# TRANSPORT CANADA

## Port of Gaspé – Sandy Beach Sediment Remediation Project

**Environmental Impact Assessment filed with the *Ministre du Développement durable, de l'Environnement, de la Faune et des Parcs***

**Addendum 2**

## TRANSLATIONS OF THE TITLES, MAPS AND TABLES FOUND IN THE ADDENDUM 2 OF THE MAIN REPORT AND APPENDICES (MARCH 2012)

ANNEXE 1 : COPIE DES QUESTIONS ET COMMENTAIRES DE MDDEFP

*ANNNEX 1: COPY OF QUESTIONS AND COMMENT TO MDDEFP*


| | |
|---|---|
| Introduction | Introduction |
| Questions et commentaires du 10 juillet 2012 | Questions and comments from July 10th 2012 |
| Description du projet | Project description |
| Caractérisation des sols et sédiments | Characterization of the soil and sediment |
| Milieu humain | Human environment |
| Dispersion des matières en suspension | Dispersal of the suspended particulate matter |
| Mesures d'atténuations | Mitigation measures |
| Autres questions et commentaires | Other questions and comments |
| Pêches et aquaculture | Fishing and aquaculture |
| Annexe | Annexe |


*INTRODUCTION*

This document presents the second series of questions and comments given to Transport Canada as part of the analysis of admissibility of the environmental impact assessment of the Sandy Beach Sediment Remediation Project, in the Gaspé Harbour – Sandy Beach.

This document was made following the analysis done by the Direction de l'évaluation environnementale des projets hydriques et industriels (DÉPHI) in collaboration with the involved administrative teams in the Ministère du développement durable, de l'Environnement et des Parcs as well as other departments and agencies. This analysis has allowed to verify if the directive's requirement of the Minister and of the Règlement sur l'évaluation et l'examen des impacts sur l'environnement (R.R.Q., c Q-2, r.23) have been done satisfactorily by the proponent.

The Ministry of Développement durable, de l'Environnement, de la Faune et des Parcs will soon publish the environmental impact assessment as well as the addendas. Therefore, all the informations asked in this document must be given to the Department before the publishing of the environmental impact assessment.

*[The questions and comments are translated in English and included in the Addendum 2.]*

ANNEXE 2: CARACTÉRISATION DÉTAILLÉES DES SÉDIMENTS

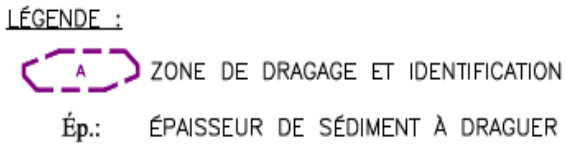
*ANNEX 2 : DETAILLED SEDIMENT CHARACTERIZATION*

The Table 5 can be consulted in English in the Annex 2 of the Gaspé-Sandy beach Sediment Remediation project bid solicitation.

ANNEXE 3 : ZONES ET ÉPAISSEURS À DRAGUER
*ANNEX 3 : ZONES AND DREDGING THICKNESS*

Annex 3 -1 : Zones de dragage et épaisseurs à draguer dans le havre de Gaspé

*Annex 3 – 1: Dredging zones and thickness in the Gaspé Harbour*




Legend
Dredging zones and identification
Dredging sediment thickness

ANNEXE 4 : REPÉSENTATION SCHÉMATIQUE INDICATIVE DU QUAI TEMPORAIRE
*ANNEX 4: INDICATIVE SCHEMATIC REPRESENTATION OF THE TEMPORARY WHARF*

Annexe 4-1 : Représentation schématique indicative du quai temporaire
*Annex 4-1: Indicative schematic representation of the temporary wharf*

| | |
|---|---|
| Quai temporaire | Temporary wharf |
| Élévation latérale | Lateral elevation |
| Coupe | Cut |

ANNEXE 5 : ANALYSE ENVIRONNEMENTALE COMPARATIVE DES OPTIONS DE RESTAURATIONS
*ANNEXE 5: COMPARATIVE ENVIRONMENTAL ANAYSIS OF ALL THE REMEDIATION OPTIONS*

## COMPARATIVE ENVIRONMENTAL ANAYSIS OF ALL THE REMEDIATION OPTIONS

In order to be able to develop a sediment remediation strategy, many options have been explored. In fact, an overview of the different options was done during the development phase of the project and those options were compared with each other in order to target the most attractive ones. The first step was to make an inventory of all the remediation strategies that could be developed. By remediation strategy, we mean the general admitted avenue used in the remediation of aquatic sites that have contaminated sediments. Those are the first options that we think of, regardless of technological or implementation details. It should be noted that all the strategies that were not compliant, or financially impossible, or environmentally or socially inacceptable were simply discarded.

The inventory has identified fourteen (14) remediation options. Those options were combined in three (3) categories: 1) sediments left in place (no dredging); 2) sediment dredging and secure keeping of the sediment near the dredging zone; 3) sediment dredging and secure keeping of the sediment away from the dredging zone.

Thereafter, an inventory of the applicable remediation selection requirements specific to the commercial wharf of Gaspé Harbour was done at the beginning of the project. A total of eleven (11) selection requirements were established (see table 1). Those criterions evaluate the options details (nuisance, long term handiwork and intervention measures, performance guaranty) as well as environmental and legal aspects (gains and conformity) social (community expectations), financial (costs, economy of scale, long-term responsibility) and spatiotemporal (space and time).

Finally, the identified options were evaluated according to the chosen 11 selection requirements. The inventory of the remediation selection criterions has permitted a fair comparison between the proposed remediation options, in order to make a rigorous choice within the remediation strategy, according to the actual context (see table 2). The results of the analysis, done in 2005, permitted the pre selection of five (5) options. The steps considered for each of them are the following ones:

a) Dredging and encapsulation partially *in situ* and deposit on the shore inside a confinement cell with an added security.
b) Dredging and deposit on shore inside a confinement cell with added security
c) Dredging, dewatering and disposal inside a buried safe cell to be built in Murdochville, in the landfill area number 1.
d) Dredging and disposal inside a buried safe cell to be built in Murdochville, in the landfill number 1.
e) Dredging, dewatering and disposal inside a cell with maximal commercial security

Initially, the option with the encapsulation partially *in situ* and/or deposit on the shore inside a confinement cell with an added security (option a and b) was not chosen because:

- In case of a technical failure of the cells, the sediment would be accessible again
- The encapsulation *in situ* would not permit an occasional dredging along the wharf
- The cell membrane would be vulnerable because of the harbor activities (turbulence caused by boat propellers, launching the anchor, ect.)
- Shore deposit would mean the destruction of the fish habitat
- The encapsulation and shore deposit mean that TC would be responsible of the contaminated sediment on a long-term basis.
- Those options would necessitate land purchases for the cell storage, which doesn't follow ministerial policies, which favors the sales of installations, not the acquisitions of installations.

As well, the option of sending contaminated sediment to Murdochville landfill (option c and d) was not chosen because the authorization certificate of the site's owner doesn't allows the burying of PAH contaminated sediments.

Thus, TC has retained the last scenario, e) for the sediment remediation of the Gaspé Harbour – Sandy beach, because it allows TC to get rid of the environmental passive of those sediments.

Knowing these facts and continuing the analysis with the selection criterion in terms of the five (5) remediation option selected, those are considered environmentally acceptable in regards to:

- Environmental gain assurance
- Long-term handiwork and intervention measures
- Environmental and legal conformity
- Meet community expectations.

**Table 1: Remediation Option Selection Criteria**

| Selection criteria | | | Criteria's importance[1] | Rationale |
|---|---|---|---|---|
| Environmental gain | 1 | a | Vital | Does this remediation option ensure an environmental gain? |
| The remediation option's definitive nature | 2 | a | Vital | Does this remediation option only temporarily shift the problem (ex. what the sediment becomes (final management mode), transferring the contaminants from the "sediment" matrix to the "water" matrix)? |
| | | b | | What is the level of confidence regarding the life of the containment structures? |
| | | c | | What is the guarantee regarding the treatment's performance? |
| | | d | | Will the site's remediation result in it no longer containing sediment likely to release unacceptable concentrations of contaminants into the environment? |
| | | e | | Will the technologies associated with this remediation option allow part of the residue to be revalorized? |
| The remediation option's legal and environmental compliance | 3 | a | Vital | Can the dredging of the sediment and management of the dredged material and other residue generated by this remediation be carried out, via this remediation option, in compliance with the applicable environmental regulations and standards? |
| | | b | | If some of the technological options that are considered do not comply with the current regulations (ex.: *Regulation respecting the burial of contaminated soils* ), is it possible to amend the regulations? |
| Meets the population's expectations | 4 | a | Vital | Does this remediation option take into account the concerns expressed by the local population and stakeholders to date? |
| | | b | | Could this remediation option benefit from the support of influential groups/individuals? |
| The remediation option's disruptive nature | 5 | a | High | Will this remediation option produce unacceptable nuisances for port, commercial and recreational activities in the area? |
| | | b | | Can this remediation option cause a decrease in water quality that would have unacceptable impacts on sensitive commercial activities in the area (business operating a lobster holding facility, mussel bed, etc.)? |
| | | c | | Does this remediation option risk significantly disturbing other marine sectors (ex.: fish habitat) or land sectors (ex. saltwater management during dewatering on land)? |
| | | d | | Do the remediation equipment, work areas, access roads, etc. occupy a large amount of space and do they take the site's constraints into consideration (traffic at the wharves, existing equipment to protect, private property owned by Transport Canada or Noranda)? |
| The remediation option's proven nature | 6 | a | High | Have the technologies associated with this remediation option conclusively and non-equivocally demonstrated the capacity to manage similar sediment? |
| | | b | | Can the technologies associated with this remediation option be adapted to the area's marine conditions (saltwater, currents, winds, tides, etc.)? |
| | | c | | Is the equipment to be used (turbidity curtains, dredging, treatment, etc.) readily available, rugged, proven and easy to use? |
| Economy of scale | 7 | a | Medium | Can this remediation option be combined with remediation work at other Transport Canada or Noranda sites in Gaspé or Murdochville? (ex.: burial of sediment with contaminated soil and/or residual material, landscaping on a contaminated site managed via risk analysis, etc.). |
| Costs | 8 | a | Medium | Does this remediation option involve implementation and/or long-term maintenance costs that could potentially be too high? |
| Liability | 9 | a | Medium | Does this remediation option involve long-term liability for Transport Canada and Noranda? |
| Space | 10 | a | Medium | Do Transport Canada or Noranda have the space required to implement this remediation option? |
| Time | 11 | a | Medium | Are there time constraints associated with implementing this remediation option? |

**Notes:**

[1] : Criterion's importance for the TB. Not meeting a criterion that is deemed vital results in the remediation option's automatic rejection.

**Table 2: List of Remediation Options Applicable to the Sandy Beach Project**

| Remediation option: Sediment left in place (no dredging) | | Main criteria considered [1] | Comments | Status of the remediation option |
|---|---|---|---|---|
| A1 | No action other than controlling the site's accessibility and use and maintaining the depths at their current level. | 1a | The status quo does not provide environmental gain. | **Rejected** |
| | | 2d | Unacceptable remediation option as it does not meet the remediation objective set by TC and Noranda based on the conclusions of the risks analysis study conducted by QSAR (2002). | |
| | | 4a | TC and Noranda made a commitment to the local population and stakeholders to remediate the contaminated sediment up to the established IELs. | |
| A2 | Capping the sediment (geotextile, ballast, coarse backfill, concrete mattress, etc.). | 2b | The majority of capping projects to date have been carried out in lacustrine or fluvial environments and the methods used to set up these sites are well documented. However, the design of the capping structures potentially needed for the Sandy Beach project would require developing specific expertise for the different types of marine environments present (tide, currents, waves, bathymetry, etc.) and the site's physical conditions (granulometric facies, ice, turbulence from boat propellers, etc.). | **Retained** |
| | | 2d | If the capping fails, the sediment would again become accessible. Long-term monitoring would be required. | |
| | | 5a | If the sediment is capped, it will no longer be possible to perform occasional dredging work on the wharf's periphery. Also, the capping would be vulnerable to port activities (turbulence from boat propellers, dropped anchors, etc.). However, the parts of the intervention area that are not affected by port activities could benefit from this remediation option. | |
| | | 5d | Capping certain areas would avoid having to dredge and manage a significant quantity of sediment. | |
| | | 6a, 6b | See comment for 2b. | |
| | | 9a | The sediment left in place would remain TC and Noranda's responsibility. | |
| | | 10a | The land space required for the work is limited. | |
| A3 | Solidfying/stabilizing in situ by adding flocculants, complexing additives, bonding agents or cement. | 2b, 2c | No similar projects were found in the literature It is theoretically doable, but the long-term stability of sediment thus treated remains to be demonstrated. Moreover, this option would require an assessment of the risks associated with sediment treated in this manner. | **Rejected** |
| | | 5a | See comment for 5a, option A2 (changing what needs to be changed ). | |
| | | 6a, 6b | See comment for 2b and 2c. | |
| | | 6c | Lack of conventional equipment. Must be adapted to the site's conditions. | |
| A4 | *In situ* treatment (lagooning, forced aeration and other types of treatments in the aquatic environment). | Same as A3 | See comment for A3 (changing what needs to be changed). | **Rejected** |

**Note:**

(1) : See the list of remediation option selection criteria presented in Table 1.

**Table 2: List of Remediation Options Applicable to the Sandy Beach Project**

| Remediation option: Extraction of the sediment and secure containment in the immediate vicinity of the dredging site | | Main criteria considered [1] | Comments | Status of the remediation option |
|---|---|---|---|---|
| B1 | Dredging, dewatering or not, and containment in a secure[2] containment cell to be built on land. | 3a | There are no deposits of natural, homogeneous clay with low hydraulic conductivity ($10^{-6}$ cm/s) in the immediate vicinity of the dredging area. | **Rejected** |
| B2 | Dredging, dewatering or not, and containment in a highly secure containment cell [3] to be built in an aquatic portion of the intervention site. | 2b, 2d | Permanent containment structures can be built using the usual design criteria for coastal environments. | **Retained** |
| | | 3a | A highly secure containment cell could be built on shore in compliance with the regulations and policies in effect (*Regulation respecting the burial of contaminated soils*, *Fisheries Act*, *Soil Protection and Contaminated Sites Rehabilitation Policy*). | |
| | | 5a | A highly secure containment cell could be built between the fishing wharf and the shipyard's boat launch and thus not disrupt port operations. | |
| | | 5c | The marine footprint of the cell proposed in 5a is a sector whose level of contamination is > IEL in total PAH. | |
| | | 5d, 10a | Only Noranda owns properties in the dredging area. The sulphuric acid storage site can only be used (under certain conditions) to temporarily store the sediment removed via mechanical dredging. As for the concentrate warehouse, the temporary storage of sediment from mechanical or hydraulic dredging could be possible (under certain conditions). However, the possible nuisances caused by the work (noise, odour, dust, etc.) for residents of the area limit this site's potential. Other properties owned by third parties, located between the railway and shipyard, would be better suited for the temporary storage of sediment from mechanical or hydraulic dredging. | |
| | | 6a, 6b | On-shore management of contaminated sediment has already been required for remediation projects and uses the usual technologies and building concepts applicable in coastal environments. | |
| | | 9a | The cell's marine footprint would require compensation for the permanent destruction of the fish habitat and an agreement with the owner of the sea bed (Alfred William Carpenter holds the rights). Furthermore, TC and Noranda would possibly need to acquire the riparian strip owned by individuals (footprint to be defined at a later date). | |
| B3 | Dredging and treatment, followed by land-based revalorization of the trea sub-products and containment of the concentrate in a secure containme cell on land. | 3a | See comment for B1. | **Rejected** |
| B4 | Dredging and treatment, followed by land-based revalorization of the trea sub-products and containment of the concentrate in a highly secure containment cell to be built in an aquatic portion of the intervention site. | Same as B2 except: 2c, 2e 5a | See comment for B2. | **Rejected** |
| | | 2c, 2e | The presence of mixed contamination (copper and PAH) makes it difficult to treat the sediment at a level that permits its partial revalorization. Only treatment via particle size separation could diminish the copper contamination level in a portion of the sediment, assuming that the source of the contamination (concentrate of a silty/clayey texture) is associated with the fine fraction of the sediment. As for the PAH, they are possibly associated (adsorbed) at the surface of the fine particles and organic matter. However, tests would need to be performed to demonstrate the feasibility of such treatment. | |
| | | 5a | If applicable, the proposed treatment would reduce the volume of contaminated sediment to manage and, consequently, the marine footprint required for its containment. | |

**Notes:**

[1] : See the list of remediation option selection criteria presented in Table 1.

[2] : Secure containment cell (watertight walls and floor, collection and control of leachate, etc.).

[3] : Highly secure containment cell: secure containment preventing the expulsion of contaminated sediment outside of the contained enclosure and ensuring adequate control of the leachate.

**Table 2: List of Remediation Options Applicable to the Sandy Beach Project**

| | Remediation option: Extraction of the sediment and secure containment outside the immediate vicinity of the dredging site | Main criteria considered [1] | Comments | Status of the remediation option |
|---|---|---|---|---|
| C1 | Dredging, dewatering or not, and containment in a secure [2] containment cell to be built on land on a property owned by TC or Noranda. | 3a, 3b | None of the properties owned by TC or Noranda have the geological characteristics for building a secure containment cell as per the *Regulation respecting the burial of contaminated soils* (natural, homogene deposits (of clay) of low hydraulic conductivity ($10^{-6}$ cm/s)). Only Noranda's tailings site no. 1 in Murdochville could be acceptable for building a secure containment cell that would also be used to bury waste and contaminated material generated by the dismantling of Noranda's mine sites, currently underway. This design is being validated by MENV. | **Retained** |
| | | 5d, 10a | Only Noranda owns properties in the dredging area. The sulphuric acid storage site can only be used (under certain conditions) to temporarily store the sediment removed via mechanical dredging. As for the concentrate warehouse, the temporary storage of sediment from mechanical or hydraulic dredging could be possible (under certain conditions). However, the possible nuisances caused by the work (noise, odour, dust, etc.) for residents of the area limit this site's potential. Other properties owned by third parties, located between the railway and shipyard, would be better suited for the temporary storage of sediment from mechanical or hydraulic dredging. To build the secure containment cell, only Noranda's former tailings site would be suitable (see comments for 3a, 3b). | |
| | | 6a, 6b, 6c | This remediation option is generally one of the most commonly considered (GECCEP, 2000) since it is simple to implement. | |
| | | 7a | The sediment could be co-buried with the waste and contaminated material generated by the dismantling of Noranda's mining facilities currently underway in Murdochville. | |
| | | 9a | The sediment would remain TC and Noranda's responsibility. | |
| C2 | Dredging, dewatering or not, and containment in an existing [2] maximum security commercial containment cell. | 5d, 10a | Only Noranda owns properties in the dredging area. The sulphuric acid storage site can only be used (under certain conditions) to temporarily store the sediment removed via mechanical dredging. As for the concentrate warehouse, the temporary storage of sediment from mechanical or hydraulic dredging could be possible (under certain conditions). However, the possible nuisances caused by the work (noise, odour, dust, etc.) for residents of the area limit this site's potential. Other properties owned by third parties, located between the railway and shipyard, would be better suited for the temporary storage of sediment from mechanical or hydraulic dredging. | **Retained** |
| | | 5c | Using commercial sites avoids having to create a new contaminated soil landfill site. | |
| | | 6a, 6b, 6c | This remediation option is generally one of the most commonly considered (GECCEP, 2000) since it is simple to implement. | |
| | | 8a, 9a | Using commercial sites avoids having to obtain authorization to bury sediment in an aquatic or terrestrial environment (tailings site) and clears TC of the responsibility of managing the sediment once it is dispo of, but increases the disposal costs (disposal sites in Quebec are at a significant distance: Saguenay, Bécancour, Grandes-Piles and Montréal). | |
| C3 | Dredging, dewatering or not, and containment in a [3] highly secure containment cell to be built in an aquatic portion outside the intervention site. | 2a, 5c | A new non-contaminated aquatic area would be compromised by the building of a cell. | **Rejected** |
| | | 2b, 2d | Could be a significant technical challenge. | |
| | | 4a | Moving the contaminated sediment to a non-contaminated area would probably not be accepted by the population and local groups. | |
| | | 5b | Several maricultural activities are carried out in the Bay of Gaspé, limiting the potential sites. | |
| | | 6a, 6b, 6c | The techniques used to build containment cells other than on shore would need to be adapted to the conditions of the retained potential site. | |
| | | 9a | The sediment would remain TC and Noranda's responsibility. | |
| | | 10a | A marine footprint would need to be granted by Fisheries and Oceans Canada prior to the work. | |

**Notes:**

[1] : See the list of remediation option selection criteria presented in Table 1.

[2] : Secure containment cell (watertight walls and floor, collection and control of leachate, etc.).

[3] : Highly secure containment cell: secure containment preventing the expulsion of contaminated sediment outside of the contained enclosure and ensuring adequate control of the leachate.

**Table 2: List of Remediation Options Applicable to the Sandy Beach Project**

| Remediation option: Extraction of the sediment and secure containment outside the immediate vicinity of the dredging site *(continued)* | | Main criteria considered [1] | Comments | Status of the remediation option |
|---|---|---|---|---|
| C4 | Dredging and treatment, dewatering or not, followed by land-based revalorization of the treated sub-products and containment of the concentrate in a secure containment cell to be built [2] on a property owned by TC or Noranda. | Same as C1 except: 2c, 2e 5a | See comment for C1. | **Rejected** |
| | | 2c, 2e | The presence of mixed contamination (copper and PAH) makes it difficult to treat the sediment at a level that permits its partial revalorization. Only treatment via particle size separation could diminish the copper contamination level in a portion of the sediment, assuming that the source of the contamination (concentrate of a silty/clayey texture) is associated with the fine fraction of the sediment. As for the PAH, they are possibly associated (adsorbed) at the surface of the fine particles and organic matter. However, tests would need to be performed to demonstrate the feasibility of such treatment. | |
| | | 5a | If applicable, the proposed treatment would reduce the volume of contaminated sediment to manage and, consequently, the marine footprint required for its containment. | |
| C5 | Dredging and treatment, dewatering or not, followed by land-based revalorization of the treated sub-products and containment of the concentrate in an existing maximum security commercial containment cell on land[2]. | Same as C4 except: 8a, 9a | See comments for C4. | **Rejected** |
| | | 8a | The cost associated with treating the sediment (particle size separation, see the comments for criteria 2C, 2e, for option C4) would not result in savings and would probably be similar to the amount saved by revalorizing the treated sediment. | |
| | | 9a | Using commercial sites avoids having to obtain authorization to bury sediment in an aquatic or terrestrial environment (tailings site) and clears TC of the responsibility of managing the sediment once it is disposed of, but increases the disposal costs (disposal sites in Quebec are at a significant distance: Saguenay, Bécancour, Grandes-Piles and Montréal). | |
| C6 | Dredging and treatment, dewatering or not, followed by land-based revalorization of the treated sub-products and containment of the concentrate in a highly secure containment cell to be built in an aquatic portion outside of the intervention site [3]. | Same as C3 except: 2c, 2e, 5a | See comments for C3. | **Rejected** |
| | | 2c, 2e | The presence of mixed contamination (copper and PAH) makes it difficult to treat the sediment at a level that permits its partial revalorization. Only treatment via particle size separation could diminish the copper contamination level in a portion of the sediment, assuming that the source of the contamination (concentrate of a silty/clayey texture) is associated with the fine fraction of the sediment. As for the PAH, they are possibly associated (adsorbed) at the surface of the fine particles and organic matter. However, tests would need to be performed to demonstrate the feasibility of such treatment. | |
| | | 5a | If applicable, the proposed treatment would reduce the volume of contaminated sediment to manage and, consequently, the marine footprint required for its containment. | |

**Notes:**

(1) : See the list of remediation option selection criteria presented in Table 1.

(2) : Secure containment cell (watertight walls and floor, collection and control of leachate, etc.).

(3) : Highly secure containment cell: secure containment preventing the expulsion of contaminated sediment outside of the contained enclosure and ensuring adequate control of the leachate.

ANNEXE 6 - RÉSULTATS DES ANALYSES DU CENTRE D'EXCELLENCE DE MONTRÉAL EN RÉHABILITATION DE SITE

*ANNEX 6 - ANALYSIS RESULTS FROM THE CENTRE D'EXCELLENCE DE MONTRÉAL EN RÉHABILITATION DE SITE*

ÉCHANTILLONNAGE DE SÉDIMENTS MARINS BAIE DE GASPÉ, GASPÉ – POSITION DES STATIONS D'ÉCHANTILLONNAGE

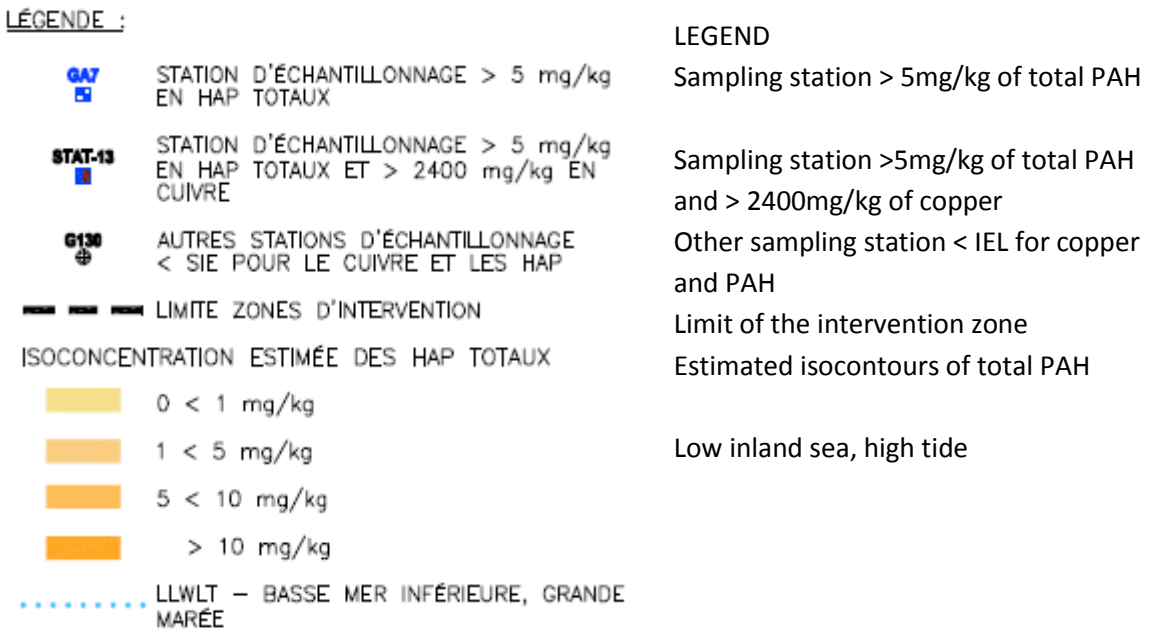
*MARINE SEDIMENT SAMPLING IN GASPÉ HARBOUR, IN GASPÉ – SAMPLING STATION LOCATION*

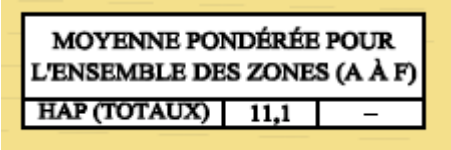

ANNEXE 7 – DONNÉES HISTORIQUES DE QUALITÉ DES SÉDIMENT ET STATIONS D'ÉCHANTILLONNAGE

*ANNEX 7 – HISTORICAL DATA OF SEDIMENT QUALITY AND SAMPLING STATIONS*

FIGURE 6 : HAP TOTAUX – ISOCONTOURS ET CONCENTRATIONS MOYENNES PONDÉRÉES PAR ZONE D'INTERVENTION

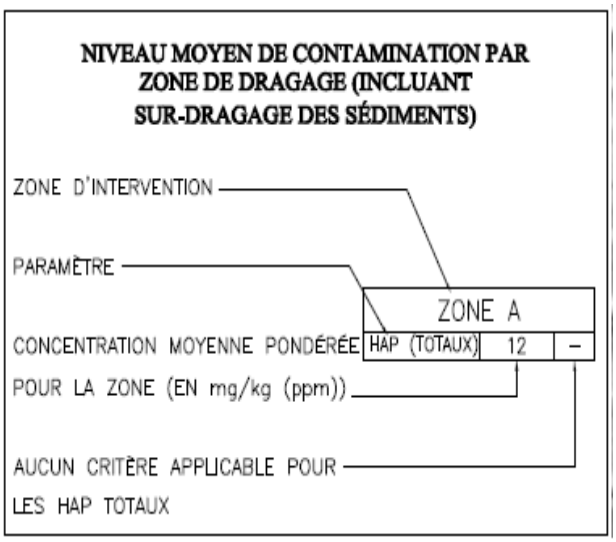
*FIGURE 6 – TOTAL PAH – ISOCONTOURS AND CONCENTRATION WEIGHTED AVERAGE BY INTERVENTION ZONE*






Weighted average for all zones (A to F)

Total PAH




Contamination average level by dredging zone (including sediment over-dredging)

Intervention zone

Parameters

Zone weighted average concentration (

No applicable criterion for the total PAH

ANNEXE 9 – FIGURE B-18 RÉVISÉE

*ANNEX 9 – FIGURE B-18 REVISED*


Fermes Marines de Gaspé mussel farm
Les Moules Forillon mussel farm
Les Moules de Gaspé mussel farm