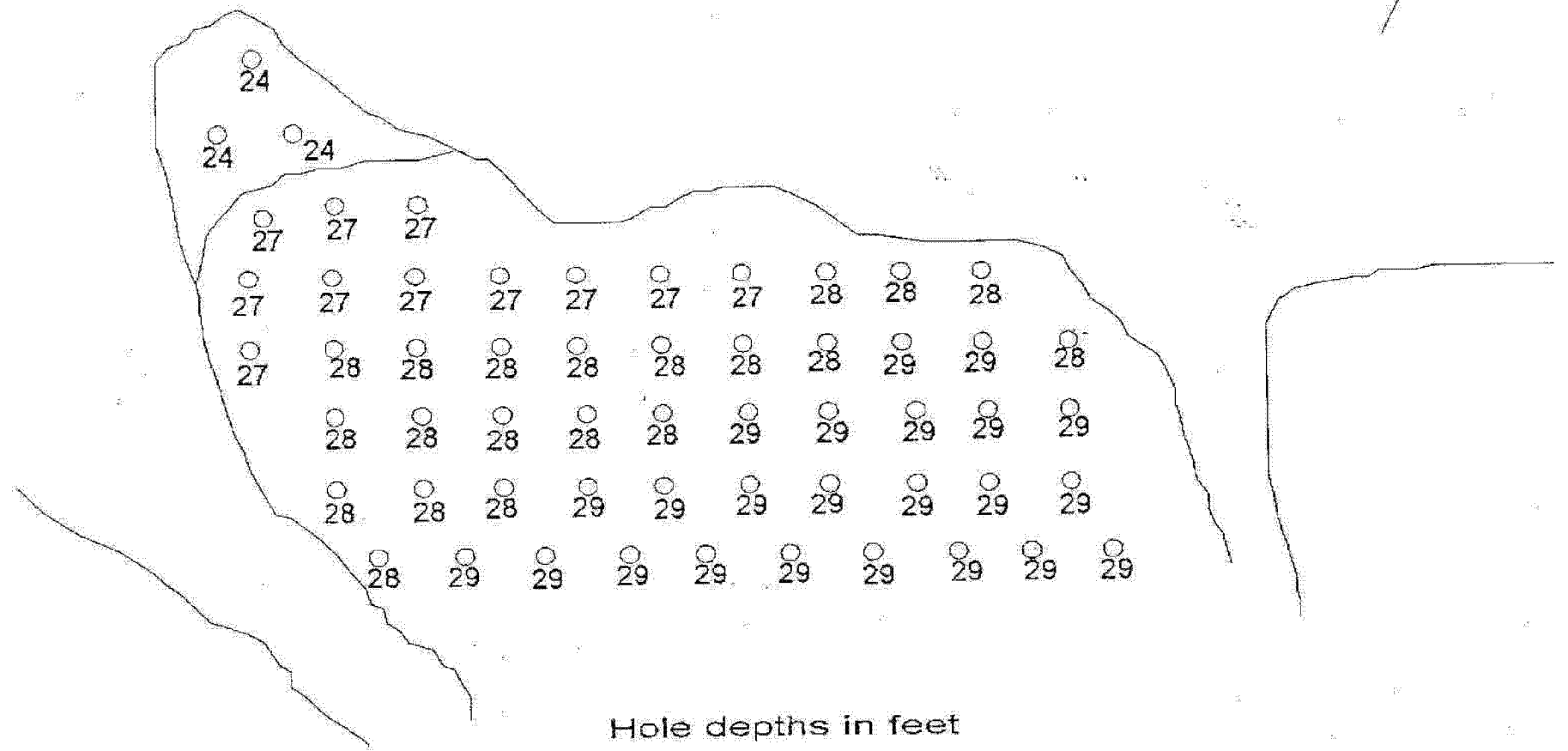
Environmental Protection

An environmental protection plan specific to the initial blast area is shown on **Drawing 2**. Prior to drilling or blasting, environmental controls including an earth berm and straw bales will be installed as shown on the drawing. Any runoff from the blast area will be directed to the controlled drainage flow and into a sediment retention area. Any effluent from the sediment retention area discharged into the natural surface drainage will be monitored at the location indicated on the drawing. Monitoring will be conducted as outlined in Table 1 page 7 of the Approval document for Total Suspended Solids (TSS) and pH. Maximum TSS will be 50 mg/l (grab sample) and pH within levels of 5 – 9. Frequency of monitoring will be weekly at the settling pond outlet. A monthly summary of results will be submitted to the NSDOE&L.

Proposed Shot 1 Hole Depths



11/15/2002 10:09 19026658520 DYNO NOBEL FAVORITE 614

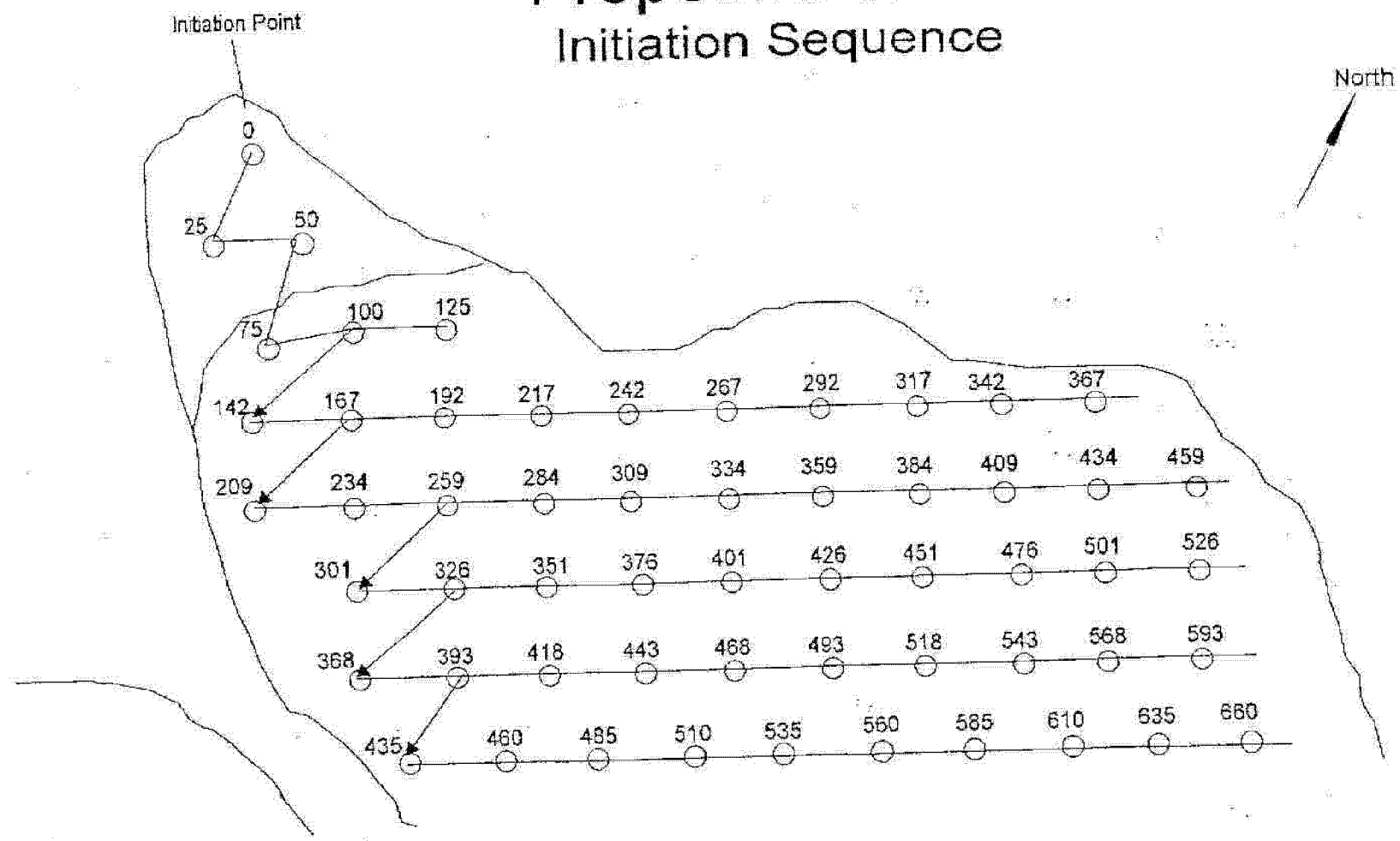


Hole depths in feet
 3 feet subdrill included in cut
 Approximately 56 Holes
 Drill Pattern 9 feet x 9 feet
 Hole diameter 4 inches

002197

Figure 1

Proposed Shot 1 Initiation Sequence



Surface timing in milliseconds
— Nonel Snapdet 25/500ms
← Nonel Snapline 42ms

002198

Figure 2



penete = 1.3

Diamètre du trou mm	Diamètre du produit mm	Densité g/cc	Charge/m Kg	Charge m	Charge totale Kg	Distance Horizontale m	Profondeur trou m	Profondeur géo. m	K	Phi	Vibration mm/s
102	102	0.85	6.95	10.0	69.46	1120	9	0	400	0.01	1
102	102	0.85	6.95	10.5	72.93	1120	9	0	400	0.01	1
102	102	0.85	6.95	11.0	76.40	1120	9	0	400	0.01	1
102	102	0.85	6.95	11.5	79.87	1120	9	0	400	0.01	1
102	102	0.85	6.95	12.0	83.35	1120	9	0	400	0.01	1
102	102	0.85	6.95	12.5	86.82	1120	9	0	400	0.01	1
102	102	0.85	6.95	13.0	90.29	1120	9	0	400	0.01	1
102	102	0.85	6.95	13.5	93.77	1120	9	0	400	0.01	1
102	102	0.85	6.95	14.0	97.24	1120	9	0	400	0.01	1
102	102	0.85	6.95	14.5	100.71	1120	9	0	400	0.01	1
102	102	0.85	6.95	15.0	104.18	1120	9	0	400	0.01	1
102	102	0.85	6.95	15.5	107.66	1120	9	0	400	0.01	1
102	102	0.85	6.95	16.0	111.13	1120	9	0	400	0.01	1
102	102	0.85	6.95	16.5	114.60	1120	9	0	400	0.01	1
102	102	0.85	6.95	17.0	118.08	1120	9	0	400	0.01	1
102	102	0.85	6.95	17.5	121.55	1120	9	0	400	0.01	1
102	102	0.85	6.95	18.0	125.02	1120	9	0	400	0.01	1
102	102	0.85	6.95	18.5	128.49	1120	9	0	400	0.01	1

1120 meter Horizontal distance is the approximate distance to the nearest house.

Table 1



Habitat Management Division
P.O. Box 1006
Dartmouth, Nova Scotia
B2Y 4A2

Your file Votre référence

Our file Notre référence

October 30, 2002

Mr. R. Petric
Nova Scotia Department of Environment and Labour
13 First Street
Yarmouth, Nova Scotia
B5A 1S9

Dear Bob:

RE: Whites Cove Quarry – Blasting Plan

I received the additional information you faxed us today on the Whites Cove quarry blasting plan. The individual I rely on to provide advice on mammals is not available this week, so I can't provide you comments until sometime next week at the earliest.

However, I don't wish to approach him with the additional information as it still has not addressed the proponent's responsibilities adequately. Specifically:

- there is no indication of what the bottom is made up of (see my letter to you Sept. 30, 2002).
- According to clause 10 of the Approval to Construct and Operate - Quarry (2002-026397), we expected the following information to accompany a complete blasting plan:
 - (10 - a) assurance from the "qualified person" that the ground vibration and air concussion limits can be achieved
 - (10 - b) water quality analysis
 - (10 - c) assurance that the proponent will undertake weather monitoring and how it will be done
 - 10 - d) acknowledgement that there will be no blasting on Sundays or statutory holidays or between 1800 and 0800 hrs daily
 - (10 - e,f) specific and adequate plan for monitoring the blast
 - (10 - h) acknowledgement that the proponent will comply with the (Blasting Guidelines)
 - 10 - i) verification that the blast design will not have an adverse effect on marine mammals in the area.

.../2

Canada



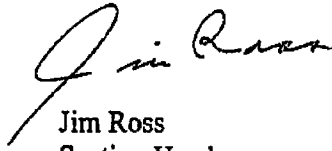
Mr. R. Petrie

-2-

October 30, 2002

When we receive a complete package we will proceed with a review of this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Ross". The signature is written in a cursive style with a large initial "J".

Jim Ross
Section Head
Habitat Management Division

cc: P. Buxton

002186

C0560-072



Department of Environment & Labour

Environmental Monitoring & Compliance Division
Yarmouth District Office

Bob Petrie, District Manager

15 First St.
Yarmouth, Nova Scotia
BEA 1S9
petrierd@gov.ns.ca

Tel: (902) 742-8985
Fax: (902) 742-7796

October 30, 2002

Mr. Paul Buxton, P. Eng.
P.O. Box 98
Annapolis Royal, N.S.
B0S 1A0

Dear Mr. Buxton:

Re: White's Cove Quarry - Approval No.2002-026397 - Nova Stone Exporters Inc.

Enclosed please find comments from DFO following the review of the submission entitled "Initial Blast Plan, Whites Point Quarry" covering letter dated September 17, 2002, and plan dated August 20, 2002.

This will acknowledge receipt of three copies of the final survey plan entitled Site Plan Showing Proposed Quarry Site and Boundaries of Lands of John A. Johnson & Joan L. Johnson and Jason R. Lineberger & Lida C. Lineberger at Little River (Whites Cove) County of Digby, Province of Nova Scotia, dated September 20, 2002, Plan No. D6153-02. The provision of this document fulfills Section 4 (a) of the Terms and Conditions of the Approval. A copy of this survey plan has been forwarded to DFO, Habitat Management Division.

Also, this will acknowledge receipt of the blast design for the initial blast, (covering letter, two page specifications) dated October 8, 2002, at the Yarmouth District Office on October 15, 2002. A copy of this blast design has been forwarded to DFO for review, and comments will be forthcoming.

In order to facilitate an effective communication process, please ensure all future correspondence to our office relating to marine habitat or DFO jurisdiction is automatically copied to the following address:

Department of Fisheries and Oceans
Habitat Management Division
PO Box 1006
Dartmouth, NS B2Y 4A2
attn: Referrals Secretariat

In turn, our office and that of DFO Habitat Management Division, will automatically copy you on future correspondence as needed. Should you have any questions, please contact Inspector Jacqueline Cook at (902) 742-8985.

Yours truly,



Bob Petrie
District Manager

cc: DFO, Habitat Management Division
J. Cook
R. Balcom
File

Paul G. Buxton P.Eng.

P.O. Box 98
Annapolis Royal, BOS 1A0

Telephone 902 638 8108
Fax 902 638 3522

DEPT. OF THE ENVIRONMENT

Nova Scotia Department of Environment & Labour, 15 2002
13, First Street,
Yarmouth,
BSA 1S9

Oct. 8th 2002

**YARMOUTH DISTRICT
OFFICE
YARMOUTH, N.S.**

Attention: Mr. Bob Petrie: Regional Manager.

Dear Mr. Petrie,

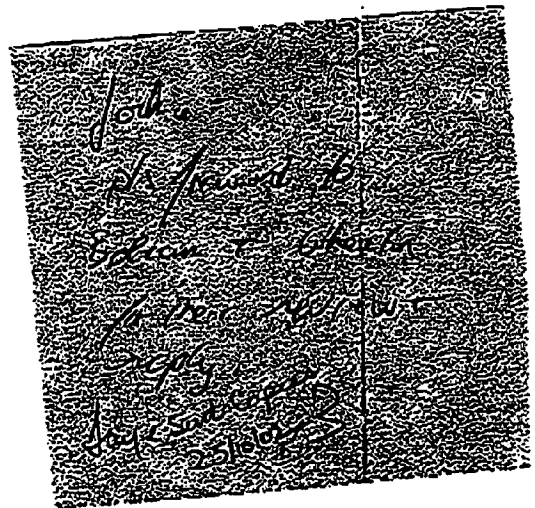
re: Whites Cove Quarry

Please find attached for your records the blast design for the initial blast scheduled for late October or November.

Yours Truly,



Paul G. Buxton P.Eng.



CONSULT

A0034703_4

10/30/02 WED 12:37 FAX 802 742 7798
10/30/2002 08:25 1-902-558-2930

DEPT ENVIR YARMOUTH
ARCHIBALD DRILLING

PAGE 82 003

①

DEPT. OF THE ENVIRONMENT

OCT 15 2002

YARMOUTH DISTRICT
OFFICE
YARMOUTH, N.S.

BLAST DESIGN

LOCATION:	White Point Quarry
BLAST #:	Test
NUMBER OF HOLES	50
HOLE DIAMETER	4"
HOLE DEPTH	16' to 26'
SUB DRILL:	3'
BURDEN:	8'
SPACING:	8'
MAX LBS/DELAY	85.5 lb
COLLAR:	6'
TYPE OF EXPLOSIVES:	Amer Super 4000, 75mm x 400mm to load, 9 lbs/hole. Amer 11 Column load
PRIMERS:	90 gram
DETONATORS:	Handicut 20/500ms
TOTAL WT OF EXPLOSIVES:	3015 lbs
TOTAL TONNES BLASTED:	4,123.8 tonnes

NOTE: Collar of holes to be stemmed with crushed stone.

CONSULT

13: A0034703_5

002180

C0560-076

10/30/02 WED 12:38 FAX 902 742 7798
18706/2802 08:26 1-902-568-2055

DEPT ENVIR YARMOUTH
ARCHIBALD DRILLING

PAGE 03
00.

ARCHIBALD DRILLING & BLASTING

WHITES POINT QUARRY

Pattern 8 x 8 ft = 4.74 tonne per ft of bore hole 4 in
Subdrill 3 ft included = 150 ft
4.74 x 870 = 4,123.8 Tonne
Total ft loaded = 720 ft
Total wt of explosives = 3015 lb

Hole Depth

Hole Depth	FACE									
16	16	16	16	16	16	16	16	16	16	16 - 130 ft
18	18	18	18	18	18	18	18	18	18	18 - 150 ft
19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5 - 165 ft
22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5 - 185 ft
26	26	26	26	26	26	26	26	26	26	26 - 210 ft

OCT 15 2002
YARMOUTH DISTRICT
OFFICE
YARMOUTH, N.S.

DEPT OF THE ENVIRONMENT

SYSTEM: BlastDB
DESCRIPTION: 10032002
ISSUE DATE: 10/03/2002
LOCATION: 10032002
SCALE: Not to scale
ICI EXPLOSIVES
REVISED V2.04

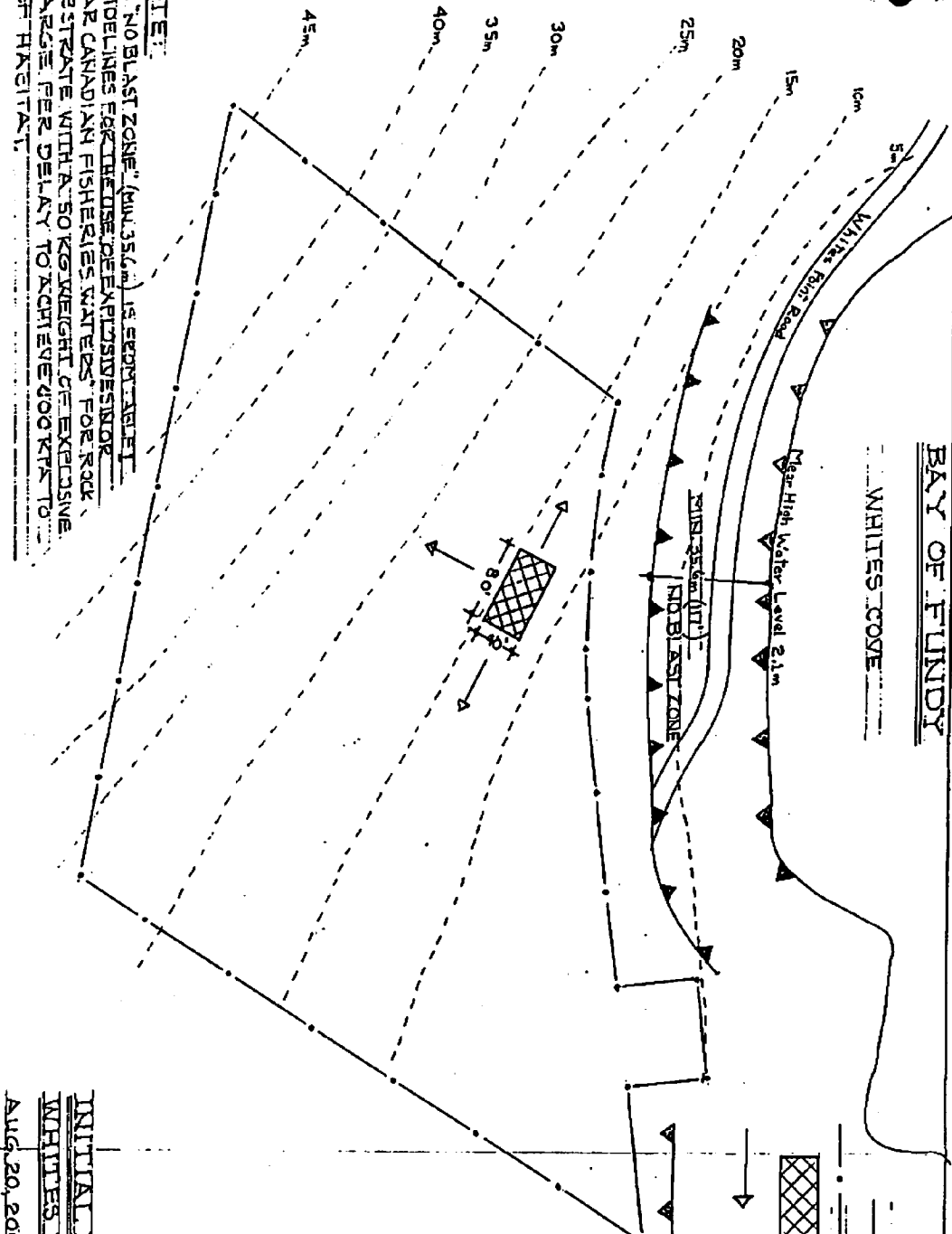
10/30/02 WED 13:31 (TX/RX NO 8238)

CONSULT

A0034703_6

BAY OF FUNDY

WHITES CODE



LEGEND

- 3.9h QUARRY BOUNDRY
- INITIAL BLAST SITE
- DIRECTION OF SECOND AND SUBSEQUENT BLASTS
- NO BLAST ZONE

SCALE: 1:1000

INITIAL BLAST PLAN
WHITES POINT QUARRY
AUG 20, 2002

A0034712.2

NOTE:
THE "NO BLAST ZONE" (MUL 356) IS ESTABLISHED
GUIDELINES FOR THE PROTECTION OF FISHERIES AND
NEAR CANADIAN FISHERIES WATERS FOR ROCK
SUBSTRATE WITH A 50 KG WEIGHT OF EXCESSIVE
CHANGE PER DELAY TO ACHIEVE GOOD ROCK TO
FISH HABITAT.

CONSULT



Fisheries and Oceans
Canada

Pêches et Océans
Canada

P.O. Box 1006
Dartmouth, NS
B2Y 4A2

September 30, 2002

Mr. Bob Petrie
NS Department of Environment and Labour
13 First Street
Yarmouth, NS
B5A 1S9

Dear Bob:

Fisheries and Oceans (DFO) has conducted a preliminary review of the Whites Cove Quarry-Blasting Plan, Sept. 17, 2002 (02-W8-412).

It is our opinion that, although the plan seems to be within the *Guidelines for the use of explosives in or near Canadian fisheries waters*, there is insufficient detail to make an assessment on its effects on threatened or endangered marine mammals that may be present at various times of the year. In addition, there is no indication of what monitoring the proponent will undertake to ensure they are within the limits of the guidelines, or how they will determine that the area is free of species of concern before detonating a blast.

To adequately assess this blasting plan we would require information on:

- the number and velocity of detonations
- when the detonations are to occur and over what period of time
- what the bottom topography is made up of (shale, mud rock etc.)

The proponent should understand that this letter does not release them from the responsibility to obtain any other approvals that may be required under federal, provincial or municipal legislation.

If you require additional information or clarification please call me at (902)426-6111.

Sincerely,

Jim Ross
Section Head
Habitat Management Division

cc: T. Wheaton

002178

C0560-079

Your file / Votre référence
DEPT. OF THE ENVIRONMENT
OCT - 3 2002
YARMOUTH DISTRICT
OFFICE
YARMOUTH, N.S.

Paul G. Buxton P.Eng.

P.O. Box 98
Annapolis Royal, BOS 1A0

Telephone 902 638 8108
Fax 902 638 3522

Nova Scotia Department of Environment and Labour,
13, First Street,
Yarmouth,
B5A 1S9

Sept 17th 2002

Attention: Mr. Bob Petrie, Regional Manager

Dear Mr. Petrie,

re: Whites Cove Quarry - Blasting Plan

In accordance with Section 10 (Blasting) part i) of the Terms and Conditions of Approval for the Whites Cove quarry (Approval No. 2002-026397 please find enclosed three copies of the Blasting Plan.

The setback distance and charges comply with Table 1 (Setback distance (m) from centre of detonation of a confined explosive to fish habitat to achieve 100 kPa guideline criteria for various substrates) on page 15 of the Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters (Canadian Technical Report of Fisheries and Aquatic Sciences 2107).

Following your review would you kindly forward to the Department of Fisheries and Oceans for their approval.

Yours Truly,

Paul G. Buxton P.Eng.
Project Manager

002177

C0560-080



Fisheries Act (R.S., 1985, c. F-14)

Disclaimer: These documents are not the official versions ([more](#)).

Act current to February 8th, 2007

Attention: See coming into force provision and notes, where applicable.

[Table Of Contents](#)

Fisheries Act

F-14

An Act respecting fisheries

SHORT TITLE

Short title

1. This Act may be cited as the *Fisheries Act*.

R.S., c. F-14, s. 1.

INTERPRETATION

Definitions

2. In this Act,

"Canadian fisheries waters"
«*eaux de pêche canadiennes* »

"Canadian fisheries waters" means all waters in the fishing zones of Canada, all waters in the territorial sea of Canada and all internal waters of Canada;

"close time"
«*période d'interdiction* » et
«*période de fermeture* » ou
«*saison de fermeture* »

"close time" means a specified period during which fish to which it applies may not be fished, and "closed time" or "closed season"

has a similar meaning;

"fish"

«*poissons* »

"fish" includes

(a) parts of fish,

(b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and

(c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals;

"fishery"

«*pêcherie* »

"fishery" includes the area, locality, place or station in or on which a pound, seine, net, weir or other fishing appliance is used, set, placed or located, and the area, tract or stretch of water in or from which fish may be taken by the said pound, seine, net, weir or other fishing appliance, and also the pound, seine, net, weir, or other fishing appliance used in connection therewith;

"fishery guardian"

«*garde-pêche* »

"fishery guardian" means a person who is designated as a fishery guardian pursuant to subsection 5(1);

"fishery officer"

«*agent des pêches* »

"fishery officer" means a person who is designated as a fishery officer pursuant to subsection 5(1);

"fishing"

«*pêche* »

"fishing" means fishing for, catching or attempting to catch fish by any method;

"fishing vessel"

«*bateau de pêche* »

"fishing vessel" means any vessel used, outfitted or designed for

the purpose of catching, processing or transporting fish;

"inspector"
«*inspecteur* »

"inspector" means a person who is designated as an inspector pursuant to subsection 38(1);

"lawful excuse" [Repealed, 1991, c. 1, s. 1]

"Minister"
«*ministre* »

"Minister" means the Minister of Fisheries and Oceans or, in respect of any matter related to the Northern Pipeline referred to in the *Northern Pipeline Act*, the member of the Queen's Privy Council for Canada designated as the Minister for the purposes of that Act;

"obstruction"
«*obstacle* »

"obstruction" means any slide, dam or other obstruction impeding the free passage of fish;

"vehicle"
«*véhicule* »

"vehicle" means any conveyance that may be used for transportation, including aircraft.

R.S., 1985, c. F-14, s. 2; R.S., 1985, c. 35 (1st Supp.), ss. 1, 5; 1991, c. 1, s. 1.

PURPOSES

2.1 [Repealed, R.S., 1985, c. 35 (1st Supp.), s. 6]

APPLICATION

Provincial rights not affected

3. (1) Nothing in this Act shall be taken to authorize the granting of fishery leases that confer an exclusive right to fish in property belonging to a province.

Application of Act to Her Majesty

(2) This Act is binding on Her Majesty in right of Canada or a province.

R.S., c. F-14, s. 3; R.S., c. 17(1st Supp.), s. 9.

Licences to take spawn

4. Nothing in this Act precludes the granting by the Minister of written permission to obtain fish for purposes of stocking or artificial breeding or for scientific purposes.

R.S., c. F-14, s. 4.

FISHERY OFFICERS AND FISHERY GUARDIANS

Designation

5. (1) The Minister may designate any persons or classes of persons as fishery officers or fishery guardians for the purposes of this Act and may limit in any manner the Minister considers appropriate the powers that a fishery officer or fishery guardian may exercise under this Act or any other Act of Parliament.

Certificate of designation

(2) Each fishery officer and fishery guardian shall be provided with a certificate in a form the Minister considers appropriate certifying their designation as such and, where the powers of a fishery officer or fishery guardian are limited pursuant to subsection (1), specifying the powers that the officer or guardian may exercise under this Act or any other Act of Parliament.

Presentation of certificate

(3) On entering any place under this Act or any other Act of Parliament, a fishery officer or fishery guardian shall, on request, show the certificate of designation to the person in charge of the place.

Nisga'a laws

(4) The powers and protections that a fishery officer or fishery guardian has under this or any other Act of Parliament, including the powers and protections of a peace officer under the *Criminal*

Code, apply to a fishery officer or fishery guardian enforcing Nisga'a laws made under the Fisheries Chapter of the Nisga'a Final Agreement given effect by the *Nisga'a Final Agreement Act*.

R.S., 1985, c. F-14, s. 5; 1991, c. 1, s. 2; 2000, c. 7, s. 22.

6. [Repealed, 1991, c. 1, s. 2]

FISHERY LEASES AND LICENCES

Fishery leases and licences

7. (1) Subject to subsection (2), the Minister may, in his absolute discretion, wherever the exclusive right of fishing does not already exist by law, issue or authorize to be issued leases and licences for fisheries or fishing, wherever situated or carried on.

Idem

(2) Except as otherwise provided in this Act, leases or licences for any term exceeding nine years shall be issued only under the authority of the Governor in Council.

R.S., c. F-14, s. 7.

Fees

8. Except where licence fees are prescribed in this Act, the Governor in Council may prescribe the fees that are to be charged for fishery or fishing licences.

R.S., c. F-14, s. 8.

Minister may cancel licence

9. The Minister may suspend or cancel any lease or licence issued under the authority of this Act, if

(a) the Minister has ascertained that the operations under the lease or licence were not conducted in conformity with its provisions; and

(b) no proceedings under this Act have been commenced with respect to the operations under the lease or licence.

R.S., 1985, c. F-14, s. 9; R.S., 1985, c. 31 (1st Supp.), s. 95.

10. to 16. [Repealed, 1991, c. 1, s. 3]

LOBSTER FISHERIES

17. [Repealed, 1991, c. 1, s. 4]

Licences for lobster pounds

18. (1) No one shall maintain a pound or enclosure in which lobsters, legally caught during the open season, are retained for sale during the close season at a place where the pound or enclosure is located, or for export therefrom, except under a licence from the Minister, and no lobsters shall be taken from any such pound or enclosure and disposed of during the close season at the place where it is located, except under a certificate from a fishery officer or fishery guardian, setting out the pound or enclosure from which the lobsters were taken and that they had been legally caught during the open season.

Marking of pounds

(2) Each pound or enclosure referred to in subsection (1) shall be marked with the name of the licensee and the number of his licence, and the marking shall be in black on a white ground, with letters and figures that are at least six inches in height.

Fee

(3) The annual fee for a licence referred to in subsection (1) shall be seventy-five dollars.

R.S., c. F-14, s. 18.

19. [Repealed, 1991, c. 1, s. 5]

CONSTRUCTION OF FISH-WAYS

Fish-ways to be made as Minister directs

20. (1) Every obstruction across or in any stream where the Minister determines it to be necessary for the public interest that a fish-pass should exist shall be provided by the owner or occupier with a durable and efficient fish-way or canal around the obstruction, which shall be maintained in a good and effective

condition by the owner or occupier, in such place and of such form and capacity as will in the opinion of the Minister satisfactorily permit the free passage of fish through it.

Idem

(2) Where it is determined by the Minister in any case that the provision of an efficient fish-way or canal around the obstruction is not feasible, or that the spawning areas above the obstruction are destroyed, the Minister may require the owner or occupier of the obstruction to pay to him from time to time such sum or sums of money as he may require to construct, operate and maintain such complete fish hatchery establishment as will in his opinion meet the requirements for maintaining the annual return of migratory fish.

Place, form, etc.

(3) The place, form and capacity of the fish-way or canal to be provided pursuant to subsection (1) must be approved by the Minister before construction thereof is begun and, immediately after the fish-way is completed and in operation, the owner or occupier of any obstruction shall make such changes and adjustments at his own cost as will in the opinion of the Minister be necessary for its efficient operation under actual working conditions.

To be kept open

(4) The owner or occupier of every fish-way or canal shall keep it open and unobstructed and shall keep it supplied with such sufficient quantity of water as the Minister considers necessary to enable the fish frequenting the waters in which the fish-way or canal is placed to pass through it during such times as are specified by any fishery officer, and, where leaks in a dam cause a fish-way therein to be inefficient, the Minister may require the owner or occupier of the dam to prevent the leaks therein.

R.S., c. F-14, s. 20.

Minister may authorize payment of one-half of expense

21. (1) The Minister may authorize the payment of one-half of the expense incurred by an owner or occupier in constructing and maintaining any fish-way or canal and, after a fish-way or canal that has been duly approved by the Minister has been built at the cost of the owner or occupier of any obstruction, or after the owner

or occupier has paid one-half the cost thereof and the fish-way or canal thereafter proves to be ineffective, the total cost of any change in the fish-way or canal or any new fish-way or canal required to enable the fish to pass by the obstruction shall, except as provided in subsection 20(3), be paid by Her Majesty.

May construct and recover the cost in certain cases

(2) The Minister, in order to procure the construction of any fish-way or canal, pending proceedings against any owner or occupier for the punishment imposed by this Act, may make and complete the construction forthwith, and may authorize any person to enter on the premises with the necessary workmen, means and materials for that purpose and may recover from the owner or occupier the whole expense so incurred by action in the name of Her Majesty.

May remove or destroy after notice

(3) Where an unused obstruction or a thing detrimental to fish exists and the owner or occupier thereof does not after notice given by the Minister remove it, or if the owner is not resident in Canada, or his exact place of residence is unknown to the Minister, the Minister may, without being liable to damages, or in any way to indemnify the owner or occupier, cause the obstruction or thing detrimental to fish to be removed or destroyed and, where notice has been given to the owner or occupier, may recover from the owner or occupier the expense of the removal or destruction.

Minister may require fish stops or diverters

(4) The Minister may require the owner or occupier of any obstruction to install and maintain such fish stops or diverters, both above and below the obstruction, as will in his opinion be adequate to prevent the destruction of fish or to assist in providing for their ascent.

R.S., c. F-14, s. 20.

Water for the descent of fish

22. (1) At every obstruction, where the Minister determines it to be necessary, the owner or occupier thereof shall, when required by the Minister, provide a sufficient flow of water over the spill-way or crest, with connecting sluices into the river below, to permit the safe and unimpeded descent of fish.

Protection during construction

(2) The owner or occupier of any obstruction shall make such provision as the Minister determines to be necessary for the free passage of both ascending and descending migratory fish during the period of construction thereof.

Sufficient water for river bed below dam

(3) The owner or occupier of any obstruction shall permit the escape into the river-bed below the obstruction of such quantity of water, at all times, as will, in the opinion of the Minister, be sufficient for the safety of fish and for the flooding of the spawning grounds to such depth as will, in the opinion of the Minister, be necessary for the safety of the ova deposited thereon.

R.S., c. F-14, s. 20.

GENERAL PROHIBITIONS

Fishing in limits leased to another prohibited

23. No one shall fish for, take, catch or kill fish in any water, along any beach or within any fishery described in any lease or licence, or place, use, draw or set therein any fishing gear or apparatus, except by permission of the occupant under the lease or licence for the time being, or shall disturb or injure any such fishery.

R.S., c. F-14, s. 21.

Seines, nets, etc., not to obstruct navigation

24. Seines, nets or other fishing apparatus shall not be set or used in such manner or in such place as to obstruct the navigation of boats and vessels and no boats or vessels shall destroy or wantonly injure in any way seines, nets or other fishing apparatus lawfully set.

R.S., c. F-14, s. 22.

Setting gear during close time

25. (1) Subject to the regulations, no person shall place or set any fishing gear or apparatus in any water, along any beach or within any fishery during a close time.

Removal of gear

(2) Subject to the regulations and subsection (3), any person who places or sets any fishing gear or apparatus in any water, along any beach or within any fishery shall remove it when the gear or apparatus is not being tended and prior to the commencement of a close time.

Officer's discretion

(3) A fishery officer may permit fishing gear or apparatus to remain in the water, along a beach or within a fishery after the commencement of a close time for any period the fishery officer considers necessary to permit the removal of the gear or apparatus.

R.S., 1985, c. F-14, s. 25; 1991, c. 1, s. 6.

Main channel not to be obstructed

26. (1) One-third of the width of any river or stream and not less than two-thirds of the width of the main channel at low tide in every tidal stream shall be always left open, and no kind of net or other fishing apparatus, logs or any material of any kind shall be used or placed therein.

(2) [Repealed, 1991, c. 1, s. 7]

Devices to prevent escape of fish

(3) The Minister may authorize the placing and maintaining of barriers, screens or other obstructions in streams to prevent the escape of fish held for fish breeding purposes or any other purpose that the Minister deems in the public interest, and no person shall injure any such barrier, screen or other obstruction.

R.S., 1985, c. F-14, s. 26; 1991, c. 1, s. 7.

Fish-ways and canals

27. No one shall

(a) damage or obstruct any fish-way or canal built, constructed or used to enable fish to pass over or around any obstruction;

(b) do anything to stop, impede or hinder fish from entering or passing the fish-way or canal or to stop, impede or hinder fish

from surmounting any obstacle or leap; or

(c) fish in any manner within twenty-five yards downstream from the lower entrance to any fish-way, canal, obstacle or leap.

R.S., c. F-14, s. 25.

Use of explosives prohibited

28. No one shall hunt or kill fish or marine animals of any kind, other than porpoises, whales, walruses, sea-lions and hair seals, by means of rockets, explosive materials, explosive projectiles or shells.

R.S., c. F-14, s. 26.

Nets, weirs, etc., not to obstruct passage of fish

29. (1) No one shall erect, use or maintain in any of the Canadian fisheries waters, whether subject to any exclusive right of fishery or not, any net, weir or other device that unduly obstructs the passage of fish.

Removal

(2) The Minister or a fishery officer may order the removal of or remove any net, weir or other device that, in the opinion of the Minister or fishery officer, unduly obstructs the passage of fish.

R.S., c. F-14, s. 27.

Fish guards only where Minister deems necessary

30. (1) Every water intake, ditch, channel or canal in Canada constructed or adapted for conducting water from any Canadian fisheries waters for irrigating, manufacturing, power generation, domestic or other purposes shall, if the Minister deems it necessary in the public interest, be provided at its entrance or intake with a fish guard or a screen, covering or netting so fixed as to prevent the passage of fish from any Canadian fisheries waters into the water intake, ditch, channel or canal.

Structure of fish guards

(2) The fish guard, screen, covering or netting referred to in subsection (1) shall

(a) have meshes or holes of such dimensions as the Minister may prescribe; and

(b) be built and maintained by the owner or occupier of the water intake, ditch, channel or canal referred to in subsection (1), subject to the approval of the Minister or of such officer as the Minister may appoint to examine it.

Duty of owner to keep in repair

(3) The owner or occupier of the water intake, ditch, channel or canal referred to in subsection (1) shall maintain the fish guard, screen, covering or netting referred to in that subsection in a good and efficient state of repair and shall not permit its removal except for renewal or repair.

Removal

(4) During the time in which a renewal or repair referred to in subsection (1) is being effected, the sluice or gate at the intake or entrance of the water intake, ditch, channel or canal shall be closed in order to prevent the passage of fish into the water intake, ditch, channel or canal.

R.S., c. F-14, s. 28; 1976-77, c. 35, s. 4.

Permit required

31. (1) No one shall catch, fish for, take, buy, sell, possess or export any fish for the purposes of converting it into fish meal, manure, guano or fertilizer, or for the manufacture or conversion of the fish into oil, fish meal or manure or other fertilizing product, except under authority of the Minister.

Exception by Minister

(2) The Minister may, by notice published in the *Canada Gazette*, except any kind or kinds of fish from the operation of all or any part of subsection (1).

R.S., c. F-14, s. 29.

Destruction of fish

32. No person shall destroy fish by any means other than fishing except as authorized by the Minister or under regulations

made by the Governor in Council under this Act.

R.S., c. F-14, s. 30; 1976-77, c. 35, s. 5.

Unlawful sale or possession

33. No person shall purchase, sell or possess any fish that has been caught in contravention of this Act or the regulations.

R.S., 1985, c. F-14, s. 33; 1991, c. 1, s. 8.

Definition of "fishing plan"

33.1 (1) In this section, "fishing plan" means a Nisga'a annual fishing plan, as defined in the Fisheries Chapter of the Nisga'a Final Agreement given effect by the *Nisga'a Final Agreement Act*, that is approved, or varied and approved, by the Minister in accordance with that Agreement.

Contravention of fishing plan

(2) Where a fishing plan stipulates that this subsection applies to certain of its provisions relating to persons engaged in harvesting, sale or related activities, no person shall contravene any of those provisions.

Conditions of prosecution

(3) No proceedings may be commenced in respect of an offence for the contravention of subsection (2)

(a) except in accordance with an agreement, made under paragraph 93 of the Fisheries Chapter of the Nisga'a Final Agreement, concerning enforcement of federal laws or Nisga'a laws; or

(b) unless the Minister, or a person appointed to a position in the Department of Fisheries and Oceans who is authorized by the Minister, considers such proceedings to be necessary to ensure compliance with the fishing plan.

2000, c. 7, s. 23.

FISH HABITAT PROTECTION AND POLLUTION PREVENTION

Definitions

34. (1) For the purposes of sections 35 to 43, "deleterious substance"
«*substance nocive* »

"deleterious substance" means

(a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water, or

(b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water,

and without limiting the generality of the foregoing includes

(c) any substance or class of substances prescribed pursuant to paragraph (2)(a),

(d) any water that contains any substance or class of substances in a quantity or concentration that is equal to or in excess of a quantity or concentration prescribed in respect of that substance or class of substances pursuant to paragraph (2)(b), and

(e) any water that has been subjected to a treatment, process or change prescribed pursuant to paragraph (2)(c);

"deposit"

«*immersion* » ou
«*rejet* »

"deposit" means any discharging, spraying, releasing, spilling, leaking, seeping, pouring, emitting, emptying, throwing, dumping or placing;

"fish habitat"

«*habitat du poisson* »

"fish habitat" means spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes;

"water frequented by fish"
«*eaux où vivent des poissons* »

"water frequented by fish" means Canadian fisheries waters.

Regulations for purpose of definition "deleterious substance"

(2) The Governor in Council may make regulations prescribing

- (a) substances and classes of substances,
- (b) quantities or concentrations of substances and classes of substances in water, and
- (c) treatments, processes and changes of water

for the purpose of paragraphs (c) to (e) of the definition "deleterious substance" in subsection (1).

R.S., c. F-14, s. 31; R.S., c. 17(1st Supp.), ss. 2, 3; 1976-77, c. 35, ss. 5, 7.

Harmful alteration, etc., of fish habitat

35. (1) No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.

Alteration, etc., authorized

(2) No person contravenes subsection (1) by causing the alteration, disruption or destruction of fish habitat by any means or under any conditions authorized by the Minister or under regulations made by the Governor in Council under this Act.

R.S., c. F-14, s. 31; R.S., c. 17(1st Supp.), s. 2; 1976-77, c. 35, s. 5.

Throwing overboard of certain substances prohibited

- 36.** (1) No one shall
- (a) throw overboard ballast, coal ashes, stones or other

prejudicial or deleterious substances in any river, harbour or roadstead, or in any water where fishing is carried on;

(b) leave or deposit or cause to be thrown, left or deposited, on the shore, beach or bank of any water or on the beach between high and low water mark, remains or offal of fish or of marine animals; or

(c) leave decayed or decaying fish in any net or other fishing apparatus.

Disposal of remains, etc.

(2) Remains or offal described in subsection (1) may be buried ashore, above high water mark.

Deposit of deleterious substance prohibited

(3) Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

Deposits authorized by regulation

(4) No person contravenes subsection (3) by depositing or permitting the deposit in any water or place of

(a) waste or pollutant of a type, in a quantity and under conditions authorized by regulations applicable to that water or place made by the Governor in Council under any Act other than this Act; or

(b) a deleterious substance of a class, in a quantity or concentration and under conditions authorized by or pursuant to regulations applicable to that water or place or to any work or undertaking or class thereof, made by the Governor in Council under subsection (5).

Regulations for authorizing certain deposits

(5) The Governor in Council may make regulations for the purpose of paragraph (4)(b) prescribing

(a) the deleterious substances or classes thereof authorized to be deposited notwithstanding subsection (3);

(b) the waters or places or classes thereof where any deleterious substances or classes thereof referred to in paragraph (a) are authorized to be deposited;

(c) the works or undertakings or classes thereof in the course or conduct of which any deleterious substances or classes thereof referred to in paragraph (a) are authorized to be deposited;

(d) the quantities or concentrations of any deleterious substances or classes thereof referred to in paragraph (a) that are authorized to be deposited;

(e) the conditions or circumstances under which and the requirements subject to which any deleterious substances or classes thereof referred to in paragraph (a) or any quantities or concentrations of those deleterious substances or classes thereof are authorized to be deposited in any waters or places or classes thereof referred to in paragraph (b) or in the course or conduct of any works or undertakings or classes thereof referred to in paragraph (c); and

(f) the persons who may authorize the deposit of any deleterious substances or classes thereof in the absence of any other authority, and the conditions or circumstances under which and requirements subject to which those persons may grant the authorization.

Directions by the Minister

(6) A person authorized to deposit a deleterious substance by or under regulations made pursuant to subsection (5) shall, when directed in writing by the Minister, notwithstanding any regulations made pursuant to paragraph (5)(e) or any conditions set out in an authorization made pursuant to paragraph (5)(f), conduct such sampling, analyses, tests, measurements or monitoring, install or operate such equipment or comply with such procedures, and report such information, as may be required by the Minister in order to determine whether the person is depositing the deleterious substance in the manner authorized.

R.S., c. F-14, s. 33; R.S., c. 17(1st Supp.), s. 3; 1976-77, c. 35, s. 7; 1984, c. 40, s. 29.

Minister may require plans and specifications

37. (1) Where a person carries on or proposes to carry on any

work or undertaking that results or is likely to result in the alteration, disruption or destruction of fish habitat, or in the deposit of a deleterious substance in water frequented by fish or in any place under any conditions where that deleterious substance or any other deleterious substance that results from the deposit of that deleterious substance may enter any such waters, the person shall, on the request of the Minister or without request in the manner and circumstances prescribed by regulations made under paragraph (3)(a), provide the Minister with such plans, specifications, studies, procedures, schedules, analyses, samples or other information relating to the work or undertaking and with such analyses, samples, evaluations, studies or other information relating to the water, place or fish habitat that is or is likely to be affected by the work or undertaking as will enable the Minister to determine

(a) whether the work or undertaking results or is likely to result in any alteration, disruption or destruction of fish habitat that constitutes or would constitute an offence under subsection 40(1) and what measures, if any, would prevent that result or mitigate the effects thereof; or

(b) whether there is or is likely to be a deposit of a deleterious substance by reason of the work or undertaking that constitutes or would constitute an offence under subsection 40(2) and what measures, if any, would prevent that deposit or mitigate the effects thereof.

Powers of Minister

(2) If, after reviewing any material or information provided under subsection (1) and affording the persons who provided it a reasonable opportunity to make representations, the Minister or a person designated by the Minister is of the opinion that an offence under subsection 40(1) or (2) is being or is likely to be committed, the Minister or a person designated by the Minister may, by order, subject to regulations made pursuant to paragraph (3)(b), or, if there are no such regulations in force, with the approval of the Governor in Council,

(a) require such modifications or additions to the work or undertaking or such modifications to any plans, specifications, procedures or schedules relating thereto as the Minister or a person designated by the Minister considers necessary in the circumstances, or

(b) restrict the operation of the work or undertaking,

and, with the approval of the Governor in Council in any case, direct the closing of the work or undertaking for such period as the Minister or a person designated by the Minister considers necessary in the circumstances.

Regulations

(3) The Governor in Council may make regulations

(a) prescribing the manner and circumstances in which any information or material shall be provided to the Minister without request under subsection (1); and

(b) prescribing the manner and circumstances in which the Minister or a person designated by the Minister may make orders under subsection (2) and the terms of the orders.

Consultation with provinces

(4) Where the Minister or a person designated by the Minister proposes to make an order pursuant to subsection (2), he shall offer to consult with the governments of any provinces that he considers to be interested in the proposed order and with any departments or agencies of the Government of Canada that he considers appropriate.

Exception

(5) Nothing in subsection (4) prevents the Minister or a person designated by the Minister from making an interim order pursuant to subsection (2) without the offer of consultation referred to in subsection (4) where he considers that immediate action is necessary.

R.S., c. 17(1st Supp.), s. 3; 1976-77, c. 35, s. 8.

Inspectors and analysts

38. (1) For the purposes of this section, the Minister may designate as an inspector or analyst any person who, in the opinion of the Minister, is qualified to be so designated.

Certificate to be produced

(2) The Minister shall furnish every inspector with a certificate of

his designation and on entering any place, premises, vehicle or vessel referred to in subsection (3) an inspector shall, if so required, produce the certificate to the person in charge thereof.

Powers of inspector

(3) An inspector may, at any reasonable time, enter any place, premises, vehicle or vessel, other than a private dwelling-place or any part of any place, premises, vehicle or vessel used as a permanent or temporary private dwelling-place, where the inspector believes on reasonable grounds that any work or undertaking resulting or likely to result in the deposit of a deleterious substance in water frequented by fish or in any place under any conditions referred to in subsection 37(1) is being, has been or is likely to be carried on, and the inspector may, for any purpose related to the enforcement of this section, conduct inspections, including examining any substance or product found therein, taking samples thereof and conducting tests and measurements.

Search

(3.1) An inspector with a warrant issued under subsection (3.2) may at any reasonable time enter any place, premises, vehicle or vessel, other than a private dwelling-place or any part of any place, premises, vehicle or vessel used as a permanent or temporary private dwelling-place, where the inspector believes on reasonable grounds that an offence under subsection 40(2) is being or has been committed and search that place, premises, vehicle or vessel for evidence of the offence.

Authority to issue warrant

(3.2) Where on *ex parte* application a justice of the peace is satisfied by information on oath that there are reasonable grounds to believe that there is in any place, premises, vehicle or vessel referred to in subsection (3.1)

(a) anything on or in respect of which an offence under subsection 40(2) is being or has been committed, or

(b) anything that there are reasonable grounds to believe will afford evidence with respect to the commission of an offence under subsection 40(2),

the justice of the peace may issue a warrant under his hand authorizing the inspector named therein to enter and search the place, premises, vehicle or vessel for any such thing subject to

such conditions as may be specified in the warrant.

Use of force

(3.3) In executing a warrant issued under subsection (3.2), the inspector named therein shall not use force unless the inspector is accompanied by a peace officer and the use of force has been specifically authorized in the warrant.

Where warrant not necessary

(3.4) An inspector may exercise the powers of entry and search referred to in subsection (3.1) without a warrant issued under subsection (3.2) if the conditions for obtaining the warrant exist but by reason of exigent circumstances it would not be practical to obtain the warrant.

Exigent circumstances

(3.5) For the purposes of subsection (3.4), exigent circumstances include circumstances in which the delay necessary to obtain a warrant would result in danger to human life or safety or the loss or destruction of evidence.

Duty to report

(4) Where, out of the normal course of events, there occurs a deposit of a deleterious substance in water frequented by fish or a serious and imminent danger thereof by reason of any condition, and where any damage or danger to fish habitat or fish or the use by man of fish results or may reasonably be expected to result therefrom, any person who at any material time

(a) owns the deleterious substance or has the charge, management or control thereof, or

(b) causes or contributes to the causation of the deposit or danger thereof,

shall, in accordance with any regulations applicable thereto, report such occurrence to an inspector or such other person or authority as is prescribed by the regulations.

Duty to take all reasonable measures

(5) Every person referred to in paragraph (4)(a) or (b) shall, as soon as possible in the circumstances, take all reasonable measures consistent with safety and with the conservation of fish

and fish habitat to prevent any occurrence referred to in subsection (4) or to counteract, mitigate or remedy any adverse effects that result or may reasonably be expected to result therefrom.

Power to take or direct remedial measures

(6) Where an inspector, whether or not a report has been made under subsection (4), is satisfied on reasonable grounds that there is an occurrence referred to in subsection (4) and that immediate action is necessary in order to carry out any reasonable measures referred to in subsection (5), he may, subject to subsection (7) and the regulations, take any such measures or direct that they be taken by any person referred to in paragraph (4)(a) or (b).

Inconsistent orders

(7) Any requirement or direction of an inspector under this section that is inconsistent with any requirement or order of a pollution prevention officer under the *Canada Shipping Act* is void to the extent of the inconsistency.

Access to property

(8) For the purposes of subsections (4) to (6), any inspector or other person may enter and have access through any place, premises, vehicle or vessel and may take all reasonable action in order to comply with those subsections or any of them, but nothing in this subsection relieves any person from liability at law for his illegal or negligent acts or omissions or for loss or damage caused to others by such entry, access or action.

Regulations

(9) The Governor in Council may make regulations prescribing

(a) the person or authority to whom or which a report is to be made under subsection (4), the manner in which the report is to be made, the information to be contained therein and the circumstances in which no report is required to be made;

(b) the manner in which inspectors may take any measures or give any directions under subsection (6) and the conditions to which such measures or directions are subject;

(c) the manner and circumstances in which any measures taken or directions given under subsection (6) may be

reviewed, rescinded or varied; and

(d) any other matters necessary for or incidental to carrying out the purposes and provisions of this section.

Assistance to inspectors

(10) The owner or person in charge of any place, premises, vehicle or vessel entered by an inspector pursuant to subsection (3) and every person found therein shall give the inspector all reasonable assistance to enable the inspector to carry out his duties and functions under this section and shall furnish the inspector with such information with respect to the administration of this section as he may reasonably require.

Certificate of analyst as proof

(11) Subject to subsections (12) and (13), a certificate purporting to be signed by an analyst stating that he has analyzed or tested a substance or product and stating the result of his analysis or test is admissible in evidence in any prosecution for an offence under subsection 40(2) or (3) without proof of the signature or official character of the person appearing to have signed the certificate and, in the absence of any evidence to the contrary, is proof of the statements contained in the certificate.

Attendance of analyst

(12) The party against whom there is produced any certificate pursuant to subsection (11) may, with leave of the court, require the attendance of the analyst for the purposes of cross-examination.

Notice

(13) No certificate shall be admitted in evidence pursuant to subsection (11) unless the party intending to produce it has given to the party against whom it is intended to be produced reasonable notice of that intention together with a copy of the certificate in question.

R.S., 1985, c. F-14, s. 38; R.S., 1985, c. 31 (1st Supp.), s. 34.

39. [Repealed, 1991, c. 1, s. 9]

Offence and punishment

40. (1) Every person who contravenes subsection 35(1) is guilty

of

(a) an offence punishable on summary conviction and liable, for a first offence, to a fine not exceeding three hundred thousand dollars and, for any subsequent offence, to a fine not exceeding three hundred thousand dollars or to imprisonment for a term not exceeding six months, or to both; or

(b) an indictable offence and liable, for a first offence, to a fine not exceeding one million dollars and, for any subsequent offence, to a fine not exceeding one million dollars or to imprisonment for a term not exceeding three years, or to both.

Idem

(2) Every person who contravenes subsection 36(1) or (3) is guilty of

(a) an offence punishable on summary conviction and liable, for a first offence, to a fine not exceeding three hundred thousand dollars and, for any subsequent offence, to a fine not exceeding three hundred thousand dollars or to imprisonment for a term not exceeding six months, or to both; or

(b) an indictable offence and liable, for a first offence, to a fine not exceeding one million dollars and, for any subsequent offence, to a fine not exceeding one million dollars or to imprisonment for a term not exceeding three years, or to both.

Other offences

(3) Every person who

(a) fails to provide the Minister with any material or information requested pursuant to subsection 37(1) within a reasonable time after the request is made,

(b) fails to provide or submit any material, information or report that is to be provided or submitted under regulations made pursuant to subsection 37(3),

(c) fails to make a report that he is required to make under subsection 38(4),

(d) carries on any work or undertaking described in subsection 37(1)

- (i) otherwise than in accordance with any material or information relating to the work or undertaking that he provides to the Minister under subsection 37(1),
 - (ii) otherwise than in accordance with any such material or information as required to be modified by any order of the Minister under paragraph 37(2)(a), or
 - (iii) contrary to any order made by the Minister under subsection 37(2),
- (e) fails to take any reasonable measures that he is required to take under subsection 38(5) or fails to take such measures in the required manner, or
- (f) fails to comply with the whole or any part of a direction of an inspector under subsection 38(6),
- (g) [Repealed, 1991, c. 1, s. 10]

is guilty of an offence punishable on summary conviction and liable, for a first offence, to a fine not exceeding two hundred thousand dollars and, for any subsequent offence, to a fine not exceeding two hundred thousand dollars or to imprisonment for a term not exceeding six months, or to both.

(4) [Repealed, 1991, c. 1, s. 10]

Matters of proof

- (5) For the purpose of any proceedings for an offence under subsection (2) or (3),
- (a) a "deposit" as defined in subsection 34(1) takes place whether or not any act or omission resulting in the deposit is intentional; and
 - (b) no water is "water frequented by fish", as defined in subsection 34(1), where proof is made that at all times material to the proceedings the water is not, has not been and is not likely to be frequented in fact by fish.

R.S., 1985, c. F-14, s. 40; 1991, c. 1, s. 10.

41.

(1) to (3) [Repealed, 1991, c. 1, s. 11]

Action to enjoin not prejudiced by prosecution

(4) Notwithstanding that a prosecution has been instituted in respect of an offence under section 40, the Attorney General of Canada may commence and maintain proceedings to enjoin anything punishable as an offence under that section.

R.S., 1985, c. F-14, s. 41; 1991, c. 1, s. 11.

Civil liability to Her Majesty

42. (1) Where there occurs a deposit of a deleterious substance in water frequented by fish that is not authorized under section 36 or a serious and imminent danger thereof by reason of any condition, the persons who at any material time

(a) own the deleterious substance or have the charge, management or control thereof, or

(b) are persons other than those described in paragraph (a) who cause or contribute to the causation of the deposit or danger thereof,

are, subject to subsection (4) in the case of the persons referred to in paragraph (a) and to the extent determined according to their respective degrees of fault or negligence in the case of the persons referred to in paragraph (b), jointly and severally liable for all costs and expenses incurred by Her Majesty in right of Canada or a province, to the extent that those costs and expenses can be established to have been reasonably incurred in the circumstances, of and incidental to the taking of any measures to prevent any such deposit or condition or to counteract, mitigate or remedy any adverse effects that result or may reasonably be expected to result therefrom.

Recovery

(2) All the costs and expenses referred to in subsection (1) are recoverable by Her Majesty in right of Canada or a province with costs in proceedings brought or taken therefor in the name of Her Majesty in any such right in any court of competent jurisdiction.

Liability to fishermen

(3) Where, as a result of a deposit that is not authorized under section 36, a deleterious substance enters water frequented by fish, the persons described in paragraphs (1)(a) and (b) are,

subject to subsection (4) in the case of the persons described in paragraph (1)(a) and to the extent determined according to their respective degrees of fault or negligence in the case of the persons described in paragraph (1)(b), jointly and severally liable for all loss of income incurred by any licensed commercial fisherman, to the extent that the loss can be established to have been incurred as a result of the deposit or of a prohibition to fish resulting therefrom, and all such loss is recoverable with costs in proceedings brought or taken therefor in any court of competent jurisdiction.

Defences to liability

(4) The liability of any person described in paragraph (1)(a) is absolute and does not depend on proof of fault or negligence but no such person is liable for any costs and expenses pursuant to subsection (1) or loss of income pursuant to subsection (3) if he establishes that the occurrence giving rise to the liability was wholly caused by

(a) an act of war, hostilities, civil war, insurrection or a natural phenomenon of an exceptional, inevitable and irresistible character; or

(b) an act or omission with intent to cause damage by a person other than a person for whose wrongful act or omission he is by law responsible.

Exception

(5) Nothing in this section limits or restricts any right of recourse that any person who is liable pursuant to this section may have against any other person.

Limitation

(6) No proceedings may be commenced under subsections (1) to (3) at any time later than two years after the occurrence to which the proceedings relate could reasonably be expected to have become known to Her Majesty in right of Canada or a province or to any licensed commercial fisherman, as the case may be.

Exception

(7) Subsections (1) to (3) do not apply in respect of any deposit of a deleterious substance that, within the meaning of Part XV of the *Canada Shipping Act*, constitutes a discharge of a pollutant caused by or otherwise attributable to a ship.

Other civil remedies not affected

(8) No civil remedy for any act or omission is suspended or affected by reason only that the act or omission is authorized under this Act, is an offence under this Act or gives rise to civil liability under this Act.

R.S., c. 17(1st Supp.), s. 3; 1976-77, c. 35, s. 7.

Annual report

42.1 (1) The Minister shall, as soon as possible after the end of each fiscal year, prepare and cause to be laid before Parliament a report on the administration and enforcement of the provisions of this Act relating to fish habitat protection and pollution prevention for that year.

Statistical summary

(2) The annual report shall include a statistical summary of convictions under section 40 for that year.

1991, c. 1, s. 11.1.

REGULATIONS

Regulations

43. The Governor in Council may make regulations for carrying out the purposes and provisions of this Act and in particular, but without restricting the generality of the foregoing, may make regulations

- (a) for the proper management and control of the sea-coast and inland fisheries;
- (b) respecting the conservation and protection of fish;
- (c) respecting the catching, loading, landing, handling, transporting, possession and disposal of fish;
- (d) respecting the operation of fishing vessels;
- (e) respecting the use of fishing gear and equipment;
- (e.1) respecting the marking, identification and tracking of

fishing vessels;

(e.2) respecting the designation of persons as observers, their duties and their carriage on board fishing vessels;

(f) respecting the issue, suspension and cancellation of licences and leases;

(g) respecting the terms and conditions under which a licence and lease may be issued;

(g.1) respecting any records, books of account or other documents to be kept under this Act and the manner and form in which and the period for which they shall be kept;

(g.2) respecting the manner in which records, books of account or other documents shall be produced and information shall be provided under this Act;

(h) respecting the obstruction and pollution of any waters frequented by fish;

(i) respecting the conservation and protection of spawning grounds;

(j) respecting the export of fish or any part thereof from Canada;

(k) respecting the taking or carrying of fish or any part thereof from one province to any other province;

(l) prescribing the powers and duties of persons engaged or employed in the administration or enforcement of this Act and providing for the carrying out of those powers and duties; and

(m) where a close time, fishing quota or limit on the size or weight of fish has been fixed in respect of an area under the regulations, authorizing persons referred to in paragraph (l) to vary the close time, fishing quota or limit in respect of that area or any portion of that area.

R.S., 1985, c. F-14, s. 43; R.S., 1985, c. 35 (1st Supp.), ss. 3, 7; 1991, c. 1, s. 12.

MARINE PLANTS

Prohibition of harvesting of marine plants in certain cases

44. Except in accordance with the conditions of a licence issued by the Minister under section 45, no person shall harvest marine plants in the coastal waters of Canada in contravention of any regulation made pursuant to paragraph 46(a).

R.S., c. 17(1st Supp.), s. 5.

Licences

45. The Minister may, on receipt of an application made in accordance with the regulations, issue a licence to the applicant for the harvesting of marine plants in the coastal waters of Canada for a term not exceeding one year and on such conditions relating to

(a) the nature of the gear and equipment to be used in the harvesting,

(b) the manner in which the harvesting is to be carried out,

(c) the quantity of marine plants authorized to be harvested thereunder, and

(d) the area or areas within the coastal waters of Canada where the harvesting is to be carried out or where harvesting may not be carried out,

as the Minister considers to be necessary for the protection and conservation of the marine plant resources of the coastal waters of Canada.

R.S., c. 17(1st Supp.), s. 5.

Regulations

46. The Governor in Council may make regulations

(a) prohibiting, subject to the conditions of any licence issued by the Minister under section 45,

(i) the harvesting of marine plants or of any class of marine plants,

(ii) the harvesting of marine plants or of any class of marine

plants in quantities in excess of quantities specified in the regulations, or

(iii) the harvesting of marine plants or of any class of marine plants in a manner specified in the regulations,

in the coastal waters of Canada or any area or areas of the coastal waters of Canada specified in the regulations;

(b) prohibiting, notwithstanding the conditions of any licence, the harvesting of marine plants or of any class of marine plants in any area or areas of the coastal waters of Canada for such period or periods as are specified in the regulations;

(c) requiring persons to whom licences are issued under section 45 to maintain such books and records and to make such returns of information to the Minister as the Governor in Council deems necessary for the enforcement of this Act and the regulations; and

(d) prescribing the fees to be paid for licences issued under section 45.

R.S., c. 17(1st Supp.), s. 5; 1976-77, c. 35, s. 11.

Interpretation

47. For the purposes of sections 44 to 46,

"coastal waters of Canada"
«*eaux côtières du Canada* »

"coastal waters of Canada" means all Canadian fisheries waters not within the geographical limits of any province;

"harvest"
«*récolte* »

"harvest" includes cut, take, dredge, rake or otherwise obtain;

"marine plant"
«*plante marine* »

"marine plant" includes all benthic and detached algae, marine flowering plants, brown algae, red algae, green algae and phytoplankton.

R.S., c. 17(1st Supp.), s. 5.

Saving

48. Nothing in sections 44 to 47 shall be construed as preventing traditional harvesting of marine plants by aborigines for their use as food.

R.S., c. 17(1st Supp.), s. 5.

POWERS OF FISHERY OFFICERS AND FISHERY GUARDIANS

Inspection

49. (1) Subject to subsection (2), for the purpose of ensuring compliance with this Act and the regulations, a fishery officer or fishery guardian may enter and inspect any place, including any premises, vessel or vehicle, in which the officer or guardian believes on reasonable grounds there is any work or undertaking or any fish or other thing in respect of which this Act or the regulations apply and may

(a) open any container that the officer or guardian believes on reasonable grounds contains any fish or other thing in respect of which this Act or the regulations apply;

(b) examine any fish or other thing that the officer or guardian finds and take samples of it;

(c) conduct any tests or analyses and take any measurements;
and

(d) require any person to produce for examination or copying any records, books of account or other documents that the officer or guardian believes on reasonable grounds contain information that is relevant to the administration of this Act or the regulations.

Operation of data processing systems and copying equipment

(1.1) In carrying out an inspection of a place under subsection (1), a fishery officer or fishery guardian may,

(a) use or cause to be used any data processing system at the place to examine any data contained in or available to the data

processing system;

(b) reproduce any record or cause it to be reproduced from the data in the form of a print-out or other intelligible output and remove the print-out or other output for examination or copying; and

(c) use or cause to be used any copying equipment at the place to make copies of any record, book of account or other document.

Duty to assist

(1.2) The owner or person in charge of a place that is inspected by a fishery officer or fishery guardian under subsection (1) and every person found in the place shall

(a) give the officer or guardian all reasonable assistance to enable the officer or guardian to carry out the inspection and exercise any power conferred by this section; and

(b) provide the officer or guardian with any information relevant to the administration of this Act or the regulations that the officer or guardian may reasonably require.

Disposition of samples

(1.3) A fishery officer or fishery guardian who takes a sample under paragraph (1)(b) may dispose of it in any manner that the officer or guardian considers appropriate.

Warrant required to enter dwelling-house

(2) Where any place, premises, vessel or vehicle referred to in subsection (1) is a dwelling-house, a fishery officer or fishery guardian may not enter that dwelling-house without the consent of the occupant except under the authority of a warrant issued under subsection (3).

Authority to issue warrant

(3) Where on *ex parte* application a justice of the peace is satisfied by information on oath

(a) that the conditions for entry described in subsection (1) exist in relation to a dwelling-house,

(b) that entry to the dwelling-house is necessary for any

purpose relating to the administration or enforcement of this Act, and

(c) that entry to the dwelling-house has been refused or that there are reasonable grounds for believing that entry thereto will be refused,

the justice of the peace may issue a warrant under his hand authorizing the fishery officer or fishery guardian named therein to enter that dwelling-house subject to such conditions as may be specified in the warrant.

(4) [Repealed, 1991, c. 1, s. 13]

R.S., 1985, c. F-14, s. 49; R.S., 1985, c. 31 (1st Supp.), s. 35; 1991, c. 1, s. 13.

Search

49.1 (1) A fishery officer with a warrant issued under subsection (2) may enter and search any place, including any premises, vessel or vehicle, in which the officer believes on reasonable grounds there is

(a) any work or undertaking that is being or has been carried on in contravention of this Act or the regulations;

(b) any fish or other thing by means of or in relation to which this Act or the regulations have been contravened; or

(c) any fish or other thing that will afford evidence in respect of a contravention of this Act or the regulations.

Authority to issue warrant

(2) Where on *ex parte* application a justice of the peace is satisfied by information on oath that there are reasonable grounds to believe that there is in any place referred to in subsection (1) any fish or other thing referred to in subsection (1), the justice may issue a warrant authorizing the fishery officer named in the warrant to enter and search the place for the thing subject to any conditions that may be specified in the warrant.

Where warrant not necessary

(3) Notwithstanding subsection (1), a fishery officer may exercise the power of search referred to in that subsection without a

warrant issued under subsection (2) if the conditions for obtaining the warrant exist but by reason of exigent circumstances it would not be practical to obtain the warrant.

Exigent circumstances

(4) For the purposes of subsection (3), exigent circumstances include circumstances in which the delay necessary to obtain the warrant would result in danger to human life or safety or the loss or destruction of evidence.

Powers during search

(5) In carrying out a search of a place under this section, a fishery officer may exercise any power mentioned in subsection 49(1), (1.1) or (1.3).

R.S., 1985, c. 31 (1st Supp.), s. 35; 1991, c. 1, s. 14.

Arrest

50. Any fishery officer, fishery guardian or peace officer may arrest without warrant a person who that fishery officer, guardian or peace officer believes, on reasonable grounds, has committed an offence against this Act or any of the regulations, or whom he finds committing or preparing to commit an offence against this Act or any of the regulations.

R.S., c. F-14, s. 36.

Seizure of fishing vessel, etc.

51. A fishery officer or fishery guardian may seize any fishing vessel, vehicle, fish or other thing that the officer or guardian believes on reasonable grounds was obtained by or used in the commission of an offence under this Act or will afford evidence of an offence under this Act, including any fish that the officer or guardian believes on reasonable grounds

(a) was caught, killed, processed, transported, purchased, sold or possessed in contravention of this Act or the regulations; or

(b) has been intermixed with fish referred to in paragraph (a).

R.S., 1985, c. F-14, s. 51; 1991, c. 1, s. 15.

Entry by fishery officer

52. In the discharge of his duties, any fishery officer, fishery guardian or other person accompanying him or authorized to such effect by the fishery officer may enter on and pass through or over private property without being liable for trespass.

R.S., c. F-14, s. 39.

Disputes

53. Disputes between persons relating to fishing limits or claims to fishery stations, or relating to the position and use of nets and other fishing apparatus, shall be settled by the local fishery officer.

R.S., c. F-14, s. 40.

Distances between fisheries

54. Fishery officers may determine or prescribe the distance between each and every fishery and shall forthwith remove any fishing apparatus or materials that the owner neglects or refuses to remove, and the owner is liable for a contravention of this Act and for the cost of removing the apparatus and materials and any damages that may result therefrom.

R.S., c. F-14, s. 41.

Boundaries of estuary fishing

55. The Minister, or any fishery officer duly authorized by the Minister, has power to define the boundaries of tidal waters and estuaries and to designate what is the mouth of any river, stream or other water for the purposes of this Act.

R.S., c. F-14, s. 42.

Gurry grounds

56. Gurry grounds may be designated or defined by any fishery officer.

R.S., c. F-14, s. 43.

CULTURE OF FISH

Waters for propagation of fish

57. The Minister may authorize any river or other water to be set apart for the natural or artificial propagation of fish.

R.S., c. F-14, s. 44.

Special licences for oyster beds

58. Special licences and leases for any term of years may be granted to any person who wishes to plant or form oyster beds in any of the bays, inlets, harbours, creeks or rivers, or between any of the islands on the coast of Canada, and the holder of any such licence or lease has the exclusive right to the oysters produced or found on the beds within the limits of the licence or lease.

R.S., 1985, c. F-14, s. 58; 1999, c. 31, s. 123(F).

Authority to provinces to grant leases for oyster cultivation

59. (1) The Governor in Council may, on such terms and conditions as are agreed on, authorize the government of any province to grant leases of such areas of the sea-coast, bays, inlets, harbours, creeks, rivers and estuaries of the province as the government of the province considers suitable for the cultivation and production of oysters, and any persons to whom such leases are granted by the province, subject to the fishery regulations of Canada, have the exclusive right to the oysters produced or found on the beds within the limits of their respective leases.

Rights of Canada preserved

(2) Where an area referred to in subsection (1) or any part thereof is in a public harbour, nothing in that subsection prejudices the right or title of Canada to the enjoyment and use of the harbour for every purpose other than the cultivation and production of oysters.

R.S., 1985, c. F-14, s. 59; 1999, c. 31, s. 124(F).

VACANT PUBLIC PROPERTY

Vacant public property

60. (1) Every subject of Her Majesty may, for the purpose of landing, salting, curing and drying fish, use, and cut wood on, vacant public property that by law is common and accessory to

public rights of fishery and navigation.

Prohibition

(2) No person shall occupy the same station on vacant public property described in subsection (1) unless it has been abandoned by the first occupant for twelve consecutive months.

Payment may be required

(3) At the expiration of the twelve months referred to in subsection (2), any new occupier shall pay the value of the flakes and stages and other property thereon, of which he takes possession, or the buildings and improvements may be removed by the original owner.

Leased property

(4) No property leased or licensed shall be deemed vacant.

R.S., c. F-14, s. 47.

INFORMATION RETURNS

Persons who may be required to provide information

61. (1) The following persons may be required under this Act to provide information or to keep records, books of account or other documents:

- (a) any person who engages in fishing;
- (b) any person who purchases fish for the purpose of resale;
- (c) any owner, operator or manager of an enterprise that catches, cultures, processes or transports fish; and
- (d) any agent or employee of a person referred to in paragraphs (a) to (c).

Information that may be required

(2) A person referred to in subsection (1) may be required to provide information or to keep records or other documents relating to any of the following matters:

- (a) the number, sex, size, weight, species, product form, value

or other particulars of any fish caught, cultured, processed, transported, sold or purchased;

(b) the time and place at which any fish was caught or landed and the person, enterprise or vessel by which the fish was caught or landed;

(c) the time and place at which any fish was purchased and the person, enterprise or vessel from which the fish was purchased;

(d) the vessels, gear and methods used and the number of persons employed for the purpose of catching fish;

(e) the buildings, equipment, products and methods used and the number of persons employed for the purpose of culturing or processing fish; and

(f) any other matter relating to the proper management and control of fisheries or the conservation and protection of fish.

Duty to keep books

(3) A person referred to in subsection (1) shall keep any records, books of account or other documents that may be required by the regulations or by the terms and conditions of any lease or licence issued to the person under this Act and the records, books of account or other documents shall be kept in the manner and form and for the period prescribed by the regulations, lease or licence.

Duty to provide information

(4) A person referred to in subsection (1) shall, on the request of any fishery officer or fishery guardian, provide the officer or guardian, or any authority designated by the officer or guardian, with any information relating to a matter mentioned in subsection (2) that the officer or guardian may request.

Idem

(5) A person referred to in subsection (1) shall, in accordance with the regulations and the terms and conditions of any lease or licence issued to the person under this Act, provide a fishery officer, a fishery guardian or any authority designated in the regulations, lease or licence with any information relating to a matter mentioned in subsection (2) that the regulations, lease or licence requires.

R.S., 1985, c. F-14, s. 61; 1991, c. 1, s. 18.

OBSTRUCTION AND FALSE INFORMATION

Obstruction

62. No person shall obstruct or hinder a fishery officer, a fishery guardian or an inspector who is carrying out duties or functions under this Act.

R.S., 1985, c. F-14, s. 62; R.S., 1985, c. 1 (2nd Supp.), s. 213; 1991, c. 1, s. 18.

False statements to fishery officer, etc.

63. (1) No person shall make a false or misleading statement, whether orally or in writing, to an inspector, a fishery officer or a fishery guardian or any authority designated by a fishery officer or a fishery guardian who is carrying out duties or functions under this Act.

False statements in licence application

(2) No person shall make a false or misleading statement, whether orally or in writing, in an application for a lease or licence under this Act.

False records

(3) No person shall produce for examination or copying by an inspector, a fishery officer or a fishery guardian or any authority designated by a fishery officer or a fishery guardian any records, books of account or other documents that contain false or misleading information.

R.S., 1985, c. F-14, s. 63; 1991, c. 1, s. 18.

64. and 65. [Repealed, 1991, c. 1, s. 18]

CONSEQUENCES OF OBSTRUCTION

Failure to provide fish-way, etc.

66. Every owner or occupier of an obstruction across or in any

stream who refuses or neglects to provide and maintain a fish-way or canal in accordance with section 20, to install and maintain fish stops or diverters in accordance with subsection 21(4) or to provide for a sufficient flow of water and the free passage of fish in accordance with section 22 is guilty of an offence punishable on summary conviction and liable, for a first offence, to a fine not exceeding two hundred thousand dollars and, for any subsequent offence, to a fine not exceeding two hundred thousand dollars or to imprisonment for a term not exceeding six months, or to both.

R.S., 1985, c. F-14, s. 66; 1991, c. 1, s. 19.

Payment respecting certain obstructions

67. (1) Where the Minister determines that the provision, which he deems necessary for the public interest, of an efficient fish-way or canal around any obstruction is not feasible or that the spawning areas above the obstruction are destroyed by reason of the obstruction, the owner or occupier of the obstruction shall from time to time pay to the Receiver General such lump sum or annual sum of money as may be assessed against the owner or occupier by the Minister for the purpose of constructing, operating and maintaining such complete hatchery establishment as will, in the opinion of the Minister, meet the requirements for maintaining the annual return of migratory fish.

Assessment recoverable on suit in Federal Court

(2) The lump sum or annual sum referred to in subsection (1) shall be payable at such time or times as the Minister may direct and may be sued for and recovered with full costs of suit in the Federal Court.

R.S., c. F-14, s. 53; R.S., c. 10(2nd Supp.), s. 64.

68. [Repealed, 1991, c. 1, s. 20]

Failure to provide fish guard, etc.

69. Every owner or occupier of a water intake, ditch, channel or canal referred to in subsection 30(1) who refuses or neglects to provide and maintain a fish guard, screen, covering or netting in accordance with subsections 30(1) to (3), permits the removal of a fish guard, screen, covering or netting in contravention of subsection 30(3) or refuses or neglects to close a sluice or gate in accordance with subsection 30(4) is guilty of an offence punishable on summary conviction and liable, for a first offence, to

a fine not exceeding two hundred thousand dollars and, for any subsequent offence, to a fine not exceeding two hundred thousand dollars or to imprisonment for a term not exceeding six months, or to both.

R.S., 1985, c. F-14, s. 69; 1991, c. 1, s. 21.

DISPOSITION OF SEIZED THINGS

Custody of seized things

70. (1) A fishery officer or fishery guardian who seizes any fish or other thing under this Act may retain custody of it or deliver it into the custody of any person the officer or guardian considers appropriate.

Request by officer or guardian

(2) A person who is given custody of any fish or other thing under subsection (1) shall, on the request of a fishery officer or fishery guardian at any reasonable time, make the fish or thing available for inspection by or deliver it into the custody of the officer or guardian.

Perishables

(3) A fishery officer or fishery guardian who has custody of any fish or other perishable thing seized under this Act may dispose of it in any manner the officer or guardian considers appropriate and any proceeds realized from its disposition shall be paid to the Receiver General.

R.S., 1985, c. F-14, s. 70; 1991, c. 1, s. 21.

Detention of seized things

71. (1) Subject to this section, any fish or other thing seized under this Act, or any proceeds realized from its disposition, may be detained until the fish or thing or proceeds are forfeited or proceedings relating to the fish or thing are finally concluded.

Return on deposit of security

(2) Subject to subsection 72(4), a court may order any fish or other thing seized under this Act to be returned to the person from whom it was seized if security is given to Her Majesty in a form and amount that is satisfactory to the Minister.

Return where proceedings not instituted

(3) Subject to subsection 72(4), where proceedings are not instituted in relation to any fish or other thing seized under this Act, the fish or thing or any proceeds realized from its disposition shall be returned to the person from whom it was seized

(a) on the Minister's decision not to institute proceedings; or

(b) on the expiration of ninety days after the day of the seizure or any further period that may be specified in an order made under subsection (4).

Order to extend detention

(4) Where a court is satisfied, on the application of the Minister within ninety days after the day on which any fish or other thing is seized, that detention of the fish or thing for a period greater than ninety days is justified in the circumstances, the court may, by order, permit the fish or thing to be detained for any further period that may be specified in the order.

R.S., 1985, c. F-14, s. 71; 1991, c. 1, s. 21.

Recovery of costs

71.1 (1) Where a person is convicted of an offence under this Act, the court may, in addition to any punishment imposed, order the person to pay the Minister an amount of money as compensation for any costs incurred in the seizure, storage or disposition of any fish or other thing seized under this Act by means of or in relation to which the offence was committed.

Debt due to Her Majesty

(2) Where a court orders a person to pay an amount of money as compensation under subsection (1), the amount and any interest payable on that amount constitute a debt due to Her Majesty and may be recovered as such in any court of competent jurisdiction.

1991, c. 1, s. 21.

Forfeiture of things

72. (1) Where a person is convicted of an offence under this Act, the court may, in addition to any punishment imposed, order that any thing seized under this Act by means of or in relation to

which the offence was committed, or any proceeds realized from its disposition, be forfeited to Her Majesty.

Forfeiture of fish

(2) Where a person is convicted of an offence under this Act that relates to fish seized pursuant to paragraph 51(a), the court shall, in addition to any punishment imposed, order that the fish, or any proceeds realized from its disposition, be forfeited to Her Majesty.

Idem

(3) Where a person is charged with an offence under this Act that relates to fish seized pursuant to paragraph 51(a) and the person is acquitted but it is proved that the fish was caught in contravention of this Act or the regulations, the court may order that the fish, or any proceeds realized from its disposition, be forfeited to Her Majesty.

Forfeiture where ownership not ascertainable

(4) Where the ownership of any fish or other thing seized under this Act cannot be ascertained at the time of the seizure, the fish or thing is thereupon forfeited to Her Majesty.

R.S., 1985, c. F-14, s. 72; R.S., 1985, c. 31 (1st Supp.), s. 96; 1991, c. 1, s. 21.

Disposal of forfeited things

73. (1) Subject to sections 75 to 77, any fish or other thing forfeited to Her Majesty under subsection 72(1), (2) or (3) shall be disposed of after the final conclusion of the proceedings relating to the fish or thing, as the Minister directs.

Disposal where ownership not ascertained

(2) Subject to sections 75 to 77, any fish or other thing forfeited to Her Majesty under subsection 72(4) shall be disposed of after the expiration of thirty days from the day of forfeiture, as the Minister directs.

Exception

(3) Notwithstanding subsection (2), where any fishing gear or equipment is forfeited under subsection 72(4), it may be disposed of immediately on its forfeiture, as the Minister directs.

R.S., 1985, c. F-14, s. 73; 1991, c. 1, s. 21.

Return of things not forfeited

73.1 (1) Subject to subsection (2), any fish or other thing seized under this Act, or any proceeds realized from its disposition, that are not forfeited to Her Majesty under section 72 shall, on the final conclusion of the proceedings relating to the fish or thing, be delivered to the person from whom the fish or thing was seized.

Exception

(2) Subject to subsection 72(4), where a person is convicted of an offence relating to any fish or other thing seized under this Act and the court imposes a fine but does not order forfeiture,

- (a) the fish or thing may be detained until the fine is paid;
- (b) it may be sold under execution in satisfaction of the fine; or
- (c) any proceeds realized from its disposition may be applied in payment of the fine.

1991, c. 1, s. 21.

Release of seized fish

73.2 Notwithstanding anything in sections 70 to 73.1, a fishery officer or fishery guardian who seizes any fish under this Act may, at the time of the seizure, return to the water any fish that the officer or guardian believes to be alive.

1991, c. 1, s. 21.

Definitions

74. In sections 75 and 76,

"court of appeal"
«*cour d'appel* »

"court of appeal" means, in the province in which an order under section 75 is made, the court of appeal for that province as defined in section 2 of the *Criminal Code*;

"judge"

«*judge* »

"judge" means

(a) in the Province of Quebec, a judge of the Superior Court for the district in which the thing in respect of which an application for an order under section 75 is made was seized,

(a.1) in the Province of Ontario, a judge of the Superior Court of Justice,

(b) in the Provinces of New Brunswick, Manitoba, Saskatchewan and Alberta, a judge of the Court of Queen's Bench,

(c) in the Province of Prince Edward Island, a judge of the Trial Division of the Supreme Court,

(c.1) [Repealed, 1992, c. 51, s. 50]

(d) in the Provinces of Nova Scotia, British Columbia and Newfoundland, Yukon and the Northwest Territories, a judge of the Supreme Court, and

(e) in Nunavut, a judge of the Nunavut Court of Justice.

R.S., 1985, c. F-14, s. 74; R.S., 1985, c. 27 (2nd Supp.), s. 10; 1990, c. 16, s. 10, c. 17, s. 20; 1992, c. 51, s. 50; 1998, c. 30, s. 14; 1999, c. 3, s. 65; 2002, c. 7, s. 173.

Application by person claiming interest

75. (1) Where any thing other than fish is forfeited to Her Majesty under subsection 72(1) or (4), any person who claims an interest in the thing as owner, mortgagee, lienholder or holder of any like interest, other than a person convicted of the offence that resulted in the forfeiture or a person from whom the thing was seized, may, within thirty days after the forfeiture, apply in writing to a judge for an order pursuant to subsection (4).

Date of hearing

(2) The judge to whom an application is made pursuant to subsection (1) shall fix a day not less than thirty days after the date of filing of the application for the hearing thereof.

Notice

(3) The applicant shall serve a notice of the application and of the hearing on the Minister at least fifteen days before the day fixed for the hearing.

Order by judge

(4) Where, on the hearing of an application made pursuant to subsection (1), it is made to appear to the satisfaction of the judge,

(a) that the applicant is innocent of any complicity in the offence or alleged offence that resulted in the forfeiture and of any collusion in relation to that offence with the person who was convicted of, or who may have committed, the offence, and

(b) that the applicant exercised all reasonable care in respect of the person permitted to obtain the possession of the thing in respect of which the application is made to satisfy himself that the thing was not likely to be used contrary to this Act or the regulations, or, in the case of a mortgagee or lienholder, that he exercised such care with respect to the mortgagor or the liengiver,

the applicant is entitled to an order declaring that his interest is not affected by the forfeiture and declaring the nature and extent of his interest.

R.S., 1985, c. F-14, s. 75; 1991, c. 1, s. 22.

Appeal

76. (1) The applicant or the Minister may appeal to the court of appeal from an order made under subsection 75(4) and the appeal shall be asserted, heard and decided according to the ordinary procedure governing appeals to the court of appeal from orders or judgments of a judge.

Application to Minister

(2) The Minister shall, on application made to him by any person who has obtained a final order pursuant to this section or section 75,

(a) except in the case of any thing disposed of under subsection 70(3), direct that the thing to which the interest of

the applicant relates be returned to the applicant; or

(b) direct that an amount equal to the value of the interest of the applicant, as declared in the order, be paid to him.

R.S., 1985, c. F-14, s. 76; 1991, c. 1, s. 23.

Exception

77. Sections 74 to 76 do not apply to

(a) any fishing gear or equipment that has been disposed of pursuant to subsection 73(3); or

(b) any fish that have been returned to the water pursuant to section 73.2.

R.S., 1985, c. F-14, s. 77; 1991, c. 1, s. 24.

OFFENCE AND PUNISHMENT

Punishment not otherwise provided for

78. Except as otherwise provided in this Act, every person who contravenes this Act or the regulations is guilty of

(a) an offence punishable on summary conviction and liable, for a first offence, to a fine not exceeding one hundred thousand dollars and, for any subsequent offence, to a fine not exceeding one hundred thousand dollars or to imprisonment for a term not exceeding one year, or to both; or

(b) an indictable offence and liable, for a first offence, to a fine not exceeding five hundred thousand dollars and, for any subsequent offence, to a fine not exceeding five hundred thousand dollars or to imprisonment for a term not exceeding two years, or to both.

R.S., 1985, c. F-14, s. 78; 1991, c. 1, s. 24.

Continuing offences

78.1 Where any contravention of this Act or the regulations is committed or continued on more than one day, it constitutes a separate offence for each day on which the contravention is

committed or continued.

1991, c. 1, s. 24.

Offences by corporate officers, etc.

78.2 Where a corporation commits an offence under this Act, any officer, director or agent of the corporation who directed, authorized, assented to, acquiesced in or participated in the commission of the offence is a party to and guilty of the offence and is liable on conviction to the punishment provided for the offence, whether or not the corporation has been prosecuted.

1991, c. 1, s. 24.

Offences by employers

78.3 In any prosecution for an offence under this Act, it is sufficient proof of the offence to establish that it was committed by an employee or agent of the accused, whether or not the employee or agent is identified or has been prosecuted for the offence, unless the accused establishes that the offence was committed without the knowledge or consent of the accused.

1991, c. 1, s. 24.

Offences by licence holders

78.4 In any prosecution for an offence under this Act, it is sufficient proof of the offence to establish that it was committed by a person in respect of any matter relating to any operations under a lease or licence issued to the accused pursuant to this Act or the regulations, whether or not the person is identified or has been prosecuted for the offence, unless the accused establishes that the offence was committed without the knowledge or consent of the accused.

1991, c. 1, s. 24.

Burden of proving licence

78.5 In any prosecution for an offence under this Act, where a question arises as to whether a person was issued a licence, the burden is on the person to establish that the licence was issued.

1991, c. 1, s. 24.

Due diligence defence

78.6 No person shall be convicted of an offence under this Act if the person establishes that the person

(a) exercised all due diligence to prevent the commission of the offence; or

(b) reasonably and honestly believed in the existence of facts that, if true, would render the person's conduct innocent.

1991, c. 1, s. 24.

Additional fine

79. Where a person is convicted of an offence under this Act and the court is satisfied that as a result of committing the offence the person acquired monetary benefits or monetary benefits accrued to the person, the court may, notwithstanding the maximum amount of any fine that may otherwise be imposed under this Act, order the person to pay an additional fine in an amount equal to the court's finding of the amount of those monetary benefits.

R.S., 1985, c. F-14, s. 79; 1991, c. 1, s. 24.

Lease or licence cancelled, etc.

79.1 Where a person is convicted of an offence under this Act in respect of any matter relating to any operations under a lease or licence issued pursuant to this Act or the regulations, in addition to any punishment imposed, the court may, by order,

(a) cancel the lease or licence or suspend it for any period the court considers appropriate; and

(b) prohibit the person to whom the lease or licence was issued from applying for any new lease or licence under this Act during any period the court considers appropriate.

R.S., 1985, c. 31 (1st Supp.), s. 97; 1991, c. 1, s. 24.

Orders of court

79.2 Where a person is convicted of an offence under this Act, in addition to any punishment imposed, the court may, having regard to the nature of the offence and the circumstances surrounding its commission, make an order containing any one or more of the following prohibitions, directions or requirements:

(a) prohibiting the person from doing any act or engaging in any activity that may, in the opinion of the court, result in the continuation or repetition of the offence;

(b) directing the person to take any action the court considers appropriate to remedy or avoid any harm to any fish, fishery or fish habitat that resulted or may result from the commission of the offence;

(c) directing the person to publish, in any manner the court considers appropriate, the facts relating to the commission of the offence;

(d) directing the person to pay the Minister an amount of money as compensation, in whole or in part, for the cost of any remedial or preventive action taken by or caused to be taken on behalf of the Minister as a result of the commission of the offence;

(e) directing the person to perform community service in accordance with any reasonable conditions that may be specified in the order;

(f) directing the person to pay Her Majesty an amount of money the court considers appropriate for the purpose of promoting the proper management and control of fisheries or fish habitat or the conservation and protection of fish or fish habitat;

(g) directing the person to post a bond or pay into court an amount of money the court considers appropriate for the purpose of ensuring compliance with any prohibition, direction or requirement mentioned in this section;

(h) directing the person to submit to the Minister, on application by the Minister within three years after the date of the conviction, any information respecting the activities of the person that the court considers appropriate in the circumstances; and

(i) requiring the person to comply with any other conditions that

the court considers appropriate for securing the person's good conduct and for preventing the person from repeating the offence or committing other offences under this Act.

1991, c. 1, s. 24.

Suspended sentence

79.3 (1) Where a person is convicted of an offence under this Act and the court suspends the passing of sentence pursuant to paragraph 731(1)(a) of the *Criminal Code*, the court may, in addition to any probation order made under that paragraph, make an order directing the person to comply with any prohibition, direction or requirement mentioned in section 79.2.

Imposition of sentence

(2) Where a person whose sentence has been suspended fails to comply with an order made under subsection (1) or is convicted, within three years after the day on which the order was made, of another offence under this Act, the court may, on the application of the Attorney General, impose any sentence that could have been imposed if the passing of sentence had not been suspended.

1991, c. 1, s. 24; 1995, c. 22, s. 17.

Debt due to Her Majesty

79.4 (1) Where the court makes an order under section 79.2 or 79.3 directing a person to pay an amount of money as compensation or for any other purpose, the amount and any interest payable on that amount constitute a debt due to Her Majesty and may be recovered as such in any court of competent jurisdiction.

Publication

(2) Where a person fails to comply with an order made under section 79.2 or 79.3 directing the person to publish the facts relating to the commission of an offence, the Minister may publish those facts and recover the costs of publication from the person.

Idem

(3) Where the Minister incurs publication costs under subsection (2), the amount of the costs and any interest payable on that amount constitute a debt due to Her Majesty and may be

recovered as such in any court of competent jurisdiction.

1991, c. 1, s. 24.

Variation of orders

79.5 (1) A court that has made an order under section 79.2 or 79.3 may, on application by the Attorney General or the person to whom the order applies, require the person to appear before it and, after hearing the person and the Attorney General, vary the order in any of the following ways that the court considers appropriate because of a change in the circumstances of the person since the order was made:

(a) change the order or any prohibition, direction or requirement mentioned in the order;

(b) relieve the person, either absolutely or partially and for any period that the court considers appropriate, of compliance with any prohibition, direction or requirement mentioned in the order; or

(c) extend or decrease the period during which the order shall remain in force.

Limitation

(2) Where an application has been heard by a court under subsection (1), no other application may be made in respect of the same order except with leave of the court.

1991, c. 1, s. 24.

Offence and punishment

79.6 Every person convicted of an offence under this Act who subsequently contravenes an order made under section 79.2 or 79.3 is guilty of

(a) an offence punishable on summary conviction and liable to a punishment not exceeding the maximum punishment to which a person is liable on summary conviction for the original offence; or

(b) an indictable offence and liable to a punishment not exceeding the maximum punishment to which a person is liable

on conviction on indictment for the original offence.

1991, c. 1, s. 24.

TICKETABLE OFFENCES

Procedure

79.7 (1) In addition to the procedures set out in the *Criminal Code* for commencing a proceeding, proceedings in respect of any offence prescribed by regulation may be commenced by a fishery officer, fishery guardian or inspector

- (a) completing a ticket that consists of a summons portion and an information portion;
- (b) delivering the summons portion of the ticket to the accused or mailing it to the accused at the accused's latest known address; and
- (c) filing the information portion of the ticket with a court of competent jurisdiction before or as soon as practicable after the summons portion has been delivered or mailed.

Content of ticket

- (2) The summons and information portions of a ticket shall
 - (a) set out a description of the offence and the time and place of its alleged commission;
 - (b) include a statement, signed by the fishery officer, fishery guardian or inspector who completes the ticket, that the officer, guardian or inspector, as the case may be, has reasonable grounds to believe that the accused committed the offence;
 - (c) set out the amount of the fine prescribed by regulation for the offence and the manner in which and period within which it may be paid;
 - (d) include a statement that if the accused pays the fine within the period set out in the ticket, a conviction will be entered and recorded against the accused; and
 - (e) include a statement that if the accused wishes to plead not guilty or for any other reason fails to pay the fine within the

period set out in the ticket, the accused must appear in the court and at the time set out in the ticket.

Notice of forfeiture

(3) Where any fish or other thing is seized under this Act and proceedings relating to the fish or thing are commenced by way of the ticketing procedure described in subsection (1), the fishery officer, fishery guardian or inspector who completes the ticket shall give written notice to the accused that if the accused pays the fine prescribed by regulation within the period set out in the ticket, the fish or thing, or any proceeds realized from its disposition, shall thereupon be forfeited to Her Majesty.

Consequences of payment

(4) Where an accused to whom the summons portion of a ticket is delivered or mailed pays the fine prescribed by regulation within the period set out in the ticket,

(a) the payment constitutes a plea of guilty to the offence described in the ticket and a conviction shall be entered against the accused and no further action shall be taken against the accused in respect of that offence; and

(b) notwithstanding sections 71 to 77, any fish or other thing seized from the accused under this Act relating to the offence described in the ticket, or any proceeds realized from its disposition, are forfeited to Her Majesty and may be disposed of as the Minister directs.

Regulations

(5) The Governor in Council may make regulations prescribing

(a) offences under this Act to which this section applies and the manner in which those offences may be described in tickets; and

(b) the amount of the fine for a prescribed offence, which amount shall not exceed one thousand dollars.

1991, c. 1, s. 24.

JOINT LIABILITY

Who shall be liable

80. Unless otherwise specified, every proprietor, owner, agent, tenant, occupier, partner or person actually in charge, either as occupant or servant, shall be deemed to be jointly and severally liable for any penalties or moneys recovered under any provision of this Act or the regulations.

R.S., c. F-14, s. 62.

81. [Repealed, 1991, c. 1, s. 25]

LIMITATION OF SUITS

Limitation period

82. (1) Proceedings by way of summary conviction in respect of an offence under this Act may be instituted at any time within but not later than two years after the time when the Minister became aware of the subject-matter of the proceedings.

Minister's certificate

(2) A document purporting to have been issued by the Minister, certifying the day on which the Minister became aware of the subject-matter of any proceedings, is admissible in evidence without proof of the signature or of the official character of the person appearing to have signed the document and, in the absence of any evidence to the contrary, is proof of the matter asserted in it.

R.S., 1985, c. F-14, s. 82; 1991, c. 1, s. 26.

FORM OF PROCEDURE

Form of procedure

83. Except as otherwise provided in this Act, all penalties and forfeitures incurred under this Act or any of the regulations are recoverable and enforceable by summary proceedings taken under the provisions of the *Criminal Code* relating to summary convictions.

R.S., c. F-14, s. 65.

No quashing for want of form

84. No proceeding or conviction under this Act or any of the regulations shall be set aside or quashed on *certiorari* or otherwise for irregularity or defect in form, and no warrant of arrest or commitment shall be held void by reason of any defect therein, if it is therein alleged that the defendant has been convicted and there is a good and valid conviction to sustain the same.

R.S., c. F-14, s. 66.

APPLICATIONS OF PENALTIES AND FORFEITURES

Penalties and forfeitures

85. The Governor in Council may prescribe the manner in which the proceeds of penalties and the proceeds of the sale of confiscated things shall be distributed.

R.S., c. F-14, s. 67.

Appeal in proceedings by indictment

86. (1) For the purpose of Part XXI of the *Criminal Code*, any order and any decision not to make an order under subsection 71.1(1), subsection 72(1), (2) or (3) or section 79, 79.1, 79.2 or 79.3 as well as any sentence passed by the court under this Act shall be considered a sentence within the meaning of section 673 of the *Criminal Code*.

Appeal in summary conviction proceedings

(2) For the purpose of Part XXVII of the *Criminal Code*, any order and any decision not to make an order under subsection 71.1(1), subsection 72(1), (2) or (3) or section 79, 79.1, 79.2 or 79.3 as well as any sentence passed by the court under this Act shall be considered a sentence within the meaning of section 785 of the *Criminal Code*.

R.S., 1985, c. F-14, s. 86; 1991, c. 1, s. 27.

APPLICATION OF ACT TO WATERS OTHER THAN CANADIAN FISHERIES

WATERS

Application of Act to High Seas

87. (1) The provisions of this Act and the regulations that apply to any or all of Canadian fisheries waters, without anything in the context of those provisions indicating that they apply to any specified area of Canadian fisheries waters, shall, in relation to any fishing vessel or aircraft on or over the High Seas that is subject to the jurisdiction of Canada, or any act or thing done or omitted to be done on, from or by means of any such fishing vessel or aircraft, be deemed to extend and apply to the High Seas.

Regulations

(2) The Governor in Council may make regulations respecting fisheries located in waters other than Canadian fisheries waters applicable to vessels or aircraft subject to the jurisdiction of Canada.

Inconsistency or conflict

(3) Where there is any inconsistency or conflict between any regulations that apply to the High Seas by virtue of subsection (1) and any regulations made under subsection (2), the latter regulations prevail to the extent of the inconsistency or conflict, unless the context otherwise requires.

R.S., c. F-14, s. 69; 1976-77, c. 35, s. 19.

Jurisdiction of courts

88. All courts and justices in Canada have the same jurisdiction with respect to offences under this Act as they have under sections 610 and 611 of the *Canada Shipping Act* with respect to offences under that Act, and those sections apply to offences under this Act in the same manner and to the same extent as they apply to offences under the *Canada Shipping Act*.

R.S., 1985, c. F-14, s. 88; 1990, c. 44, s. 18.

AMENDMENTS NOT IN FORCE

-- **1992, c. 47, s. 84 (Sch., s. 3):**

1991, c. 1, s. 24

3. The heading preceding section 79.7 and section 79.7 are repealed.

-- 2001, c. 26, ss. 300 to 302:

300. Subsection 38(7) of the *Fisheries Act* is replaced by the following:

Inconsistent orders

(7) Any requirement or direction of an inspector under this section that is inconsistent with any direction of a marine safety inspector under the *Canada Shipping Act, 2001* is void to the extent of the inconsistency.

-- 2001, c. 26, ss. 300 to 302:

301. Subsection 42(7) of the Act is replaced by the following:

Exception

(7) Subsections (1) to (3) do not apply in respect of any deposit of a deleterious substance that, within the meaning of Part 8 or 9 of the *Canada Shipping Act, 2001*, constitutes a discharge of a pollutant caused by or otherwise attributable to a vessel.

-- 2001, c. 26, ss. 300 to 302:

1990, c. 44, s. 18(2)

302. Section 88 of the Act is replaced by the following:

Jurisdiction of courts

88. All courts and justices in Canada have the same jurisdiction with respect to offences under this Act as they have under sections 257 and 258 of the *Canada Shipping Act, 2001* with respect to offences under that Act, and those sections apply to offences under this Act in the same manner and to the same extent as they apply to offences under the *Canada Shipping Act, 2001*.

RELATED PROVISIONS

-- **R.S., 1985, c. 27 (2nd Supp.), s. 11:**

Transitional: proceedings

***11.** Proceedings to which any of the provisions amended by the schedule apply that were commenced before the coming into force of section 10 shall be continued in accordance with those amended provisions without any further formality.

* [Note: Section 10 in force October 1, 1987, see SI/87-221.]

-- **R.S., 1985, c. 40 (4th Supp.), s. 2(2):**

Transitional— proceedings

***(2)** Every proceeding commenced before the coming into force of this section under a provision amended by the schedule shall be taken up and continued under and in conformity with the amended provision without any further formality.

* [Note: Section 2 in force August 31, 1988, see SI/88-135.]

-- **1990, c. 16, s. 24(1):**

Transitional: proceedings

***24.** (1) Every proceeding commenced before the coming into force of this subsection and in respect of which any provision amended by this Act applies shall be taken up and continued under and in conformity with that amended provision without any further formality.

* [Note: Subsection 24(1) in force July 1, 1990, see SI/90-90.]

-- **1990, c. 17, s. 45(1):**

Transitional: proceedings

***45.** (1) Every proceeding commenced before the coming into force of this subsection and in respect of which any provision amended by this Act applies shall be taken up and continued

under and in conformity with that amended provision without any further formality.

* [Note: Subsection 45(1) in force September 1, 1990, see SI/90-106.]

-- 1998, c. 30, s. 10:

Transitional — proceedings

***10. Every proceeding commenced before the coming into force of this section and in respect of which any provision amended by sections 12 to 16 applies shall be taken up and continued under and in conformity with that amended provision without any further formality.**

* [Note: Section 10 in force April 19, 1999, see SI/99-37.]

Last updated: 2007-01-17




[Important Notices](#)

Last updated:
2007-01-17



[Important Notices](#)

Attendance of meeting, July 25, 2002, re. Nova Stone Exporters proposal:

	name/organization	signature	ph. #
1.	BRIAN JOHNSON/DFD		902 426 2545
2.	Paul Kruger		902 426 6138
3.	David W. Kern		902-532-560
4.	John Wall Clayton Sand Co.		290-447-723
5.	PAUL Buxton Global Quartz Products Inc.		902-638-8100
6.	Jim Ross		902-426-6111
7.	STUART LANE NWPA		(902) 426-272
8.	Thomas J. Wheaton		902-742-0873
9.	Tim Surette		902-742-0871
10.	Tony Henderson (DFD)		902-426-7831

Nova Stone meeting with DFO

Subject: Nova Stone meeting with DFO

Date: Tue, 16 Jul 2002 15:42:57 -0300

From: "Ross, Jim" <RossJ@mar.dfo-mpo.gc.ca>

To: "paul.buxton@ns.sympatico.ca" <paul.buxton@ns.sympatico.ca>

Mr. Buxton:

As discussed with you on July 12, I have set up a meeting to discuss the Nova Stone Exporters project. The meeting will be on Thursday, July 25 starting at 10:00 at Bedford Institute of Oceanography, Dartmouth, on the 5th floor of the Polaris Bldg.

Enter the building by the main entrance and call me from the front desk (426-6111). I will come down to meet you.

Jim

Jim Ross
Section Head
Habitat Management Division,
Fisheries and Oceans
Bedford Institute of Oceanography
(902)426-6111 (ph.)
(902)426-1489 (fax)

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C0560-143

Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters

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Winnipeg, Manitoba R3T 2N6

and

Habitat Management & Environmental Science Directorate
Department of Fisheries and Oceans
Ottawa, Ontario K1A 0E6

1998

**Canadian Technical Report of
Fisheries and Aquatic Sciences 2107**

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Fisheries and Aquatic Sciences 2107

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**GUIDELINES FOR THE USE OF EXPLOSIVES IN OR NEAR
CANADIAN FISHERIES WATERS**

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ABSTRACT

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.

The federal *Fisheries Act* includes provisions for the protection of fish, shellfish, crustaceans, marine mammals and their habitats. The detonation of explosives in or adjacent to fish habitat has been demonstrated to cause disturbance, injury and/or death to fish and marine mammals, and/or the harmful alteration, disruption or destruction of their habitats, sometimes at a considerable distance from the point of detonation.

Within the context of the guidelines and procedures outlined in this report, an explosive is defined as a chemical compound which, when detonated, creates a compressional wave having an almost instantaneous rise time to a very high peak pressure followed by a decay to below ambient pressure by either rapid oxidation or the breaking of high-energy chemical bonds.

The purpose of this report is to provide information to proponents who are proposing works or undertakings that involve the use of confined or unconfined explosives in or near Canadian fisheries waters, and to which the *Fisheries Act*, Sections 32 and 35 in particular, may apply. Guidelines are provided on methods and practices for the conservation and protection of fish, marine mammals, and fish habitat from impacts arising from the destructive forces of explosives. The report describes the suggested application and review procedures and processes for proponents whose use of explosives may result in the destruction of fish, or the harmful alteration, disruption or destruction of fish habitat.

RÉSUMÉ ANALYTIQUE

Wright, D.G. et G.E. Hopky. *Lignes directrices concernant l'utilisation d'explosifs à l'intérieur ou à proximité des eaux de pêche canadiennes*, rapport technique canadien des sciences halieutiques et aquatiques 2107, 1998, iv + 34 p.

La *Loi sur les pêches* fédérale renferme des dispositions relatives à la protection du poisson, des mollusques, des crustacés, des mammifères marins et de leur habitat. Il a été prouvé que la détonation d'explosifs dans l'habitat du poisson ou à proximité perturbe, blesse ou tue des poissons et des mammifères marins ou encore entraîne la détérioration, la destruction ou la perturbation de leur habitat. Il arrive parfois que les dommages se fassent sentir à une distance considérable du point de détonation.

Aux fins des lignes directrices et des procédures énoncées dans le présent rapport, on entend par explosif un composé chimique qui, lorsqu'il explose, crée une vague de compression entraînant presque instantanément un pic de pression extrêmement élevé suivi d'une décroissance sous la pression ambiante soit par oxydation rapide ou par la rupture des liaisons chimiques à haute énergie.

Le présent rapport a pour but de fournir de l'information aux promoteurs qui proposent des ouvrages ou des entreprises nécessitant l'utilisation d'explosifs confinés ou non confinés à l'intérieur ou à proximité des eaux de pêche canadiennes et auxquels la *Loi sur les pêches*, plus précisément les articles 32 et 35, pourraient s'appliquer. Il renferme des lignes directrices concernant les méthodes et pratiques de conservation et de protection du poisson, des mammifères marins et de leur habitat contre les effets découlant de la force destructrice des explosifs. On y décrit les procédures de présentation des demandes et d'examen pour les promoteurs qui prévoient l'utilisation d'explosifs de nature à entraîner la destruction du poisson ou la détérioration, la perturbation ou la destruction de son habitat.

SCOPE AND RATIONALE

The federal *Fisheries Act* includes provisions for the protection of fish, shellfish, crustaceans, marine mammals and their habitats. The detonation of explosives in or adjacent to fish habitat has been demonstrated to cause disturbance, injury and/or death to fish and marine mammals, and/or the harmful alteration, disruption or destruction of their habitats, sometimes at a considerable distance from the point of detonation. Therefore, the Department of Fisheries and Oceans (DFO) has prepared this document to provide information to proponents on the conservation and protection of fish, marine mammals, and their habitat from impacts arising from the use of confined or unconfined explosives in or near Canadian fisheries waters. The guidelines, and application and review procedures and processes outlined in this document apply in the context of the legislative and policy framework summarized below.

APPLICABLE LEGISLATION AND POLICY

Fisheries Act

A number of sections of the *Fisheries Act* and its attendant regulations are applicable to the conservation and protection of fish and fish habitat from the destructive forces of explosives.

- Section 2 defines "Canadian fisheries waters" as meaning all waters in the fishing zones of Canada, all waters in the territorial sea of Canada and all internal waters of Canada.
- Section 2 defines "fish" as including shellfish, crustaceans, marine animals and the eggs, sperm, spawn, spat and juvenile stages of fish, shellfish, crustaceans and marine animals.
- Section 32 prohibits the destruction of fish by any means other than fishing, except as authorized by the Minister of Fisheries and Oceans or under regulations made by the Governor in Council under the *Fisheries Act*.
- Subsection 34(1) defines "fish habitat" as meaning spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out their life processes.
- Subsection 35(1) prohibits any person from carrying on any work or undertaking that results in the Harmful Alteration, Disruption or Destruction (HADD) of fish habitat.
- Subsection 35(2) provides for the alteration, disruption or destruction of fish habitat by any means or under any conditions authorized by the Minister of Fisheries and Oceans or under regulations made by the Governor in Council under the *Fisheries Act*.

- Subsection 36(3) prohibits the deposit of a deleterious substance into waters frequented by fish, unless otherwise permitted by regulation.
- Subsection 58(1) of the *Fishery (General) Regulations* provides for anyone proposing to carry on any work or undertaking likely to result in the HADD of fish habitat, to apply to have the means or conditions of that work or undertaking authorized by the Minister under Subsection 35(2) of the *Fisheries Act*, using the form set out in Schedule VI. Schedule VI includes a section for the applicant to provide details on the proposed use of explosives.
- Subsection 58(2) of the *Fishery (General) Regulations* provides the means for the Department of Fisheries and Oceans to issue Authorizations under Subsection 35(2) of the *Fisheries Act*, using the form set out in Schedule VII.
- Section 7 of the *Marine Mammal Regulations* prohibits disturbance of marine mammals except when fishing for them.

In addition, the Department of Fisheries and Oceans has developed a policy framework to assist in the interpretation and application of the applicable legislation. The most relevant documents are as follows:

- The **Policy for the Management of Fish Habitat** (1986) provides policy direction for interpreting the broad powers mandated in the *Fisheries Act* in a way that is consistent with the concept of sustainable development. To achieve the Policy's goal of fish habitat conservation when reviewing project proposals with the potential to affect fish habitat, DFO's habitat managers apply the No Net Loss (NNL) guiding principle. Under this principle, the Department strives to maintain the existing productive capacity of fish habitats, such that the fish habitat is able to sustain the production of fish suitable for fisheries purposes.

In summary, in order to meet the NNL guiding principle, the habitat manager's first preference is to avoid or reduce the project's potential for a HADD of fish habitat through the application of appropriate mitigation measures. Avoidance measures, such as project relocation or redesign, can be effectively applied at the project design stage. Failing that, impacts may be further reduced by application of specific mitigation measures, such as use of timing windows during the construction phase. If a HADD is still expected to occur, unavoidable - i.e. residual - losses in habitat productive capacity may be compensated on a case-by-case basis if the manager concludes that compensation is acceptable and feasible.

- The **Directive on the Issuance of Subsection 35(2) Authorizations** (1995) clarifies the circumstances when an Authorization under Subsection 35(2) may be issued, and on providing proponents with letters of advice suggesting means of avoiding HADD of fish habitat.

- The **Habitat Conservation and Protection Guidelines** (1998) is a document for use by DFO's staff in administering the habitat provisions of the *Fisheries Act*. It outlines a standard approach to habitat conservation and protection through the application of the NNL guiding principle.

Canadian Environmental Assessment Act

A decision to issue an Authorization under Section 32 or Subsection 35(2) of the *Fisheries Act* triggers an environmental assessment under the *Canadian Environmental Assessment Act* (CEAA).

IMPACTS

The use of explosives may result in a number of adverse impacts on fish and marine mammals, and their habitats.

Effects on Fish

The detonation of explosives in or near water produces post-detonation compressive shock waves characterized by a rapid rise to a high peak pressure followed by a rapid decay to below ambient hydrostatic pressure. The latter pressure deficit causes most impacts on fish.

The primary site of damage in finfish is the swimbladder, the gas-filled organ that permits most pelagic fish to maintain neutral buoyancy. The kidney, liver, spleen, and sinus venous also may rupture and haemorrhage. Fish eggs and larvae also may be killed or damaged (Wright 1982).

Studies (Wright 1982) show that an overpressure in excess of 100 kPa will result in these effects. The degree of damage is related to type of explosive, size and pattern of the charge(s), method of detonation, distance from the point of detonation, water depth, and species, size and life stage of fish.

Vibrations from the detonation of explosives may cause damage to incubating eggs (Wright 1982, Wright in prep.). Sublethal effects, such as changes in behaviour of fish, have been observed on several occasions as a result of noise produced by explosives. The effects may be intensified in the presence of ice and in areas of hard substrate (Wright 1982, Wright in prep.).

The detonation of explosives may be lethal to marine mammals and may cause auditory damage under certain conditions. The detonation of explosives in the proximity of marine mammals also has been demonstrated to induce changes in behaviour (Wright in prep.).

The number of shellfish and crustaceans killed by the detonation of explosives is believed to be negligible, however, few data are available. Sublethal effects of explosives on

shellfish and crustaceans including behavioural modifications are little known or understood (Wright 1982, Wright in prep.).

Effects on Fish Habitat

The use of explosives in and near fish habitat may also result in the physical and/or chemical alteration of that habitat. For example, sedimentation resulting from the use of explosives may cover spawning areas or may reduce or eliminate bottom-dwelling life forms that fish use for food. By-products from the detonation of explosives may include ammonia or similar compounds and may be toxic to fish and other aquatic biota (Wright in prep.).

GUIDELINES, AND APPLICATION AND REVIEW PROCESSES

The following sections have been prepared to guide proponents proposing works or undertakings that involve the use of confined or unconfined explosives in or near Canadian fisheries waters, and to which the *Fisheries Act*, Sections 32 and 35 in particular, may apply. Confined explosives are those that would be used within a substrate, including ice, while unconfined explosives are those that would be used in open water, or not within a substrate.

Note that the information and guidance provided in these sections pertains to the conservation and protection of fish and fish habitat in the context of the *Fisheries Act*, and to the CEAA requirements that may result. There is no intent to relieve the proponent of responsibilities under any other federal, provincial or municipal legislation. Proponents are encouraged to contact other appropriate regulatory agencies to ensure that the proposed work or undertaking is carried out according to their requirements.

GUIDELINES

This section provides guidelines on methods and practices which, if incorporated into a project proposal, are intended to prevent or avoid the destruction of fish, or any potentially harmful effects to fish habitat that could result from the use of explosives. Implementation of these measures, for this purpose, is at the discretion of the proponent. Use of these guidelines should not be taken to imply approval of the proposed project in accordance with the *Fisheries Act*. Note that should the proponent proceed with the project and the use of explosives results in the destruction of fish and/or the HADD of fish habitat as a result of a change in plans, or failure to implement the measures, contravention of Section 32 and/or Subsection 35(1) of the *Fisheries Act* could occur.

1. Proponents considering the use of explosives are encouraged to consult the appropriate DFO Regional/Area authorities (Appendix I) as early as possible in their planning process to identify possible alternatives to the use of explosives, the biological resources and their habitats at risk, and/or effective mitigation measures.

2. Where provincial or territorial resource management agencies, or aboriginal resource management boards undertake the administration of fisheries, the proponent is encouraged to consult with the relevant authorities.
3. The use of confined or, in particular, unconfined explosives in or near Canadian fisheries waters is discouraged, and proponents are encouraged to utilize other potentially less destructive methods wherever possible.
4. No use of ammonium nitrate-fuel oil mixtures occurs in or near water due to the production of toxic by-products (ammonia).

Note:

- The deposit of deleterious substances into waters frequented by fish is prohibited under Section 36(3) of the *Fisheries Act*, unless otherwise permitted by regulation. There is no regulation pursuant to the *Fisheries Act* that permits the deposit of by-products resulting from the use of ammonium nitrate-fuel oil mixtures.
5. After loading a charge in a hole, the hole is to be back-filled (stemmed) with angular gravel to the level of the substrate/water interface or the hole collapsed to confine the force of the explosion to the formation being fractured. The angular gravel is to have a particle size of approximately 1/12th the diameter of the borehole.
 6. All "shock-tubes" and detonation wires are to be recovered and removed after each blast.
 7. No explosive is to be knowingly detonated within 500 m of any marine mammal (or no visual contact from an observer using 7x35-power binocular).

Note:

- Upon review of a proposal, the DFO Regional/Area authority may impose a greater avoidance distance, depending on the size of the charge or other project specific or fishery resource conditions.
8. No explosive is to be detonated in or near fish habitat that produces, or is likely to produce, an instantaneous pressure change (i.e., overpressure) greater than 100 kPa (14.5 psi) in the swimbladder of a fish.

Notes:

- For confined explosives, setback distances from the land-water interface (e.g., the shoreline), or burial depths from fish habitat (e.g., from under the riverbed) that will ensure that explosive charges meet the 100 kPa overpressure

guideline are shown in Table 1. Equations to derive these relationships have been adapted from Nicholls et al. (1971) and Anon (1980). The equations are described in Appendix II, and should be used for weights of explosives not covered in Table 1. Sample calculations and examples are illustrated in Appendix III.

- If a confined explosive is to be detonated close to the substrate-water interface (such as in trenching or demolition), the set-back distance closely approximates the theoretical lethal range within which 50% of the fish may be killed or injured. Consequently, the 100 kPa guideline is not likely to be met in those situations where, because of the design constraint's of the project, it is also likely not possible or practical to 'adjust' the setback distance as a means to meet the 100 kPa guideline. For example, preparation of a trench for a pipeline crossing typically requires no more than a below grade burial depth of about 2m. Therefore, the weight of explosive charge per delay will have to be adjusted in an effort to meet the 100 kPa guideline. A sample calculation to illustrate a trenching example is given in Appendix III.
 - For unconfined explosives, proponents are encouraged to contact the appropriate DFO Regional/Area authorities (Appendix I) for further guidance.
9. No explosive is to be detonated that produces, or is likely to produce, a peak particle velocity greater than $13 \text{ mm}\cdot\text{s}^{-1}$ in a spawning bed during the period of egg incubation.

Note:

- For confined explosives, setback distances or burial depths from spawning beds that will ensure that explosive charges meet the $13 \text{ mm}\cdot\text{s}^{-1}$ guideline criteria are shown in Table 2. Equations to derive these relationships have been adapted from Nicholls et al. (1971) and Anon (1980) and are described in Appendix II. Sample calculations and examples are illustrated in Appendix III.
- For unconfined explosives, proponents are encouraged to contact the appropriate DFO Regional/Area authorities (Appendix I) for further guidance.

APPLICATION AND REVIEW PROCESSES

Proponents planning to use an explosive that is likely to destroy fish and/or cause a HADD of fish habitat are subject to certain legal obligations under the *Fisheries Act*, as identified in the preceding 'Applicable Legislation and Policy' section. This section discusses these obligations with respect to the proposed use of explosives, and suggests to proponents how to fulfil them.

Proponents should contact the DFO Regional/Area authorities (Appendix I) as early as possible in their planning process. The purpose is to find out whether the proposed use of

explosives is likely to affect a Canadian fisheries water and whether its use is likely to destroy fish and/or cause a HADD of fish habitat. Depending on the outcome, DFO may also discuss potential issues, specific information requirements, or the next steps and possible outcomes in a further review of the proposal. For example, as summarized in the subsequent 'Review and Decision-making Process' section, possible next steps could include a request for further information, or a recommendation that the proponent seek an authorization pursuant to Section 32 and/or Subsection 35(2). Possible outcomes may include the provision of written advice, the issuance of (an) authorization(s) subject to completion of a CEAA review, or, refusal to issue (an) authorization(s).

Proponents should contact DFO before irrevocable commitments (such as contracts for equipment/services) are made, in order to avoid any unnecessary delays in the application and review process. Note that DFO may become aware of your proposed project through its participation in co-operative arrangements with other governments, agencies, boards, etc.

The following 'Application Procedures' section provides information to assist the proponent in deciding if it should seek Authorization to destroy fish by means other than fishing, and/or Authorization to harmfully alter, disrupt or destroy fish habitat, through the use of explosives and, if so, provides information on procedures for filing, etc.

Note that application for Authorization under Section 32 and/or Subsection 35(2) is voluntary. Proponents are not prohibited from going ahead with their use of explosives without Authorization. But, if as a result of the use of explosives, fish are destroyed and/or there is a HADD of fish habitat, contravention of Section 32 and/or Subsection 35(1) of the *Fisheries Act* could occur and the proponent is liable to prosecution.

Application Procedures

1. Proponents unable to meet the overpressure or peak particle velocity guideline values identified, respectively, in measures 8 or 9 of the preceding 'Guidelines' section, should complete and submit an application for Authorization under Section 32 of the *Fisheries Act*, to destroy fish by means other than fishing. The recommended application form is shown in Appendix IV. However, the proponent should contact the appropriate DFO Regional/Area authority (Appendix I) to verify that this is the appropriate application form to use and/or to identify information requirements.
2. Proponents who wish to file for Authorization under Subsection 35(2) of the *Fisheries Act* should complete and submit a separate application in accordance with the form prescribed pursuant to Subsection 58(1) of the *Fishery (General) Regulations* (Appendix V). Assistance on filing the application form, and related procedures, may be obtained by contacting the appropriate DFO Regional/Area authorities (Appendix I).

3. Proponents seeking Authorization under both Section 32 and Subsection 35(2) should complete and submit both Section 32 (Appendix IV) and Subsection 35(2) (Appendix V) applications. However, to minimize duplication, the proponent may choose to cross-reference those sections that are the same in each application form, and is expected to only submit one set of the documents requested in the forms, unless otherwise requested by the DFO Regional/Area authority. Contact the appropriate DFO Regional/Area authorities (Appendix I) for further information and assistance.
4. In seeking Authorization, the proponent will be expected to provide the information requested in the application forms. Doing so will expedite the review process.

In general, the proponent is expected to provide all plans, specifications, studies, procedures, samples or other information required to permit an assessment of the potential impact of the proposed use of explosives on fish and fish habitat, and the mitigation and/or compensation measures proposed to alleviate impacts and/or to compensate for any loss of productive capacity of habitat to produce fish. Typically, the fish and/or fish habitat information requirements include, but may not necessarily be limited to the items summarized below:

- a) A description of the project and the expected effects resulting from the use of explosives on the fisheries resources (including marine mammals) and/or fish habitat, including:
 - i) A description of fish and marine mammal species and their habitats likely to be affected by the detonation;
 - ii) A description of whether the fish, marine mammals and their habitats contribute, or have the potential to contribute, directly or indirectly, to a fishery - subsistence, commercial or recreational;
 - iii) The timing of any seasonal migration of fish and marine mammals;
 - iv) The theoretical lethal range (i.e., the range, or distance, over which the overpressure exceeds 100 kPa) of the explosives to be used (from equations provided in Appendix II);
 - v) An assessment of potential impacts arising from the proposed use of explosives and a description of proposed mitigation and/or compensation measures; and
 - vi) Other matters, such as the proposed contingency plan and monitoring and follow-up program.
- b) The proponent's mitigation plan should include discussion of the following measures that are particularly relevant to alleviating the potential impacts of explosives:
 - i) The work or undertaking should be undertaken at the time of least biological activity or biological sensitivity. Proponents should consult with DFO Regional/Area authorities to determine the appropriate timing;

- ii) If multiple charges are required, time-delay detonation initiators (blasting caps) should be used to reduce the overall detonation to a series of discrete explosions. Time delays for discrete explosions should be greater than 25 ms; and,
- iii) If possible, large charges should be subdivided into a series of smaller discrete detonations or explosions using time-delay detonation initiators (a procedure known as decking) to reduce the overall detonation to a series of smaller discrete detonations or explosions.

In addition to these measures, the proponent should also consider additional mitigation measures including, but not limited to the following:

- iv) Deployment of bubble curtains/air curtains to disrupt the shock wave;
 - v) Deployment of noise generating devices, such as an air compressor discharge line, to scare fish away from the site; or,
 - vi) Removal or exclusion of fish from the work area before the blast occurs.
5. Proponents should be aware that subsequent to filing the application, DFO may request additional information concerning fish and fish habitat, the mitigation and/or compensation plans, the contingency and monitoring and follow-up programs, and other matters as required to complete the *Fisheries Act* review. If the appropriate information is not already available, it is the proponent's responsibility to provide it and, also, to assure DFO that the proposed mitigation and/or compensation measures will be effective. Should it be necessary to conduct an environmental assessment of the project pursuant to the CEAA, then additional information will be required in order to meet the requirements of the CEAA.
 6. The Department of Fisheries and Oceans will undertake to: respond to requests for review, or to referrals, of project proposals or activities; issue Authorizations or provide advice; and/or complete environmental assessments in a manner consistent with Departmental service standards. Generally, DFO will respond to requests for review or to referrals within 30 working days of notification. Timeframes required for the issuance of Authorizations or advice will be discussed with proponents. Proponents should be aware that the length of time required to complete a review can vary greatly, often depending on the type and complexity of project proposed, the fish and fish habitat issues involved, and whether or not an environmental assessment under the CEAA is required. Once again, proponents are encouraged to contact the appropriate DFO Regional/Area authorities (Appendix I) to discuss these issues.
 7. If an unforeseen need to use explosives arises, Departmental service standards may be waived and a review completed as expeditiously as possible so as not to unduly delay a project. Further, Departmental 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 emergency Authorization will be accepted only on the condition that it is followed by a written confirmation of the project details.

8. If applicable, proponents may be required by the Department of Fisheries and Oceans, Canadian Coast Guard, to issue a "Notice to Mariners" and/or a "Notice to Fishers". The appropriate DFO Area/Regional authorities (Appendix I) are prepared to assist the proponent with contacting the Canadian Coast Guard.
9. Resource management agencies of other governments, departments, or boards that have been established under some aboriginal land claim settlements, may have aquatic resource review requirements and service standards that are different than those described in this document. Proponents should contact those agencies to ensure compliance with any requirements they may have.

Review and Decision-making Process

This section summarizes the approach taken by the Department of Fisheries and Oceans in the review of referrals and of applications for Authorization. Included is a description of the key decisions possible from a review, and the criteria used in making decisions. There is also a brief summary of the linkage between Section 32 and/or Subsection 35(2) Authorizations and the responsibilities of the Department of Fisheries and Oceans to undertake environmental assessments pursuant to the *Canadian Environmental Assessment Act* (CEAA).

Fisheries Act

DFO will review the proponent's application in accordance with the *Fisheries Act* and its supporting policy framework, including this document. Upon receipt of information, notice, a referral, or application for Authorization concerning works or undertakings where the use of explosives is proposed, DFO will normally take the following steps in its review of the proposal:

1. Determine the adequacy of the information provided by the proponent.
2. Using the information provided, assess the extent of risk or potential damage to fish and marine mammals and/or fish habitat and the acceptability of this level of damage in context with the level of protection required.
3. Determine the probable success of proposed mitigation and/or compensation measures and, as appropriate the acceptability of any residual impacts.
4. Where relevant, consult with the appropriate provincial or territorial resource management agencies, and/or aboriginal resource management boards.
5. Note that prior to finalizing its review of the proposal DFO may, among other matters, advise the proponent of the need for more information, re-assess a revised project proposal, suggest that the proponent seek authorization, etc. The

review of a proposal is often an iterative process depending on a number of factors, such as the type of referral received by DFO, its completeness, its potential impacts on fish and/or fish habitat and the potential to mitigate and/or compensate for such impacts. Proponents should discuss this and related aspects of the review process with the relevant DFO/Regional area authority (Appendix I).

6. After examination of the proposal, DFO will make a decision regarding the proponent's application.

- **With respect to Section 32, DFO will either,**

- ⇒ upon determining that implementation of mitigation measures by the proponent is expected to prevent or avoid the destruction of fish, advise the proponent by letter that if such measures are incorporated into the project, Section 32 is not expected to be contravened. A letter of advice should not be taken to imply approval of the project pursuant to the habitat provisions of the *Fisheries Act*, or any other legislation. Note, if the destruction of fish occurs as a result of a change in the plans for the proposed project, or failure to implement the measures identified in the letter of advice, contravention of Section 32 of the *Fisheries Act* could occur.

OR

- ⇒ upon determining that even with the implementation of mitigation measures the destruction of fish is still expected to occur **and**, because this mortality is acceptable within the context of the fisheries resource, issue a Section 32 Authorization using a letter format.

OR

- ⇒ upon determining that even with the implementation of mitigation measures the destruction of fish is still expected to occur **but**, because this mortality is not acceptable within the context of the fisheries resource, reject the proposal, and notify the proponent that DFO will not issue a Section 32 Authorization and that a contravention of the *Fisheries Act* could occur should the proponent still choose to proceed as proposed.

- **With respect to Section 35, DFO will either,**

- ⇒ upon determining that implementation of mitigation measures by the proponent is expected to prevent or avoid a HADD of fish habitat, advise the proponent by letter that if such measures are incorporated into the project, Subsection 35(1) is not expected to be contravened. A letter of advice should not be taken to imply approval of the project pursuant to the habitat provisions of the *Fisheries Act*, or any other legislation. Note, if a

HADD of fish habitat occurs as a result of a change in the plans for the proposed project, or failure to implement the measures identified in the letter of advice, contravention of Subsection 35(1) of the *Fisheries Act* could occur.

OR

⇒ upon determining that even with the implementation of mitigation measures a HADD of fish habitat is still expected to occur **and**, because the proposed compensation for the unavoidable net loss of productive capacity of fish habitat is acceptable to DFO, issue a Subsection 35(2) authorization using the form provided in Schedule VII of Subsection 58(2) of the *Fishery (General) Regulations*.

OR

⇒ upon determining that even with the implementation of mitigation measures a HADD of fish habitat is still expected to occur **but**, because the proposed compensation for the unavoidable net loss of fish habitat productive capacity is not acceptable, reject the proposal, and notify the proponent that DFO will not issue a Subsection 35(2) Authorization and that a violation of the *Fisheries Act* could occur should the proponent still choose to proceed as proposed.

Notes:

- The Department of Fisheries and Oceans, in arriving at one of the above noted determinations, will also consider the following criteria:
 - Whether the use of explosives is the only technically feasible means by which to attain the desired objective; and
 - Whether the use of explosives is required to alleviate an emergency situation threatening human safety and/or property.
- Section 32 and/or Subsection 35(2) authorizations come with conditions attached, which among others may include:
 - The proponent may be required to develop, undertake and report on a monitoring program at its expense, typically, to monitor compliance and evaluate effectiveness of the mitigation and/or compensation measures.
 - If, during the course of the works or undertakings, the adverse effects of the explosives were significantly greater than anticipated, the proponent may be required to immediately cease all further use of explosives,

pending review of the situation with Department of Fisheries and Oceans personnel.

- Additional, site-specific terms and conditions as may be required in order to satisfy fishery resource and/or fish habitat protection requirements. For example, the conditions may be more stringent than the measures identified in the preceding 'Guidelines' section.

Canadian Environmental Assessment Act

Section 32 and Subsection 35(2) are included in the *Law List Regulation* of the *Canadian Environmental Assessment Act* (CEAA). Consequently, the Department of Fisheries and Oceans as the Responsible Authority must conduct an environmental assessment of the relevant proposed works or undertakings before an Authorization can be issued. If the result of the environmental assessment is that the work or undertaking will, after taking into account the appropriate measures, not likely result in significant impact that cannot be justified, then authorization(s) will normally be issued pursuant to Section 32 and/or Subsection 35(2) of the *Fisheries Act*. Procedures for coordinating the CEAA review with provincial and aboriginal government review processes vary. Proponents are strongly advised to contact the DFO Regional/Area authorities (Appendix I) to obtain additional information on environmental assessment procedures and requirements.

UPDATING

These guidelines will be reviewed and updated as necessary.

ACKNOWLEDGEMENTS

Many individuals and governmental and non-governmental organizations were consulted in the development of these guidelines. We gratefully acknowledge their interest and contributions. In particular, input from D. Haché, K. Fisher, K. Broughton and R. Drolet, from DFO, and L. Macanuf (Golder-VME) and R. Morin (Explotec Engineering Ltd) is appreciated.

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Table 1. Setback distance (m) from centre of detonation of a confined explosive to fish habitat to achieve 100 kPa guideline criteria for various substrates.

The data in this table is incorrect and should not be used.

Substrate Type	Weight of Explosive Charge (kg)							
	0.5	1	2	5	10	25	50	100
Rock	3.6	5.0	7.1	11.0	15.9	25.0	35.6	50.3
Frozen Soil	2.3	3.2	4.5	7.2	14.3	16	22.6	32
Ice	1.5	2.1	3.0	4.7	6.6	10.5	14.8	21
Saturated Soil	1.5	2.1	3.0	4.8	6.7	10.0	15.1	21.3
Unsaturated Soil	0.7	1.0	1.4	2.2	3.1	4.9	6.9	9.8

Erratum:

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.

Page 15: Table 1 should be replaced by the following Table:

Table 1. Setback distance (m) from centre of detonation of a confined explosive to fish habitat to achieve 100 kPa guideline criteria for various substrates.

Substrate Type	Weight of Explosive Charge (kg)							
	0.5	1	2	5	10	25	50	100
Rock	3.6	5.0	7.1	11.0	15.9	25.0	35.6	50.3
Frozen Soil	3.3	4.7	6.5	10.4	14.7	23.2	32.9	46.5
Ice	3.0	4.2	5.9	9.3	3.2	20.9	29.5	41.8
Saturated Soil	3.0	4.2	5.9	9.3	13.2	20.9	29.5	41.8
Unsaturated Soil	2.0	2.9	4.1	6.5	9.2	14.5	20.5	29.0

Table 2. Setback distance (m) from centre of detonation of a confined explosive to spawning habitat to achieve $13 \text{ mm} \cdot \text{sec}^{-1}$ guideline criteria for all types of substrate.

	Weight of Explosive Charge (kg)						
	0.5	1	5	10	25	50	100
Setback distance (m)	10.7	15.1	33.7	47.8	75.5	106.7	150.9

Appendix I DFO Regional/Area Authorities

Newfoundland Region

Habitat Evaluation Engineer,
Habitat Management Division
Fisheries and Habitat Management Branch
PO Box 5667
St. John's, NF A1C 5X1
Voice: (709) 772-6157
Fax: (709) 772-4525

Maritime Region

New Brunswick and Prince Edward Island

Denis Haché, P. Eng.
Habitat Evaluation Engineer
PO Box 5030
Moncton, NB E1C 9B6
Voice: (506) 851-6252
Fax: (506) 851-6579

Nova Scotia

Brian Jollymore, P. Eng.
Habitat Evaluation Engineer
PO Box 550
Halifax, NS B3J 2S7
Voice: (902) 426-2549
Fax: (902) 426-1489

Laurentian Region

Manager, Fish Habitat
Fish Habitat and Environmental Science
Maurice-Lamontagne Institute
PO Box 1000
Mont-Joli, QC G5H 3Z4
Voice: (418) 775-0577
Fax: (418) 775-0658

Central and Arctic Region

Ontario

Area Manager, Ontario Area
Fisheries Management Branch
PO Box 5050, 867 Lakeshore Road
Burlington, ON L7R 4A6
Voice: (905) 336-4567
Fax: (905) 336-6437

Manitoba, Saskatchewan and Alberta

Manager, Habitat Management Division
Fisheries Science Branch
501 University Crescent
Winnipeg, MB R3T 2N6
Voice: (204) 983-5164
Fax: (204) 984-2402

Appendix I (concluded)
DFO Regional/Area Authorities

Central and Arctic Region (continued)

Nunavut

Area Manager, Nunavut Area
 Fisheries Management Branch
 PO Box 358
 Iqaluit, NWT X0A 0H0
 Voice: (867) 979-8002
 Fax: (867) 979-8039

Western Arctic

Area Manager, NWT West Area
 Fisheries Management Branch
 PO Box 2310
 Yellowknife, NWT X1A 2P7
 Voice: (867) 920-6636
 Fax: (867) 873-8871

Pacific Region

North Coast

Chief,
 Habitat and Enhancement Branch
 North Coast Division
 South 417 - 2nd Ave. W.
 Prince Rupert, BC V8J 1G8
 Voice: (250) 627-3453
 Fax: (250) 627-3480

South Coast

Chief,
 Habitat and Enhancement Branch
 South Coast Division
 3225 Stephenson Pt. Road
 Nanaimo, BC V9T 1K3
 Voice: (250) 756-7284
 Fax: (250) 756-7162

Fraser River

Chief,
 Habitat and Enhancement Branch
 Fraser River Division
 610 Derwent Way
 Annacis Island
 New Westminster, BC V3M 5P8
 Voice: (604) 666-0315
 Fax: (604) 666-6627

Yukon

Chief,
 Habitat and Enhancement Branch
 Yukon Division
 122 Industrial Road
 Whitehorse, YT Y1A 2T9
 Voice: (867) 393-6725
 Fax: (867) 393-6738

Northeastern and Southeastern B.C.

Chief, Major Projects Unit
 Habitat and Enhancement Branch
 327 – 555 Hastings Street
 Vancouver, BC V6B 5G3
 Voice: (604) 666-2057
 Fax: (604) 666-7907

Appendix II
General Equations to Determine Setback Distance for Confined
Explosives to Meet Guideline Criteria of 100 kPa

Equation (A)

Equation (A) describes the transfer of shock pressure from the substrate to the water.

$$P_W = \frac{2(Z_W / Z_R)P_R}{1 + (Z_W / Z_R)}$$

where:

P_W	=	pressure (kPa) in water
P_R	=	pressure (kPa) in substrate
Z_W	=	acoustic impedance of water
Z_R	=	acoustic impedance of substrate

Equation (B)

Equation (B) describes the relationship between acoustic impedance and the density and velocity of the medium through which the compressional wave travels.

$$Z_W/Z_R = \frac{D_W C_W}{D_R C_R}$$

where:

D_W	=	density of water = 1 g•cm ⁻³
D_R	=	density of the substrate in g•cm ⁻³
C_W	=	compressional wave velocity in water
	=	146,300 cm•s ⁻¹
C_R	=	compressional wave velocity in substrate
	=	in cm•s ⁻¹

Appendix II (concluded)
General Equations to Determine Setback Distance for Confined
Explosives to Meet Guideline Criteria of 100 kPa

Equation (B) (continued):

The following values are used for D_R and C_R for various substrates:

Substrate	D_R ($\text{g}\cdot\text{cm}^{-3}$)	C_R ($\text{cm}\cdot\text{s}^{-1}$)
Rock	2.64	457,200
Frozen Soil	1.92	304,800
Ice	0.98	304,800
Saturated soil	2.08	146,300
Unsaturated soil	1.92	45,700

Equation (C)

Equation (C) describes the relationship between the peak particle velocity (V_R) and the pressure, density and compressional wave velocity in the substrate.

$$V_R = \frac{2P_R}{D_R C_R}$$

Equation (D)

Equation (D) represents the scaled distance relationship and is used to equate the peak particle velocity to charge weight and distance.

$$V_R = 100 (R/W^{.5})^{-1.6}$$

where:

V_R	=	peak particle velocity in $\text{cm}\cdot\text{s}^{-1}$
R	=	distance to the detonation point in m
W	=	charge weight per delay in kg

Appendix III
Sample Calculations and Examples for Confined Explosives

SAMPLE CALCULATIONS

Sample Calculation 1: Calculation of Setback Distance Required for a 100 kg Charge Set in Rock to Meet the 100 kPa Guideline.

1. From Equation (B):

$$\begin{aligned} Z_W/Z_R &= \frac{D_W C_W}{D_R C_R} \\ &= \frac{(1\text{g}\cdot\text{cm}^{-3})(146,300\text{cm}\cdot\text{s}^{-1})}{(2.64\text{g}\cdot\text{cm}^{-3})(457,200\text{cm}\cdot\text{s}^{-1})} \\ &= 0.1212 \end{aligned}$$

2. From Equation (A):

$$\begin{aligned} P_W &= \frac{2(Z_W / Z_R)P_R}{1+(Z_W / Z_R)} \\ P_W &= \frac{2(0.1212)P_R}{1+(0.1212)} \\ P_W &= 0.22 P_R \end{aligned}$$

3. To limit P_W to 100 kPa ($\text{kg}\cdot\text{m}\cdot\text{s}^{-2}\cdot\text{m}^{-2}$):

$$\begin{aligned} P_R &= \frac{P_W}{0.22} \\ P_R &= \frac{100\text{ kPa}}{0.22} \\ P_R &= 455\text{ kPa} \\ P_R &= 4.55 \times 10^2\text{ kPa} \end{aligned}$$

Appendix III (continued)
Sample Calculations and Examples for Confined Explosives

4. Convert kPa to dynes ($\text{g}\cdot\text{cm}\cdot\text{s}^{-2}$):

$$\begin{aligned} \text{dynes} &= \text{kPa} \times 10^4 \\ P_R &= 4.55 \times 10^2 \times 10^4 \\ P_R &= 4.55 \times 10^6 \text{ dynes } (\text{g}\cdot\text{cm}\cdot\text{s}^{-2}) \end{aligned}$$

5. From Equation (C):

$$\begin{aligned} V_R &= \frac{2P_R}{D_R C_R} \\ V_R &= \frac{(2) (4.55 \cdot 10^6 \text{ g}\cdot\text{cm}\cdot\text{s}^{-2})}{(2.64 \text{ g}\cdot\text{cm}^{-3})(457,200 \text{ cm}\cdot\text{s}^{-1})} \\ V_R &= 7.54 \text{ cm}\cdot\text{s}^{-1} \end{aligned}$$

6. From Equation (D):

$$\begin{aligned} V_R &= 100(R/W^5)^{-1.6} \\ R &= (W^5)(V_R/100)^{-0.625} \\ R &= (100\text{kg})^5(7.54\text{cm}\cdot\text{s}^{-1}/100\text{kg}\cdot\text{cm}\cdot\text{s}^{-1}\cdot\text{m})^{-0.625} \\ R &= 50.3 \text{ m} \end{aligned}$$

Therefore, a 100 kg charge of explosives detonated in rock requires a setback of 50.3 m from fish habitat in order to reduce the overpressure produced by the detonation to less than 100 kPa.

Now, the calculation of the set-back distance required for a 100 kg charge set in rock to meet the peak particle velocity guideline of $13 \text{ mm}\cdot\text{sec}^{-1}$ is as follows:

Appendix III (continued)
Sample Calculations and Examples for Confined Explosives

From Equation (D):

$$R = (W^{.5})(V_R/100)^{-0.625}$$

When

$$V_R = 13 \text{ mm} \cdot \text{sec}^{-1} = 1.3 \text{ cm} \cdot \text{sec}^{-1}$$

and

$$W = 100 \text{ kg}$$

$$R = (100^{.5})(1.3/100)^{-0.625}$$

$$R = 150.9 \text{ m}$$

Therefore, a 100 kg charge of explosives detonated in rock requires a setback of 150.9 m from a spawning area in order to reduce the peak particle velocity produced by the detonation to less than 13 mm•sec⁻¹.

Sample Calculation 2: Simplified Calculation of Setback Distance from Fish Habitat.

The calculations to determine the required setback distance to meet the 100 kPa guideline may be simplified. Since the weight of the charge and the distance from the charge to fish habitat are the only variables in the equations, a factor can be developed for substitution in Equation (D).

From Equation (D):

$$V_R = 100(R/W^{.5})^{-1.6}$$

$$R = (W^{.5})(V_R/100)^{-0.625}$$

Therefore:

$$R = W^5(K)$$

By working through the equations of Appendix II and solving for V_R for each substrate

Appendix III (continued)
Sample Calculations and Examples for Confined Explosives

type, the following results are obtained:

SUBSTRATE TYPE	K
Rock	5.03
Frozen Soil	3.2
Ice	2.1
Saturated Soil	2.13
Unsaturated Soil	0.98

Therefore, to determine the setback distance required to meet the peak pressure guideline of 100 kPa, multiply the square root of the charge weight by the appropriate “K” factor.

Sample Calculation 3: Simplified Calculation of Setback Distance from Fish Spawning Habitat.

Similarly, to determine the set-back distance required to meet the peak particle velocity (V_R) guideline of $13 \text{ mm}\cdot\text{sec}^{-1}$, a constant can be developed for substitution in Equation (D):

From Equation (D):

$$V_R = 100(R/W^{.5})^{-1.6}$$

$$R = (W^{.5})(V_R/100)^{-0.625}$$

where:

$$V_R = 13 \text{ mm}\cdot\text{sec}^{-1} = 1.3 \text{ cm}\cdot\text{sec}^{-1}$$

$$R = (W^{.5})(1.3/100)^{-0.625}$$

$$R = (W^{.5})(15.09)$$

Therefore, to determine the setback distance required to meet the peak particle velocity (V_R) guideline of $13 \text{ mm}\cdot\text{sec}^{-1}$, multiply the square root of the charge weight by a factor of 15.09.

Appendix III (continued)
Sample Calculations and Examples for Confined Explosives

EXAMPLES**Example 1: On-shore Setback Distance from Fish Habitat.**

A proponent wishes to use explosives to break rock in a quarry near a stream. What is the minimum setback distance from the stream required in order to limit the overpressure in the stream to less than 100 kPa?

Calculate the required set back distance for a 35 kg charges set in rock.

$$\begin{aligned}
 W &= 35 \text{ kg} \\
 K_{(\text{rock})} &= 6.75 \\
 R &= (W^{.5})(K) \\
 R &= (35^{.5})(5.03) \\
 R &= 29.8 \text{ m}
 \end{aligned}$$

Note: It is assumed that the rock formation being quarried extends under the stream. Therefore the K factor for rock is used.

Therefore, the proponent would be required to maintain a set back distance of at least 29.8 m in order to meet the DFO guideline criteria of 100 kPa.

Example 2: Buried Charges for Geophysical Exploration.

A proponent wishes to conduct a geophysical survey beneath a shallow lake. Because of the shallow depth of the lake, it is not possible to use an air gun or other similar non-explosive energy source. To what depth must explosive charges (5 kg) be buried in order to limit the overpressure to less than 100 kPa?

$$\begin{aligned}
 W &= 5 \text{ kg} \\
 K_{(\text{sat. soil})} &= 2.13 \\
 R &= (W^{.5})(K) \\
 R &= (5^{.5})(2.13) \\
 R &= 4.8 \text{ m}
 \end{aligned}$$

Note: It is assumed that the charges are buried in un-consolidated sediments. Therefore the K factor for saturated soil is used.

Therefore the proponent would be required to bury the charges to a depth of at least 4.8 m below the substrate-water interface in order to limit the overpressure at the interface to less than 100 kPa.

Appendix III (continued)
Sample Calculations and Examples for Confined Explosives

Example 3: In-stream Trench Excavation.

A proponent wishes to use explosives to assist in the excavation of a trench for a pipeline across a trout stream. The right-of-way is located in a cobble bottom riffle area that is used as a feeding area. There is a potential spawning bed located 75 m upstream of the right-of-way. The explosives' parameters are as follows:

Weight of individual charges:	15 kg
# of holes detonated/delay:	5
Weight of charge/delay:	75 kg

Does the proposal meet the DFO guideline criteria for overpressure and peak particle velocity?

a) For the Overpressure Criteria:

$$\begin{aligned}
 W &= 75 \text{ kg} \\
 K_{(\text{rock})} &= 5.03 \\
 R &= (W^{.5})(K) \\
 R &= (75^{.5})(5.03) \\
 R &= 43.6 \text{ m}
 \end{aligned}$$

Note: Since explosives must be used to excavate the trench, it is assumed that the substrate consists of rock or strongly consolidated sediments. Therefore the K factor for rock is used.

Therefore the detonation of 75 kg of explosives could kill or injure fish within a radius of 43.6 m of the right-of-way.

b) For the Peak Particle Velocity Criteria:

To determine the setback distance required to meet the peak particle velocity (V_R) guideline of $13 \text{ mm} \cdot \text{sec}^{-1}$ in a spawning area, multiply the square root of the charge weight by a factor of 15.09.

$$\begin{aligned}
 R &= (W^{.5})(15.09) \\
 R &= (75^{.5})(15.09) \\
 R &= 130.7 \text{ m}
 \end{aligned}$$

Therefore, the detonation of 75 kg of explosives would exceed the DFO Guideline for peak particle velocity of $13 \text{ mm} \cdot \text{sec}^{-1}$ in a spawning bed.

Appendix III (concluded)
Sample Calculations and Examples for Confined Explosives

Therefore, the application for an authorization to use explosives would be denied and major changes in the explosives program would be required in order for the project to be acceptable to DFO.

For example:

If the weight of explosive/delay were reduced to 5 kg by increasing the number of holes in the pattern and detonating each hole separately with 25 msec delays between each hole, the zone of overpressure exceeding 100 kPa would be:

$$\begin{aligned}
 W &= 5 \text{ kg} \\
 K_{(\text{rock})} &= 5.03 \\
 R &= (W^{.5})(K) \\
 R &= (5^{.5})(5.03) \\
 R &= 11.2 \text{ m}
 \end{aligned}$$

Similarly, the distance at which the peak particle velocity in the substrate would not exceed $13 \text{ mm} \cdot \text{sec}^{-1}$ would be:

$$\begin{aligned}
 R &= (W^{.5})(15.09) \\
 R &= (5^{.5})(15.09) \\
 R &= 33.7 \text{ m}
 \end{aligned}$$

Therefore, if the weight of explosives per delay were reduced to 5 kg, the spawning area would be protected, as it is further than 33.7m from the detonation area. However, the detonation would still produce over-pressures exceeding 100 kPa to a distance of 11.2 m. Additional mitigation such as undertaking the project at a time of least fish activity or by removing/excluding fish from the area by either physical exclusion or scare tactics may be required.

Appendix IV
Application Form for Authorization to Destroy Fish by Means
Other Than Fishing

APPLICATION FOR AUTHORIZATION TO DESTROY FISH BY MEANS
OTHER THAN FISHING

I, the undersigned, hereby request authorization to carry out the works or undertakings described on this application form. I understand that the approval of this application, if granted, is from the Department of Fisheries and Oceans standpoint only and does not release me from my obligation to obtain permission from other concerned regulatory agencies.

If an authorization is granted as a result of this application, I hereby agree to carry out all activities relating to the project within the designated time frames and conditions specified in the authorization.

Applicant's Name (Please Print) _____

Applicant's Business Address _____

Applicant's Telephone Number _____

Applicant's Facsimile Number _____

Applicant's E-Mail Number _____

Date of Application _____

I solemnly declare that the information provided and facts set out in this application are true, complete and correct, and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath. This declaration applies to all material submitted as part of this application.

Applicant's Signature _____

Appendix IV (continued)
Application Form for Authorization to Destroy Fish by Means
Other Than Fishing

APPLICATION FOR AUTHORIZATION TO DESTROY FISH BY MEANS
OTHER THAN FISHING (continued)

Schedule of Operations

Proposed starting date (D/M/Y) _____

Proposed completion date (D/M/Y) _____

The following documents will assist in assessing your application and help expedite its approval. Please check which documents you have attached.

- Map indicating location of project []
- Engineering specifications []
- Dimensional drawings []
- Assessment of fish and marine mammal resources []
- Assessment of potential effects of project on fish and marine mammals []
- Measures proposed to mitigate potential damage to fish and marine mammals []
- Other []

Appendix IV (concluded)
Application Form for Authorization to Destroy Fish by Means
Other Than Fishing

APPLICATION FOR AUTHORIZATION TO DESTROY FISH BY MEANS
OTHER THAN FISHING (concluded)

Explosives Contractor (If different from applicant)

Name _____

Address _____

Telephone number _____

Facsimile number _____

Details of Explosives

Type (including trade name) _____

Total weight of explosive to be used (kg) _____

Weight of individual shots/
Weight per delay _____

Shot pattern _____

Detonation depth _____

Delay period (msec) _____

Method of detonation _____

APPENDIX V

Application Form to Harmfully Alter, Disrupt or Destroy Fish Habitat

SCHEDULE VI/ANNEXE VI

(Subsection 58(1)/paragraphe 58(1))

Fisheries and Oceans



Pêches et Océans

Page 1

Application No./N° de la demande

APPLICATION FOR AUTHORIZATION FOR WORKS OR UNDERTAKINGS AFFECTING FISH HABITAT
DEMANDE D'AUTORISATION POUR DES OUVRAGES OU ENTREPRISES MODIFIANT L'HABITAT DU POISSON

I, the undersigned, hereby request authorization to carry out the works or undertakings described on this application form. I understand that the approval of this application, if granted, is from the Minister of Fisheries and Oceans standpoint only and does not release me from my obligation to obtain permission from other concerned regulatory agencies.

Je soussigné, demande par les présentes l'autorisation d'exploiter les ouvrages ou entreprises décrits dans la formule. Je comprends que l'approbation de cette demande, le cas échéant, porte sur ce qui relève du ministre des Pêches et des Océans et ne me dispense pas d'obtenir la permission d'autres organismes réglementaires concernés.

If an authorization is granted as a result of this application, I hereby agree to carry out all activities relating to the project within the designated time frames and conditions specified in the authorization.

Si la demande est approuvée, je consens par les présentes à exécuter tous les travaux relatifs à ce projet selon les modalités et dans le laps de temps prescrits dans l'autorisation.

Applicant's Name (Please Print) _____ Nom du requérant (lettres moulées)

Applicant's Business Address _____ Adresse d'affaires du requérant

Applicant's Telephone No./ N° de téléphone du requérant _____ Date _____

I solemnly declare that the information provided and facts set out in this application are true, complete and correct, and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath. This declaration applies to all material submitted as part of this application.

Je déclare solennellement que les renseignements fournis et les faits énoncés dans cette demande sont véridiques, complets et exacts, et je fais cette déclaration solennelle, la croyant consciencieusement vraie et sachant qu'elle a la même force et le même effet que si elle était faite sous serment. Cette déclaration s'applique à tout document qui est présenté dans le cadre de cette demande.

Applicant's Signature (and corporate seal)_____
Signature du requérant (et sceau de la société)

Name of watercourse or waterbody (give coordinates)

Cours d'eau ou plan d'eau (donner les coordonnées) _____

This watercourse is a tributary of (where applicable)

Cours d'eau tributaire de (le cas échéant) _____

Nearest community
Localité la plus procheCounty
ComtéProvince
Province

APPENDIX V

Application Form to Harmfully Alter, Disrupt or Destroy Fish Habitat (continued)

SCHEDULE VI-Continued/ANNEXE VI (suite)

Fisheries and Oceans



Pêches et Océans

Page 2

Application No./N° de la demande

**APPLICATION FOR AUTHORIZATION FOR WORKS OR UNDERTAKINGS AFFECTING FISH HABITAT
DEMANDE D'AUTORISATION POUR DES OUVRAGES OU ENTREPRISES MODIFIANT L'HABITAT DU POISSON**

Type of Activity/Genre d'activité

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> Bridge
Pont | <input type="checkbox"/> Stream Realignment
Alignement de cours
d'eau | <input type="checkbox"/> Gravel Removal
Enlèvement du gravier | <input type="checkbox"/> Stream Traverse
Traversée de cours d'eau |
| <input type="checkbox"/> Culvert
Ponceau | <input type="checkbox"/> Channelization
Canalisation | <input type="checkbox"/> Obstruction Removal - Bypass
Enlèvement ou contournement
d'obstacle | <input type="checkbox"/> Seismic Survey
Levé sismique |
| <input type="checkbox"/> Dam
Barrage | <input type="checkbox"/> Wharf - Break water
Quai - Brise-lames | <input type="checkbox"/> Stream Utilization - Recreation
Utilisation récréative du cours d'eau | <input type="checkbox"/> Agriculture |
| <input type="checkbox"/> Stream Diversion
Dérivation de cours d'eau | <input type="checkbox"/> Dewatering
Assèchement | <input type="checkbox"/> Erosion Control
Lutte contre l'érosion | <input type="checkbox"/> Other (specify)
Autres (préciser) |
| <input type="checkbox"/> Mining
Activité minière | <input type="checkbox"/> Aquaculture | <input type="checkbox"/> Flood Protection
Protection contre les inondations | |

List of Agencies (Federal, Provincial or Municipal) contacted or notified, or who have initiated contact with the applicant.

Liste des organismes (fédéraux, provinciaux ou municipaux) contactés ou qui ont pris contact avec le requérant.

**PROVIDE DETAILS OF PROPOSED ACTIVITY INCLUDING REASONS FOR THE PROJECT AND TYPES OF EQUIPMENT TO BE USED
DONNER DES PRÉCISIONS SUR LES TRAVAUX PROJÉTÉS Y COMPRIS LA JUSTIFICATION DU PROJET ET
LE TYPE D'ÉQUIPEMENT À UTILISER**

APPENDIX V

Application Form to Harmfully Alter, Disrupt or Destroy Fish Habitat (continued)

SCHEDULE VI-Continued/ANNEXE VI (suite)

Fisheries and Oceans



Pêches et Océans

Page 3

Application No./N° de la demande

APPLICATION FOR AUTHORIZATION FOR WORKS OR UNDERTAKINGS AFFECTING FISH HABITAT
DEMANDE D'AUTORISATION POUR DES OUVRAGES OU ENTREPRISES MODIFIANT L'HABITAT DU POISSON

SCHEDULE/CALENDRIER

	D/J	MM	Y/A		D/J	MM	Y/A
Proposed Starting Date Date prévue du début des travaux	_____	_____	_____		_____	_____	_____
Proposed Completion Date Date prévue de l'achèvement des travaux	_____	_____	_____		_____	_____	_____
Approximate Timing of Work in shoreline, foreshore, tidal zone, or underwater areas. Période approximative des travaux sur le rivage et les estrans ainsi que dans les zones à marées et les zones sous-marines.							
From/De	_____	_____	_____	To/A	_____	_____	_____

The following documents will assist in assessing your application and help expedite its approval. Please check which documents you have attached.

Les documents suivants faciliteront l'évaluation de votre demande et permettront d'accélérer son approbation. Veuillez cocher les documents vous avez joints à votre demande.

Map indicating location of project	<input type="checkbox"/>	Carte indiquant l'emplacement du projet
Engineering Specifications	<input type="checkbox"/>	Spécifications techniques
Scale Drawings	<input type="checkbox"/>	Dessins à l'échelle
Dimensional Drawings	<input type="checkbox"/>	Plans cotés
Assessment of Existing Fish Habitat Characteristics	<input type="checkbox"/>	Évaluation des caractéristiques existantes de l'habitat du poisson
Assessment of Potential Effects of Project on Fish Habitat	<input type="checkbox"/>	Évaluation des répercussions possibles sur l'habitat du poisson
Measures Proposed to Offset Potential Damage to Fish Habitat	<input type="checkbox"/>	Mesures proposées pour compenser les ventuels dommages à l'habitat du poisson
Other	<input type="checkbox"/>	Autres

ENVIRONMENTAL ASSESSMENT AND REVIEW PROCESS
CONSIDERATIONSCONSIDÉRATIONS CONCERNANT LE PROCESSUS
D'ÉVALUATION ET D'EXAMEN EN MATIÈRE
D'ENVIRONNEMENT

NOTE: All applications pursuant to section 35 of the Fisheries Act will be assessed in accordance with applicable federal environmental assessment requirements.

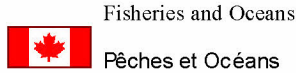
REMARQUE : Toute demande en vertu l'article 35 de la Loi sur les pêches sera soumise aux exigences fédérales applicables à l'évaluation environnementale.

002111

APPENDIX V

Application Form to Harmfully Alter, Disrupt or Destroy Fish Habitat (concluded)

SCHEDULE VI-Concluded/ANNEXE VI (fin)



Application No./N° de la demande

**APPLICATION FOR AUTHORIZATION FOR WORKS OR UNDERTAKINGS AFFECTING FISH HABITAT
DEMANDE D'AUTORISATION POUR DES OUVRAGES OU ENTREPRISES MODIFIANT L'HABITAT DU POISSON**

COMPLETE ONLY IF USE OF EXPLOSIVES IS INTENDED
A REMPLIR SEULEMENT EN CAS D'UTILISATION D'EXPLOSIFS

EXPLOSIVES CONTRACTOR (IF DIFFERENT FROM APPLICANT)/RESPONSABLE DES EXPLOSIFS (SI AUTRE QUE LE REQUIRANT)

Name/Nom : _____

Address/Adresse : _____

Telephone No./N° de téléphone : _____

	D/J	M/M	Y/A		D/J	M/M	Y/Y
Anticipated Starting Date				Completion Date			
Date prévue du début des travaux	_____	_____	_____	Date d'achèvement	_____	_____	_____

DETAILS OF EXPLOSIVES/PRÉCISIONS SUR LES EXPLOSIFS

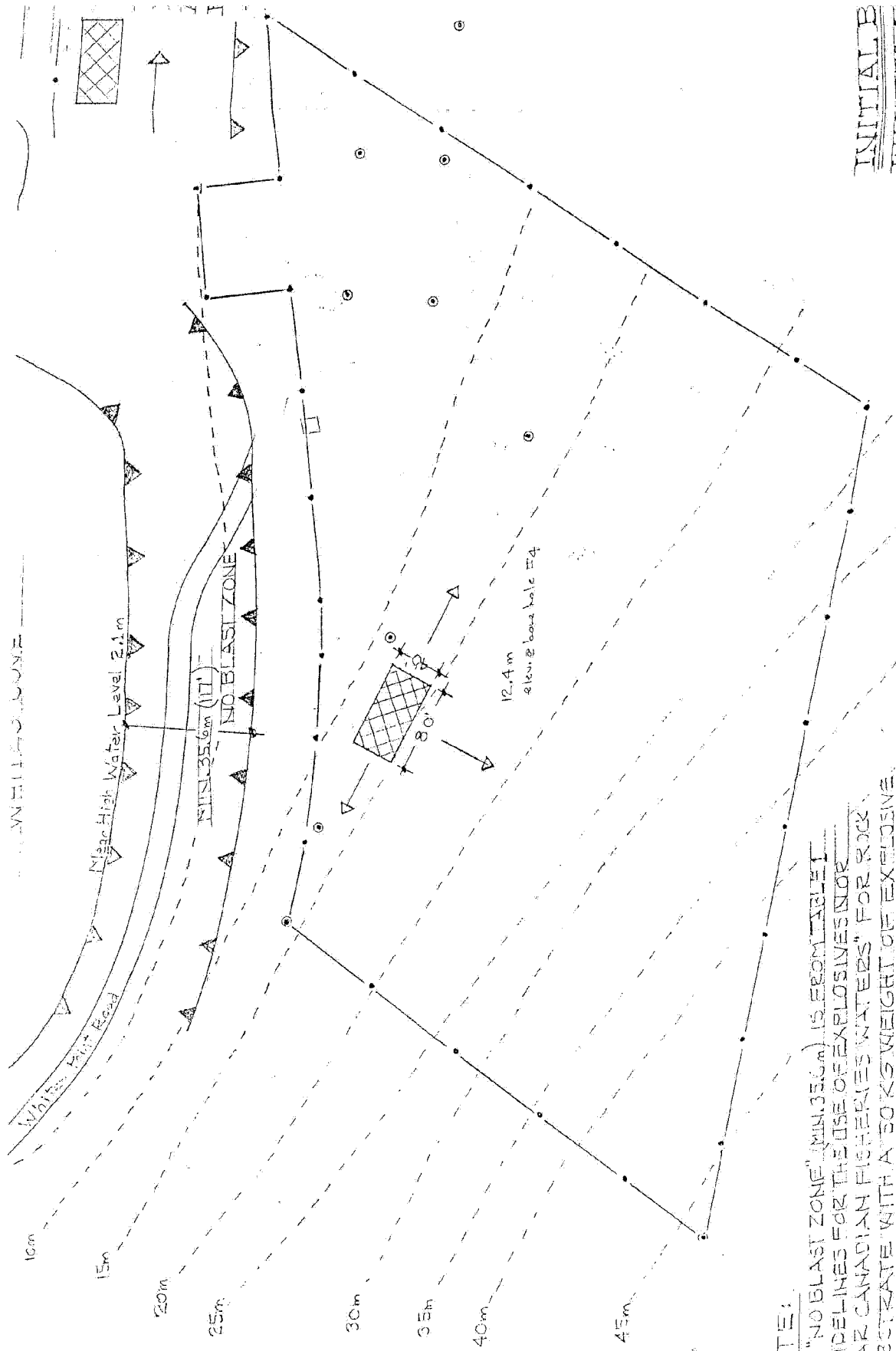
Type (including trade name)
Genre (y compris la marque)

Weight and configuration (where applicable)
Poids et forme (le cas échéant)

Weight of individual shots and shot pattern where multiple charges are used
Poids des coups individuels et déploiement des coups, en cas de charges multiples

Detonation depth (in the rock; note also the depth of water, if applicable)
Profondeur de détonation (dans le roc; indiquer aussi, la profondeur de l'eau, s'il y a lieu)

Method of detonation
Méthode de détonation



INITIAL B
 WHITES P
 6112 50 000

NOTE:
 THE "NO BLAST ZONE" (MIN. 35.6m) IS FROM TABLE
 "GUIDELINES FOR THE USE OF EXPLOSIVES IN OR
 NEAR CANADIAN FISHERIES WATERS" FOR ROCK
 SUBSTRATE WITH A 50 KG WEIGHT OF EXPLOSIVE
 CHANGE PER DELAY TO ACHIEVE 600 KTS TO
 1000 LBS/2"

APPROVAL


Province of Nova Scotia
Environment Act, S.N.S. 1994-95, c.1

APPROVAL HOLDER: Nova Stone Exporters, Inc
APPROVAL NO: 2002-026397
EFFECTIVE DATE: April 30, 2002
EXPIRY DATE: April 30, 2012

Pursuant to Part V of the *Environment Act, S.N.S. 1994-95, c.1* as amended from time to time, approval is granted to the Approval Holder subject to the Terms and Conditions attached to and forming part of this Approval, for the following activity:

Construction and operation of a Quarry, at or near Little River, Digby County in the Province of Nova Scotia.

Administrator
Date Signed


April 30, 2002

- e) "Department" means the Western Region, Yarmouth Office, of the Nova Scotia Department of Environment and Labour located at the following address:

Nova Scotia Department of Environment and Labour
Environmental Monitoring and Compliance Division
Western Region, Yarmouth Office
13 First St.
Yarmouth, NS B5A 1S9

Phone: (902) 742-8985
Fax: (902) 742-7796

- f) "Disturbed Area" means any area on a quarry site that has been stripped of vegetation and is susceptible to erosion.
- g) "Facility" means the Quarry and associated works.
- h) "Minister" means the Minister of the Nova Scotia Department of Environment and Labour.
- i) "Rehabilitation" means restorative work performed or to be performed in accordance with the rehabilitation plan.
- j) "Structure" includes but is not limited to a private home, a cottage, an apartment building, a school, a church, a commercial building or a treatment facility associated with the treatment of municipal sewage, industrial or landfill effluent, an industrial building, infrastructure or construction, a hospital, and a nursing home, etc.

2. Scope of Approval

- a) This Approval (the "Approval") relates to the Approval Holder and their application and supporting documentation, as listed in the reference documents above, to construct and operate the Facility, situated at or near Little River, Digby County (the "Site").
- b) The Facility shall be constructed and operated as outlined in the application for industrial approval dated April 23, 2002 and supporting documentation.
- c) The Site shall not exceed the area as outlined in the application and supporting documentation. No approval is granted for docking facilities.

- d) Should the work authorized by this Approval not be commenced within a year, this Approval shall automatically be null and void, unless extended in writing by an Administrator.

3. General Terms and Conditions

- a) The Approval Holder shall construct, operate and reclaim its Facility in accordance with provisions of the:
 - i) *Environment Act* S.N.S. 1994-1995, c.1;
 - ii) Regulations pursuant to the above Act;
 - iii) Any future amendments to the Act and regulations
 - iv) Nova Scotia Department of Environment *Pit & Quarry Guidelines*, May 1999.
 - v) *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters*- Department of Fisheries and Oceans, 1998.
 - vi) Nova Scotia Department of Environment and Labour *Guidelines for the Formation of a Community Liaison Committee*.
- b) No authority is granted by this Approval to enable the Approval Holder to construct the Facility on lands which are not in the control or ownership of the Approval Holder. It is the responsibility of the Approval Holder to ensure that such a contravention does not occur. The Approval Holder shall provide, to the Department, proof of such control or ownership upon expiry of any relevant lease or agreement. Failure to retain said authorization will result in this Approval being null and void.
- c) If there is a discrepancy between the reference documents and the terms and conditions of this Approval, the terms and conditions of this Approval shall apply.
- d) The Minister or Administrator may modify, amend or add conditions to this Approval at anytime pursuant to Section 58 of the Act.
- e) This Approval is not transferable without the consent of the Minister or Administrator.
- f) (i) If the Minister or Administrator determines that there has been non-compliance with any or all of the terms and conditions contained in this Approval, the Minister or Administrator may cancel or suspend the Approval pursuant to subsections 58(2)(b) and 58(4) of the Act, until such time as the Minister or Administrator is satisfied that all terms and conditions have been met.

- (ii) Despite a cancellation or suspension of this Approval, the Approval Holder remains subject to the penalty provisions of the Act and regulations.
- g) The Approval Holder shall notify the Department prior to any proposed extensions or modifications of the Facility, including the active area, process changes or waste disposal practices which are not granted under this Approval. An amendment to this Approval will be required before implementing any change. Extensions or modifications to the Facility may be subject to the Environmental Assessment Regulations.
- h) Pursuant to Section 60 of the Act, the Approval Holder shall submit to the Administrator any new and relevant information respecting any adverse effect that actually results, or may potentially result, from any activity to which the Approval relates and that comes to the attention of the Approval Holder after the issuance of the Approval.
- i) The Approval Holder shall immediately notify the Department of any incidents of non-compliance with this Approval.
- j) The Approval Holder shall bear all expenses incurred in carrying out the environmental monitoring required under the terms and conditions of this Approval.
- k) Unless specified otherwise in this Approval, all samples required to be collected by this Approval shall be collected, preserved and analysed, by qualified personnel, in accordance with recognized industry standards and procedures.
- l) All samples required by this Approval shall be analysed by a laboratory that is:
 - i) Accredited by the Standards Council of Canada; or
 - ii) Accredited by another agency recognized by the Nova Scotia Department of Environment and Labour to be equivalent to the Standards Council of Canada; or
 - iii) Maintaining an acceptable standard in a proficiency testing program conducted by the Canadian Association for Environmental Analytical Laboratories for all parameters being reported; or

- iv) Maintaining an acceptable standard in a proficiency or performance testing in another program considered acceptable to the Nova Scotia Department of Environment and Labour for all parameters being reported
- m) The Approval Holder shall submit any monitoring results or reports required by this Approval to the Department. Unless specified otherwise in this Approval, All monitoring results shall be submitted within 30 days following the month of monitoring.
- n) The Approval Holder shall ensure that this Approval, or a copy, is held on the Site at all times and that personnel directly involved in the Facility operation are made fully aware of the terms and conditions which pertain to this Approval.
- o) The Approval Holder will be required to register their project under Part IV of the *Environment Act* should the Facility and associated works including access roads exceed an area of four (4) hectares.
- p) This Approval shall expire on April 30, 2012.

4. Construction of Facility

- a) The proponent shall retain a licensed surveyor to survey and delineate the exact location, corners and boundaries of the active area and forward this information to the Department. The survey must also exhibit all applicable separation distances for quarry operations.
- b) All erosion and sedimentation controls are to be in place prior to construction at this Facility. The Nova Scotia Department of the Environment "Erosion and Sedimentation Control Handbook For Construction Sites" shall serve as the reference document for all erosion control measures. These measures are minimum requirements and additional controls shall be implemented if Site runoff exceeds the discharge limits contained herein.
- c) All erosion and sedimentation controls are to be maintained and remain in place until the disturbed areas are stabilized.
- d) All water leaving the Site during the construction phase shall be in compliance with total suspended solids limits of 50 mg/l grab or 25 mg/l monthly arithmetic mean.
- e) Appropriate signage including the hours of operation, emergency/ telephone numbers and contacts are to be posted at the entrance to the Facility. *

- f) The generation of dust from the Site shall be suppressed by the application of water sprays, or the application of other suitable approved dust suppressants as required.

5. Particulate Emissions (Dust)

- a) Particulate emissions shall not exceed the following limits at or beyond the Site property boundaries:

Annual Geometric Mean 70 $\mu\text{g}/\text{m}^3$

Daily Average (24 hr.) 120 $\mu\text{g}/\text{m}^3$

- b) The generation of fugitive dust from the Site will be suppressed by the application of water sprays, or the application of other suitable dust suppressants approved by the Department.
- c) Site access road(s) shall be maintained to minimize dust generation. The use of used oil is not permitted.
- d) Monitoring of particulate emissions shall be conducted at the request of the Department. The location of the monitoring station(s) for particulate will be established by the Administrator and may include point(s) beyond the property boundary of the quarry.
- e) When requested, suspended particulate matter shall be measured by the high volume method as described in report No. E.P.S. 1-AP-73-2.

6. Sound Levels

- a) Sound levels measured at the Site property boundaries shall not exceed the following equivalent sound levels (Leq):

Leq 65 dBA 0700-1900 hours (Days)

60 dBA 1900-2300 hours (Evenings)

55 dBA 2300-0700 hours (Nights and All Day Sunday and Statutory Holidays)

- b) Monitoring of sound levels shall be conducted at the request of the Department. The location of the monitoring station(s) for sound will be established by the Administrator and may include point(s) beyond the property boundary of the quarry.

7. Surface Water

- a) The Site shall be developed and maintained to prevent siltation of the surface water which is discharged from the property boundaries into the nearest watercourse or beyond the property boundary. The Nova Scotia Department of the Environment "*Erosion and Sedimentation Control Handbook For Construction Sites*" shall serve as the reference document for all erosion control measures. These measures are minimum requirements and additional controls shall be implemented if Site runoff exceeds the discharge limits contained herein.
- b) No authority is granted by this Approval to enable the Approval Holder to discharge surface water beyond the property boundary and onto adjoining lands without the authorization of the affected landowner(s). It is the responsibility of the Approval Holder to ensure that the authorization of said landowner(s) is current and valid. Failure to retain said authorization will result in this Approval being null and void. The Approval Holder shall provide, to the Department, proof of the continued authorization of the adjoining landowner(s) when the current agreement has expired.
- c) All erosion and sedimentation control devices shall be installed prior to any excavation of material.
- d) The Approval Holder shall ensure the liquid effluent levels in Table 1 are met and that the effluent is monitored at the frequency and locations indicated.

Table 1				
Final Effluent Discharge Limits				
Parameters	Maximum in a Grab Sample	Monthly Arithmetic Mean	Monitoring Frequency	Monitoring Station
Total Suspended Solids	50 mg/l	25 mg/l	weekly	settling pond outlet

pH	5 - 9	6 - 9	weekly	settling pond outlet
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- e) If it becomes necessary to drain the Site, the wastewater shall be drained to settling ponds for appropriate treatment to meet the suspended solids limits outlined in Table 1.
- f) All wash water systems shall be arranged in closed circuit.
- g) Additional monitoring stations for liquid effluent may be specified as required by the Department.
- h) A monthly summary of results of monitoring shall be submitted to the Department.

8. Groundwater

- a) The Approval Holder shall replace at their expense any water supply which has been lost or damaged as a result of extracting aggregate.
- b) The Approval Holder shall secure from the Administrator an approval amendment prior to excavating below the watertable.

9. Separation Distances

- a) The Approval Holder shall not locate the Active Area of the quarry within:
 - i) 30 m. of the boundary of a public or common highway, unless consent is received from the Department of Transportation & Public Works.
 - ii) 30 m. of the bank of any watercourse or ordinary high water mark.
 - iii) 30 m. of the boundary of the quarry property.
- b) The Approval Holder shall not blast within:
 - i) 30 m. of the boundary of a public or common highway.
 - ii) 30 m. of the bank of any watercourse or ordinary high water mark.
 - iii) 800 m. of the foundation or base of a structure located off site.

- iv) 15 m. of the property boundary when a structure on the abutting property is not involved.

10. Blasting

- a) The Approval Holder shall have a technical blast design prepared by a qualified person which ensures the ground vibration and air concussion limits in this Approval can be achieved. The design shall be sent to the Department for review prior to any blasting. *
- b) The Approval Holder shall conduct a pre-blast survey including a water quality analysis of all structures within 800 metres of the Facility. The survey shall be conducted in accordance with the Department's "Procedure For Conducting a Pre-Blast Survey" and the results of this survey sent to the Department prior to any blasting on the Site. Water quality parameters will be determined by NSDEL staff.
- c) The Approval Holder shall call the nearest weather office, to assess the climatic conditions prior to conducting any blasting. No blasting will be permitted if there is a thermal atmospheric inversion, a low cloud cover or fog conditions.
- d) No blasting shall occur on Sunday, on a statutory holiday prescribed by the Province, or on any day between 1800 and 0800 hours.
- e) The Approval Holder shall ensure that all blasts are monitored for concussion and ground vibration to ensure that the limits in Table 2 are not exceeded:

Table 2			
Blasting Limits			
Parameters	Maximum	Monitoring Frequency	Monitoring Station
Concussion (Air Blast)	128 dBA	Every Blast	Within 7 m of the nearest structure not located on the Site

Ground Vibration	0.5 in/sec (12.5 mm/s) Peak Particle Velocity	Every Blast	Below grade or less than 1 m above grade in any part of the nearest structure not located on the Site
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- f) The monitoring stations for blasting shall be as indicated in Table 2. Additional monitoring stations for blasting may be specified as required by the Department.
- g) A monthly summary of results of monitoring shall be submitted to the Department.
- h) Blasting shall be conducted in accordance with the Department of Fisheries and Oceans *Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters* - 1998.
- i) A report shall be completed by the proponent in advance of any blasting activity verifying the intended charge size and blast design will not have an adverse effect on marine mammals in the area. This report shall be submitted to the Department of Fisheries and Oceans (DFO), Maritimes Aquatic Species at Risk Office and written acceptance of the report shall be received from DFO and forwarded to the Department before blasting commences.

11. Public Communications

- a) At the request of the Department, the proponent shall undertake a public information program accepted by the Department which will include but is not limited to:
 - i) size and nature of the project;
 - ii) description of processes involved;
 - iii) anticipated environmental effects and proposed mitigation;
 - iv) future of the project;
 - v) any other information requested by the Department;
- b) At the request of the Department, the proponent shall establish a community liaison committee and:
 - i) The proponent shall submit a plan for the establishment of a CLC based upon the document "*Guidelines for the Formation of a CLC*" October 28, 1993, available from the Nova Scotia Department of Environment and Labour.

- ii) Upon acceptance of the plan by the Department, the proponent shall implement the plan and adhere to its requirements.

12. Rehabilitation and Security

- a) The Approval Holder shall post an interim security in a form acceptable to the Department in the amount of \$6250.00 per hectare of disturbed area on or before ~~March 15~~, 2002 or prior to any disturbance, whichever occurs first.
- b) The interim security shall not exceed one (1) year unless otherwise agreed in writing by the Administrator.
- c) The Approval Holder shall submit a rehabilitation plan to the Department for review by April 30, 2003. The rehabilitation plan shall be revised and updated every three years thereafter and submitted for review. The rehabilitation plan shall include the estimated total cost for labour, equipment, supplies and services of a third party contractor to undertake the following activities:
 - i) surface contouring
 - ii) establishing proper drainage
 - iii) re-vegetation work
 - iv) any work necessary to reclaim the quarry
- d) Before the expiry of the interim security, the Approval Holder shall post a final security which shall be calculated using the rehabilitation plan and factors in item c) above. The final security shall be revised every three years in accordance with the revised rehabilitation plan.
- e) The Approval Holder shall rehabilitate the Site within twelve (12) months of abandonment and in accordance with the rehabilitation plan submitted by the Approval Holder in 11 (c) or other terms as specified by the Department,
- f) The Nova Scotia Department of Environment and Labour shall release the security to the Approval Holder after final rehabilitation of the Site has been completed to the satisfaction of the Minister or Administrator. The Approval Holder shall notify the Department when rehabilitation has been completed.
- g) The Approval Holder shall ensure that any security posted for rehabilitation be kept valid for the term of the Approval.

NOVA SCOTIA DEPARTMENT OF THE ENVIRONMENT & LABOUR

FAX# 902-742-7796
TELEPHONE # 902-742-8985

To: *Paul Buxton*

Date: *5/12/03*

Fax #: *245-5614*

Pages: *2*, including this cover sheet.

From: *Bob Petric*

Subject: *Letter from Minister Kerry Morash*

COMMENTS: *Forwarding to you a letter of Corrections
Concerning Amendment to approval # 2002-026397*


NOVASCOTIA
Department of Environment & Labour

Environmental Monitoring & Compliance Division
Yarmouth District Office

Bob Petrie, District Manager

13 First St.
Yarmouth, Nova Scotia
B5A 1S8
petrie.r@gov.ns.ca

Tel: (902) 742-8368
Fax: (902) 742-7796

December 5, 2003

Mr. Paul Buxton, P. Eng.
Nova Stone Exporters Inc.
PO Box 2113
Digby NS B0V 1A0

Dear Mr. Buxton:

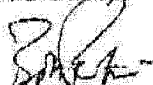
Further to the correspondence you received from Minister Kerry Morash concerning your request for an amendment to your approval #2002-026397, this is to advise that the correspondence contained an error in the Approval number referenced.

The first paragraph states "*I am writing further to our meeting on October 9, 2003 and your request for an amendment to your Approval #2003-032388, which would enable you to conduct blasting at the White's Cove site.*"

This paragraph should state "*I am writing further to our meeting on October 9, 2003 and your request for an amendment to your Approval #2002-026397, which would enable you to conduct blasting at the White's Cove site.*"

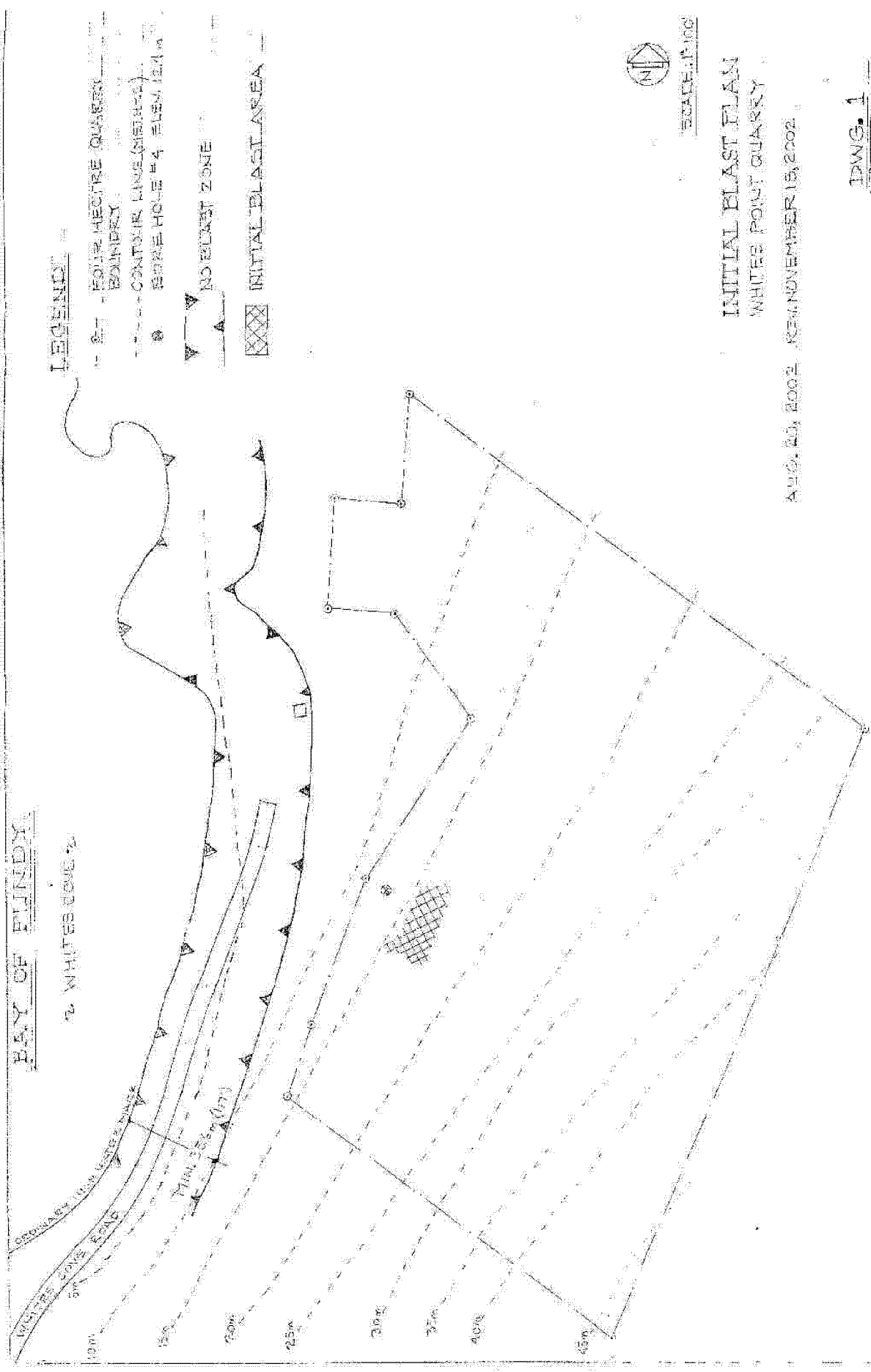
I apologize for any confusion this may have created.

Yours truly,



Bob Petrie
District Manager

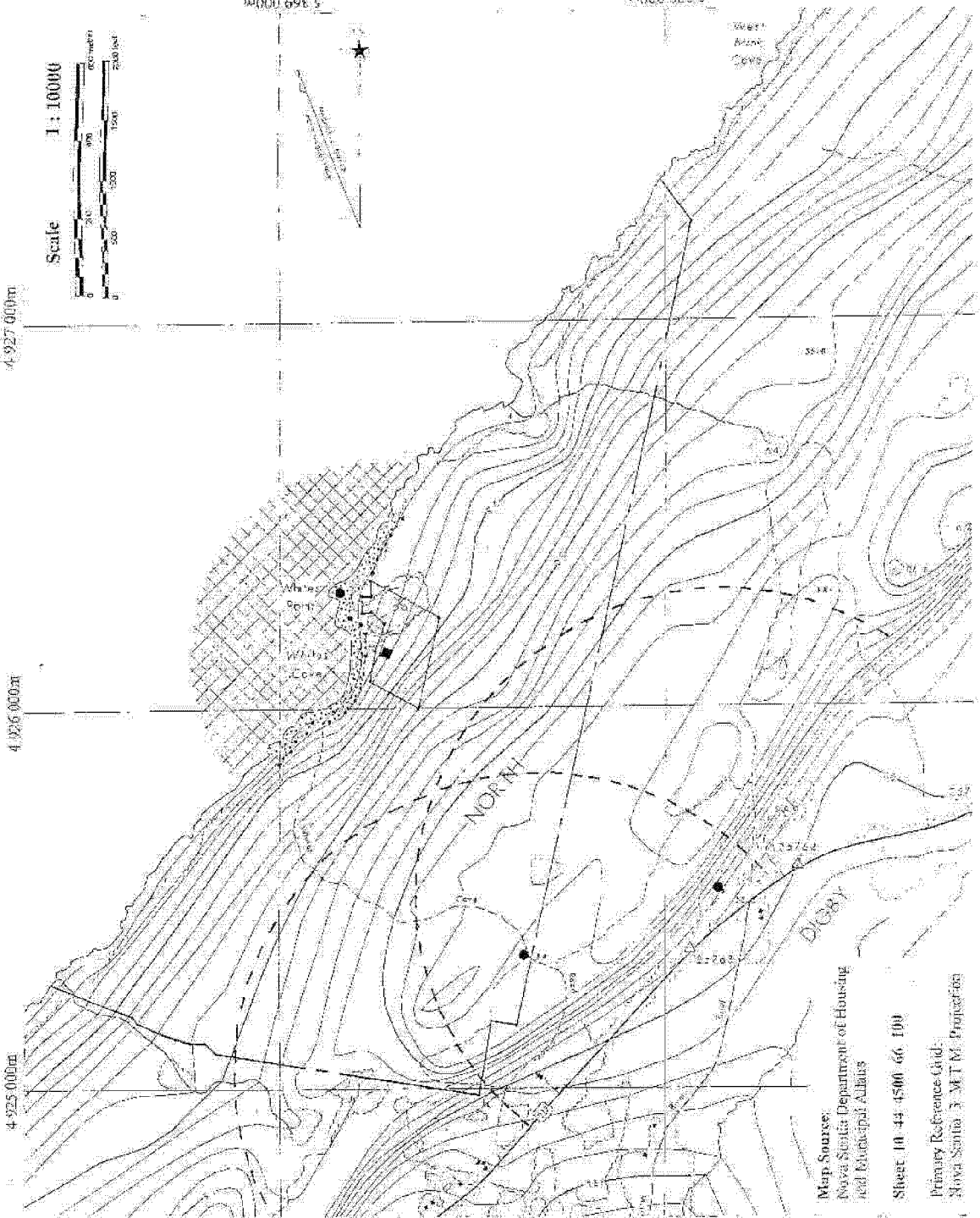
cc: Kim MacNeil



002253

**WHITE POINT QUARRY
LITTLE RIVER, QUÉBEC CO.
NOVA SCOTIA**

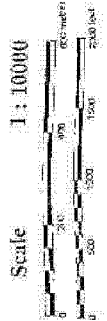
SLANTING PLAN



4 927 000m

4 926 000m

4 925 000m



5 369 000m

5 370 000m

LEGEND

- PROPERTY LINE
- 4 HECTARE QUARRY
- PROPOSED MONITORING LOCATION
- 800m ZONE
- XXXX 500M MARINE MAMMAL OBSERVATION ZONE
- SETBACK FROM FISH HABITAT INITIAL EAST LOCATION

Map Source:
Nova Scotia Department of Housing
and Municipal Affairs

Sheet 10-43-4500-66-100

Primary Reference Grid:
Nova Scotia 3-MTM Projection

TITLE 2

**MUNICIPALITY OF
SIBERDRAKS**

NOVEMBER 18, 2002