<table>
<tr><th>NRCan Comment</th><th>EMCP Response</th></tr>
<tr><td colspan="2">3.1.5 Geology of the Bull Arm (Mosquito Cove) Area</td></tr>
<tr><td>The section references a 2005 exercise, but no background is provided. Some background on the 2005 effort would provide useful information.</td><td>The 2005 exercise, as referenced in Section 3.1.5, shoud read 2005 monitoring study. This study, undertaken by AMEC for Environment Canada, was a post-disposal monitoring study of the bund wall marine disposal location used during the construction of the Hibernia GBS. Further information regarding this report was provided in Section 7.1.3.2 of the CSR.</td></tr>
<tr><td colspan="2">Dredging and Spoils Disposal</td></tr>
<tr><td>Dredging and placement and removal of the bund wall are proposed for Mosquito Arm.

For the dredging, given the thin cover of loose sediment above the till, this will presumably involve considerable volumes of till. Fine components, such as silts and clays may be abundant, and will be subject to dispersal in the removal from the seabed, the raising, and the dumping.

Has water column turbidity and its transport been considered? Is there understanding of the local currents? GSC's (limited) experience is that local base of slope currents can be strong enough to remobilize muds and sands. The implication is that the "footprint" of such operations may be much larger than the immediate dump site.</td><td>The following information was provided in our December 2010 Response to Regulatory Comments regarding dredging and ocean disposal.

Dredging and ocean disposal of the dredged spoils may be required in association with the partial removal of the bund wall and to ensure adequate depth for navigation and tow-out of the GBS to the deepwater site. Dredging of shallow areas near the Topsides pier identified by detailed bathymetry, may be required, depending on the vessels chartered for load-out of the Topsides. The CSR addresses dredging, ocean disposal, and any associated environmental effects in Sections 7.5.1, 8.5.1, 10.5.1, 11.4.2 and 11.5.2 of the CSR. The CSR outlines all mitigations to be employed during dredging, including Fisheries Act compensation.

It is anticipated that a single ocean disposal location will be used for all Project dredging operations. A candidate site for ocean disposal will be discussed with DFO, Environment Canada and Transport Canada. The selection of a preferred site will consider fish habitat characteristics as well as its ability to accommodate the estimated volume of material for disposal without affecting navigation. Based on current estimates, the site will likely be in water depths ranging from 40 to 45 m and may be located near</td></tr>
</table>

	the mouth of Great Mosquito Cove. Additional information, regarding the disposal of the bund wall material was provided in our March 2011 Response to Regulatory Comments: As its preferred option for HADD compensation, EMCP is proposing to enhance fish habitat in GMC by re-locating bund wall material (*i.e.*, rock / cobble, 100 to 210 mm) along with dredged native sediments to featureless sedimentary areas of the sea floor, which currently have low commercial fish productivity. The re-located rock material will be deposited in closely-spaced piles (to maximize 'edge' effects) with the intention of creating 'artificial reefs'. In addition, local fishers have recommended that the rock 'reefs' be placed in shallow, sub-tidal areas of Great Mosquito Cove (<30 m water depth), which are adjacent to areas with bedrock, boulder and medium to coarse gravel substrates, which will provide access corridors to allow for development of juvenile lobsters into later life stages and ultimately into mature, commercial-size adult lobsters and facilitate the growth of kelp species that provide food and/or cover for a variety of fish and invertebrate species.
The documents reviewed suggest that the dump site (for both bund wall and dredging, if we understand correctly) may be 40-45 m water depth in outer Mosquito Cove (pg 3 of review document). A bathymetric survey is proposed to further identify a dump site. What will be the scope and purpose of this survey? Given the highly variable nature of the seabed and sediment type and thickness in this type of nearshore and fjord environment, is part of the scope of such a survey to mitigate or anticipate issues with dumping? GSC has no survey data from the arm, only the mouth, outside the "nearshore Project Area"; nearby recent survey data (2010) in nearby SW Arm suggests much thicker (10s of m) loose sediments than are reported here. This is much more mud-rich than the 50-60 % sand reported in the 1991 document. However,	The bathymetric survey was conducted in 2009. Its purpose was to define the bathymetry of Great Mosquito Cove, not to identify a potential marine sediment disposal zone. The CSR indicated that the data existing for this area was dated to the early 1990s and the Project required updated bathymetric data of the area for GBS construction and tow-out requirements. In addition, a geotechnical program was undertaken in 2009-2010 to provide information regarding soil properties in the proposed bund wall area. **The following paragraph will be added to the end of Section 3.1.5 of the CSR:** The marine surficial geology of Bull Arm has been mapped with geophysical survey systems and geotechnical boreholes during

SW Arm observations and samples are from the central portion of the fjord; Mosquito Cove may well be anomalous and the coastal boreholes indicate this. The dense dredged material (mainly till-derived) might end up being loaded onto much softer and thicker clays, for example, or being dumped in a location subject to later, natural redistribution of the sediment. Any purely bathymetric survey plans could be modified in terms of basic survey tools to provide basic background and baseline surficial geology (multibeam, high frequency sub-bottom acoustic profiler, grab samples). Bathymetric surveys would not likely be sensitive to "redeposited fine grained sediment.... from dredge spoils", if one purpose of the survey will be to address this environmental affect as identified by the Environment Canada 2005 report. Generally individual natural or anthropogenic influences amount to dustings of sediment, not readily resolvable with sonar techniques. Is the goal to compare surficial geology findings from the NGL 1989 to 1991 surveys (referenced below) with present day (post Hibernia GBS construction)? If so, some short coring might be better suited to recognize the anthropogenic influences of the previous GBS construction.	pre-construction site investigations for the previous Hibernia and current Hebron projects (Newfoundland Geosciences Limited 1989a, 1989b, 1991; Fugro Jacques GeoSurveys Inc., 2010; Stantec, 2011 (see Section 3.1.5.2)). **The following text will be included in Section 3.1.5.1 of the CSR**: The bathymetry and seabed morphology in the nearshore area are characterized by both anthropogenic and naturally-occurring features. Within the drydock area, the seabed is predominantly flat, with average water depth of approximately 16 m. Seabed sediments in the drydock area are interpreted to range from silt to gravel. The bund wall area extends approximately 200 m southeast of the drydock area, with water depths on the order of 15 to 17 m. The seabed in this area has been reworked by the bund wall construction and demolition, and displays a rough seabed character with <1 m relief. Seabed sediments are mixed, consisting mainly of sand and gravel with cobble and boulders. Seaward of the bund wall area, water depths increase rapidly to >20 m, with occasional shoals formed by bedrock outcrops. Sediment thickness varies from 0 m in areas of locally exposed bedrock to <6 m in occasional sediment-filled depressions. Seabed sediments are interpreted to be mainly sand and gravel with minor silt in low-lying areas; with cobble-boulder occurrences noted on thinly covered bedrock highs. The bathymetry exhibits a general deepening trend progressing seaward through Great Mosquito Cove, with the exception of several knolls in the vicinity of the Topsides assembly pier, rising to approximately 20 m water depth. The bathymetry of the Bull Arm channel is characterized by a naturally-occurring trough running in a northwest / southeast direction and deepening to approximately 203 m. Water depth at the deep water mating site is approximately 145 m. **The following text will be included in Sectin 3.1.5.2 of the CSR:**

	Subsurface conditions at the Bull Arm Site were investigated in two phases (Stantec 2010a, 2011). The nearshore survey area of the Bull Arm Fabrication Site is characterized by varying thicknesses of fill in the areas of the north and south Hibernia bund wall abutments, which overlay glacial tills and occasional glaciomarine sediments. In areas where no fill was encountered (within tow channel), glacial till was generally observed at the seabed surface. The bund wall location, east of the original Hibernia bund wall alignment, is characterized by limited occurrences of fill in the areas of the north Hibernia bund wall abutment, which overlay glacial tills and occasional glaciomarine sediments. In areas where no fill was encountered (the majority of this area), glacial till was generally observed at the seabed surface. Thicknesses of overburden soils ranged from approximately 0.9 to 12 m. **The following references will be added:** Fugro Jacques GeoSurveys Inc. 2010. *Geophysical and Bathymetric Survey, Bull Arm Fabrication Site, Reconnaissance Report*. FJGI Report No. 10026SG-001-RPT-001 Rev 1, Contract Report to ExxonMobil Mobil Canada - Hebron Project and SNC-Lavalin Inc. Stantec Consulting Ltd. 2010a. *Bull Arm Marine Investigation - Geotechnical Report*. Report prepared for ExxonMobil Canada Properties, St. John's, NL. Stantec Consulting Ltd. 2011. *Bull Arm Marine Investigation Phase 2 - Geotechnical Report*. Report prepared for ExxonMobil Canada Properties, St. John's, NL.
Anchoring	
Figure 3 of the CSR document shows existing mooring points in Bull Arm. Are these on land or in the marine environment? Are they bedrock based? Are there plans for further mooring points? If they are in bedrock and in very shallow water or on land, likely	All mooring points are on land. They were established for the construction of the Hibernia GBS in the mid-1990s. As stated in our December 2010 Response to Regulatory Comments, the requirement for additional moorings will be determined at the FEED stage. If additional moorings are required at the

little impact. Has this been addressed?	deepwater site, they may be constructed on land. At the Topsides pier, temporary underwater moorings (or anchors) may be required to position the heavy lift vessel for Topsides tow-out. Details regarding the requirement for moorings, or the type of moorings that may be required are unknown at this time, as the Project is in the early stages of Project design.
Seabed beneath the GBS in mid-Bull Arm:	
No discussion of the impact on the seabed in mid-Bull Arm was seen in the document. Is this because none is anticipated? There are likely thick soft muds transitioning downwards to cohesive muds of glacial origin at this site (based only on assuming analogous conditions in other fjords). Is there any anchoring, risk of equipment or materials loss (dropping), including hazardous materials? Is the proponent aware of the geological conditions here? Presumably a soft or a hard seabed substrate might be impacted differently in the case of any seabed interaction at this site.	There are no anticipated impacts to the marine environment as a result of GBS construction activities in the mid-Bull Arm area.
Icebergs:	
Is it documented that iceberg trajectories into the nearshore site are of low enough probability to eliminate a mitigation plan?	Iceberg trajectory data within Bull Arm is not available. The probability of icebergs being present within Bull Arm is expected to be extremely low. Any icebergs entering Trinity Bay, would likely be grounded before reaching the upper reaches of Bull Arm. As stated in Chapter 13, sea ice conditions will be monitored and managed in accordance with an ice management plan.
3.1.2.3 Tsunamis	
The assessment is probably correct, given the short construction period. Nevertheless, Trinity Bay and Bull arm are exposed to tsunamis, especially those originating to the NE of Newfoundland. Any tsunami from this direction would be more	Noted

severe than the 1929 tsunami in Trinity Bay (since the 1929 tsunami lost its energy wrapping around Newfoundland). A further consideration is that the long bays and arms would amplify the tsunami, so a moderate/small tsunami would become much larger in amplitude.	
Topic or Issue 2: Scope and adequacy of the documentation of Geotechnical properties towards safe GBS placement.	
3.2.4 Geotechnical and Geological Conditions (pp. 3-80 and 3-81)	
The proponent describes the regional near-surface geological conditions and then proceeds to the surficial (upper few metres) geology description. It is unclear what the purpose and scope of this section is. It provides a general setting but does not provide the specifics that are required of a GBS placement; these requirements must be considered elsewhere for the safe placement of a large structure on strata that are not well lithified. The question arises as to the purpose of this section of the document if it only describes the strata in geologic and genetic rather than in a geotechnical framework.	Section 5.3.2.1 of the Scoping Document (C-NLOPB et al., 2009) provides the following guidance on the information to be included in the CSR: “Characterization, including quantification to the degree possible, of the spatial area of seabed that is predicted to be affected by dredging, trenching, dredge spoil disposal; footprint of GBS, glory holes, flowlines (including OLS), berm (Bull Arm) moorings (Bull Arm), MODU moorings; discharge of drill cuttings and other discharges.” Chapter 3 of the CSR, provides an overview of the physical environmental conditions, includes the geological characteristics of the Nearshore and Offshore study areas, as required by the Scoping Document. Soil stability considerations, either associated with bund wall construction or placement of the GBS offshore, are incorporated into the design of the bund wall and GBS during FEED and detail design stages.
Pg 3-18, uppermost paragraph:	
The pro-glacial outwash scenario is now considered incorrect. Still, from an environmental or geotechnical viewpoint, the character of the sediment, not its geologic genesis, is more important. The document presents rather vague descriptions of geologic units and their distribution but ignores whether the geology presents any hazards to the environment or safe installation and maintenance of a large GBS? These sections are not sufficient to demonstrate the safe placement of such a structure. Is the reader to assume that proper investigations have	See Response above under Section 3.2.4

been or will be made? Where are the references to borehole studies? Even temporary seabed-places rigs require this. If this is beyond the scope of this CSR, then where will it appear?	
On page 3-83, under the sub-heading “Comparison with Geotechnical Data”, a caution is that presence of the Grand Banks Drift (diamict) is largely inferred; the stratigraphic zone is poorly imaged on all sonar, its thickness is generally not discernible and it may be patchy in its distribution. Limited groundtruth, almost all from industry engineering activities, confirms its local presence but in a very regional sense. Is the document suggesting that this level of understanding of the sub-seabed stratigraphy is sufficient for engineering assessment of foundation conditions? This is certainly not the intent nor within the scope of the material referenced by GSCA authors (eg. Sonnichsen and King, 2005). The document does not make it clear why the sub-surface stratigraphy is considered if not to characterize it for suitability for a GBS loading and if it is for this purpose, it remains wholly inadequate.	See Response above. In addition, additional geotechnical studies will be undertaken to provide further data regarding soil strength integrity below the GBS. The data from these studies will be incorporated into the design requirements for the GBS.
3.2.4.3 Hebron Offshore Study Area Surficial Geology	
This section draws heavily on GSCA- authored studies of the sediment conditions within the upper few metres of the seabed. A caution from the main GSC-A-Author, that the map presented in this document (Fig 3-42) is regional in nature, generally conforming to industry findings (from publicly available wellsite surveys) and drawing upon widely-spaced survey lines. Details of surficial texture at the Hebron site are best revealed in industry gathered investigations which no doubt exist in greater detail than presented here. Still, even these types of “wellsite survey” reports do not commonly register precise thickness and distribution of the sands and even less-so, the lag gravels and the undulating, channel-like topography below the gravels. This is technically challenging information to obtain and the reporting is commonly vague with respect to geotechnical and thickness and	Noted

distribution of strata and features. All can have some impact on a GBS structure, including foundation capabilities and current-induced sediment scour or mobility.	
3.2.4.4 Geotechnical Data from the Hebron Platform Location	
This section summarizes multiple boreholes conducted primarily with the purpose of assessing foundation conditions and its variability at the GBS footprint and mooring piles. The geotechnical section is surprisingly sparse. It very briefly summarizes results from boreholes and CPT tests conducted within the proposed Hebron Project Area and three sets of boreholes at potential mooring pile locations. The geotechnical information provided consists of a summary of the lithology and consistency of the surficial sediments. It is unclear if this summary was obtained from visual descriptions or from CPT data. This document states general semi-quantitative descriptions of the strata but fails to put them in any engineering application context. The geotechnical characterization which is required to access the foundation conditions of the GBS site would be much more comprehensive than is provided in this section. The engineering parameters would normally be obtained from a combination of in situ (CPT) and laboratory tests and include index properties, grain size, static and cyclic strength parameters, compressibility, permeability and bearing capacity. In addition a geotechnical program should be in place to monitor seabed response after the emplacement of the GBS. It is difficult to determine what is required for the CSR. The Scoping Document Table of Concordance (Section 5.3) suggests that the CSR should contain descriptions of the physical and biological environments. There is no mention of assessing foundation conditions. GSC is aware that geotechnical characterizations for the site have been completed so our presumption is that data is not required for the CSR. Is the reader	See Response under Topic or Issue 2 (Section 3.2.4).

to assume that full studies have been conducted? And that, yes, this is deemed a safe foundation for its intended use? If so, state this. If not, then certainly discuss the engineering design for mitigating any shortcomings. Otherwise, what is the purpose of this document section? A table or section outlying the geotechnical tests conducted, engineering parameters, possible data gaps and future geotechnical monitoring programs may be helpful.	
Topic or Issue 3: Seabed iceberg scour probability	
3.2.5 Ice Scour Data for the Hebron Offshore Study Area	
The CSR document describes the seabed iceberg scour phenomenon and some of the scour characteristic/metrics factors. The term bund wall for a scour side wall is not standard and not appropriate in the ice scour context. Suggest referring to it as a side wall rather than introduce terminology not used in the field of study. This should be changed throughout the section.	Noted. The term 'bund wall' when used in reference to an iceberg scour side wall, will be changed to 'side wall.'
Correction: Relict seabed iceberg scours have been observed to 650 m below sea level off Grand bank (Sonnichsen and King, 2005). Modern seabed scouring icebergs have been documented to 127 m (Sonnichsen et al, 2005), but based on measured iceberg keel drafts, iceberg scouring is predicted to occur to depths in excess of 200 m, possibly to 230 m.	**The following text will be inserted directly after Figure 3-53 (Figure 3-44 in June 2010 CSR):** The seabed of the Grand Banks, within the vicinity of the Hebron site, experiences regular contact with drifting icebergs. An average of 400 icebergs per year (albeit highly variable) reach Grand Bank (Sonnichsen and King 2005). Sidescan sonar and multibeam bathymetry data from the bank top display frequent linear ice scour (or furrows) from grounded icebergs (Figure 3-53). In addition, icebergs calving or rolling, or remaining in one location for an extended period, can produce large semicircular pits (Lewis and Blasco 1990; Parrott et al. 1990). **The following text will be inserted directly before Figure 3-54 (Figure 3-45 in June 2010 CSR):** Relict seabed iceberg scours have been observed to 650 m

	below sea level off Grand bank (Sonnichsen and King 2005). Modern seabed scouring icebergs have been documented to 127 m (Sonnichsen et al. 2005), but based on measured iceberg keel drafts, iceberg scouring is predicted to occur to depths in excess of 200 m, possibly to 230 m. However, bathymetry has an impact upon the size of icebergs that can reach a particular site, as draft cannot substantially exceed the water depth. Water depth at Hebron is approximately 90 to 95 m. Similarly, the presence of shallower regions "upstream" can result in bathymetric sheltering (Lewis and Blasco 1990; Sonnichsen and King 2005). In addition, the use of ice management techniques within a region (such as the Jeanne d'Arc basin) will result in a reduction of iceberg contacts. A location map of iceberg groundings in the Grand Banks of Newfoundland and areas is provided in Figure 3-54. **The following text will be inserted directly before Figure 3-55 (Figure 3-46 in June 2010 CSR):** As noted, surficial sediments in the Hebron region are composed of the Grand Banks Sand and Gravel (Fader and Miller 1986; Sonnichsen and King 2005). The gravels are a lag deposit, reflecting the removal of finer sediments by transgressive processes. Sands often form large-scale sand ridges and smaller-scale sand waves, ribbons and megaripples, reflecting both relict, and to a minor extent, modern sedimentary processes (Sonnichsen et. al. 1994). The hard "armoured" gravel / cobble surface, at or near the seabed, serves to limit the depth of ice scour through the bank top region. Linear furrows are most apparent in areas of sand, where they are generally deeper, or in areas of gravel substrate where there is infilling by sand (often only on the basis of the textural contrast). Scours mapped (with sidescan sonar) within the Hebron region are shown in Figure 3-55. **The following text will be inserted directly after Figure 3-55 (Figure 3-46 in June 2010 CSR):**

	Scour depth (from original seafloor to base of incision) for linear scour features was noted (C-CORE 2001) to be an average of 0.44 m (with a standard deviation of 0.43 m). As noted, this was based upon a reduced density of available information (492 scour crossings). Sonnichsen and King (2005) examined a different subset of data, and established an average (linear) scour depth of 0.4m. Fugro Jacques GeoSurveys (2004) examined 1,557 scours mapped with multibeam, north of Hebron, and noted that typical scour depths were less than 0.5 m. Pit depth was noted by C-CORE (2001) to be 1.2 m (maximum depth noted was 7 m). Sonnichsen and King reported an average pit depth of 1.8 m. A pit of 9.3 m depth has been noted within the region (Fugro Jacques GeoSurveys 2004).
On pg. 3-88, “sedimentation rates” is presented as one factor to assess affecting the likelihood of an iceberg affecting oil production facilities. Strictly speaking, the process is not so much “sedimentation rate” as the redistribution of nearby sandy sediment, mainly under storm conditions. There is little or no net input of sediment in the area with the possible exception of small amounts of very fine and organic-derived material which would be ephemeral. This is more a question of semantics than substance. The study of iceberg scour has long been and remains one of ongoing research; abundant field study, documentation and sophisticated physical and numeric modeling exists, very specific to the Grand Bank hydrocarbon development area. The section appropriately references regional studies, but does not spend much time on actual risks to the project from iceberg scour. Perhaps that is appropriate for the CSR (GSCA authors fully anticipate that very specific ice scour risk assessments have been or will be done as part of eventual detailed engineering design) but presumably the purpose is to demonstrate that a new GBS will remain safe against impacts or that engineering will mitigate it effects. This is not stated.	The author is correct in that risk assessments are incorporated into the overall design of the GBS, and other associated subsea infrastructure required for the Project.

Topic or Issue 4: Tsunamis	
13.3.3 Tsunamis	
Although the arm is sheltered, this would not be a protection from tsunami; indeed long inlets magnify tsunami effects (e.g. Port Alberni for the 1964 tsunami). Nevertheless, the assessment that the risk is low due to the short (4 year) construction period is acceptable. In the text, there appear to be a few discrepancies. Document cites a 13 m high wave off the Burin...in fact it was the run-up that was 13 m high. They also quote from some anecdotal evidence that Bonavista Bay "drained" and damage was done to coastal buildings. Mr. Ruffman knows only of the fact that some boats swung at anchor in Bonavista Bay - at the correct time for the arrival of the tsunami (1:30 in the morning). It is hard to imagine that the wave refracted around the entire Avalon and "drained" Bonavista Bay, without impacting St. John's harbour or anywhere in between. Neither of these issues bears any relevance, however, to the risk assessment for the Bull Arm facility.	Noted.
13.4.3 Tides, Water Levels, and Storm Surge	
The reviewer found the assessment acceptable, but in terms of operations, the owner should ensure that they will receive any tsunami alerts, so as to adjust offshore operations accordingly.	Should the Government of Newfoundland and Labrador implement a tsunami/earthquake warning system, the Operator will ensure that we receive alert notifications.
Topic or issue 5: Seismic Hazard	
13.4.7 Geohazard	
"*A detailed geohazard assessment will have to be performed at any drilling locations selected, via a dedicated geohazard survey (or based on existing data) as per Canada-Newfoundland and Labrador offshore Petroleum Board (C-NLOPB) guidelines."* We are surprised that there is no statement of the proposed seismic	Seismic hazard analysis for the Hebron area has been undertaken and the results have been considered in the design elements for the GBS.

1 Adams, J., and Wahlstrom, R. Revised seismicity of the Grand Banks and offshore Newfoundland. Geological Survey of Canada Open File 3043, 58 pp., 1995.

design levels for the platform and its facilities in this CSR. "*The Operating and Safety Level Earthquake risk levels are usually determined by the facility owner (URS Corporation 2006).*" While this section lists the proposed return periods of design events like the "Abnormal Level Earthquake: 3,000 years" where is the assurance in this CSR that the seismic hazard has been correctly assessed and that the platform and the facility will be designed to accommodate appropriate levels of earthquakes shaking? *".... there are not any focal mechanisms for earthquakes in the Jeanne d'Arc or other nearby basins."* Adams and Wahlstrom (1995)[1] published a focal mechanism for the 1971 M4.8 earthquake 100 km NNW from the Hebron site. Although of rather low quality, it indicates strike-slip faulting, which is consistent with the mechanisms of the large (M7.2, M7.3) earthquakes along the Atlantic margin. "While overall rates of seismicity are relatively low, there are zones of clustered higher rate seismicity" including one ~100 km from the Hebron site (see Adams and Wahlstrom, 1995).	
Topic or Issue 6: Marine hydro-carbon spills and shoreline cleanup	
14.2-14.6	
For the Trinity Bay -Bull Arm region the proponent has provided a good overview of spill trajectory modeling and response activities and agencies identified in the event of a marine spill. Although much of the nearshore environment is steep sloping rocky shores that do not significantly change, there are unconsolidated shores present, e.g. Belledune Beach. Physical shoreline conditions do vary over time. There is no description of the level of shoreline information available for oil spill cleanup operations. Environment Canada as part of REET has a data base of shoreline conditions taken from select temporal data. The question is whether the shoreline in the Trinity bay -Bull Arm	EMCP committed to developing an oil spill response plan for nearshore Project operations. This plan is under development. Shoreline sensitivity information, where available, will be incorporated into the Bull Arm oil spill response planning.

and approaches have been segmented into shore units and described in sufficient detail to allow rapid assessment of oiling impacts in the event of a spill and how the response agencies are updating their information so that appropriate physical and biological sensitivities are available in the event of a spill.	
Topic or Issue 7: Sea bed character and stability in the Bull Arm-Trinity Bay area and disposal of bund wall	
There is very useful information in the consolidated response regarding the impacts of previous activities on the nearshore sea bed and anticipated changes in future plans for the bund wall. Potential disposal sites are discussed and some implications for the fisheries and fish habitat are provided. Why were the suggested general sediment waste disposal sites selected, and what were the anticipated impacts on local sea bed sediment dynamics?	The CSR is an environmental assessment of the Hebron Project, which at the time of writing, was in the concept stage of development. The disposal sites, as referenced above, were indicated as potential sites and were the sites used during the construction of the Hibernia GBS. Since the submission of the CSR in June 2010, design work has progressed. As stated above, the Hebron Project is proposing to use the material from the bund wall to create fish habitat, as part of the requirement for fish habitat compensation pursuant to Section 35(2) of the Fisheries Act. Sites for this fish habitat creation have not been selected, but as described above, will likely be within the Great Mosquito Cove area. Site selection will be undertaken in consultation with DFO and Transport Canada, and other regulatory agencies, as may be required.
Topic or Issue 8: Adaptation to Sea level change and changing environmental conditions	
3.2.6 Climate Change (pp 3-91)	
The proponent acknowledges that facility design and operations planning have considered the potential effects of climate change. Design has considered the potential rise in sea level and more frequent and more severe storms and wave heights. New information is being published in the scientific literature all the time projecting different rates of sea level. As construction plans proceed the proponent is encouraged to incorporate the best accepted sea level projections in final designs. There is no discussion if the present rates of projected sea level increases can be easily incorporated in design of the GBS or	Additional information regarding sea level rise was provided in our December 2010 Response to Regulatory Comments (see Response to Comment 37: EC 17). The basis of design for calculating loads due to increased water depth from sea level rise and wave motion are accounted for in the safety factors used to determine minimum deck height and wave crest heights. An evaluation of design loads on the Hebron Platform due to the metocean environment will be conducted during the next stage of design (FEED) and will account for

what levels of change substantially alter design costs or would cause delays in construction plans for the GBS.	metocean uncertainties.