NUNAVUT IMPACT REVIEW BOARD
Nunavutmi Kanogiliyallanikot Ellitohaiyeopiotik Katimayiit

# SCREENING PART 2 FORM
# PROJECT SPECIFIC INFORMATION REQUIREMENTS (PSIR)
## (RENEWAL APPLICATION FOR NANUQ PERMIT AND WATER LICENCE)

## 1. SUBMISSIONS

The Proponent must submit all information pertaining to the Project as a whole. The information requirements below are designed for the purpose of environmental assessment and are not limited to the scope of a single permit or license application.

**IMPORTANT:** Please be advised of the following:

1. NIRB does not accept references to an ftp site as a submission.
2. The Proponent must provide NIRB with 1 (one) electronic copy and 1 (one) hardcopy of the required information in English.
3. All maps should be legible, and should include grids, be of appropriate scale, indicate the scale, include latitude and longitude references, title, legend and a north arrow. To the extent possible, avoid hand-drawn demarcations; and,
4. Please complete all required information in each section below. If the required information is not applicable to the project proposal, please indicate this in the response with "n/a". If the request has been provided in a different section or report, please note the section or report where the response can be found.

## 2. GENERAL PROJECT INFORMATION REQUIREMENTS

**Project Co-ordinates and Maps** **(Maps are included with Application; corner co-ordinates of claimblock are displayed on *Map 2* and on NWB and AANDC application forms).**

1. The preferred method for submitting project co-ordinates information is through the use of a Geographic Information System (GIS) compatible digital file. Although an ESRI ArcView 3.x shape file (in decimal degrees) is the preferred interchange format, the NIRB has the capacity to receive over 100 GIS and CAD related formats, including MapInfo and AutoCAD, provided proper format and projection metadata is also submitted. The NIRB requires co-ordinates for the project proposal which reflect the entire project area as defined by:
   - the area/sites of investigation;
     **Within same area as approved in current Land-Use Permit and Water Licence, though claimblock now is approx. 63% of its original (2007) size.**

- the boundaries of the foreseen land use permit/right-of-way area(s) to be applied for;
  **claimblock co-ordinates: 65° 09' 58.19"** (min. lat.); **65° 37' 08.13"** (max. lat.); **90° 19' 58.72"**(min. long.); **and 91° 20' 55.35"** (max. long.)
- the location of any proposed infrastructure or activity(s);
  **No changes: Nanuq Camp remains at "new" location approved in 2008. Any geophysics, sampling or drilling would be within approved Nanuq claimblock.**
- the boundaries of the mineral claim block(s) where proposed activities will be undertaken. ***(see above).***

2. Map of the project site within a regional context, indicating the distance to the closest communities. **(see *Map 1*, with scale bar, attached with application).**
3. Map of any camp site, including locations of camp facilities.
   **(see *Map 3*, attached with application).**
4. Map of the project site indicating existing and/or proposed infrastructure, proximity to water bodies and proximity to wildlife and wildlife habitat.

***Map 2*** **(attached with application) depicts the claimblock and camp in relation to Ukkusiksalik National Park and water courses. Peregrine has maintained a No-Entry Protocol with the Park since 2007. Nanuq Camp is on the Lorillard River. Nanuq Project is located about 30km inland at the closest point, though one siting of an adult polar bear was made by a Peregrine field crew 55km inland of Wager Bay in August 2009. Inland research data is sparse in the North Kivalliq, but Peregrine has reviewed the available Government of Nunavut (GN) literature for the Foxe Basin region (closest bear population area), has discussed proper behaviours around bears with knowledgeable local Inuit, such as hunters and trappers, and elders, and records and follows up on any polar bear sightings. For caribou, the Lorillard and Wager Bay herds overlap use of the Nanuq Project area; Peregrine is guided by advice and telemetry-data maps provided by Kivalliq Wildlife Biologist Mitch Campbell. Peregrine is vigilant in watching for caribou presence in areas where work is planned. Avoidance of animals by height and distance, such as moving to an alternate location if a group of animals is noted, is the main mitigation in Peregrine's northern wildlife Action Plan. Prior to obtaining the current permit, Peregrine sought to identify and thus avoid Canadian Wildlife Service (CWS) migratory bird sites (*(Sites #39 and #41),* and to that end executed a Data Licence Agreement with CWS in 2007.**

**Project General Information**

5. Discuss the need and purpose of the proposed project.

   **There is no change to the need and purpose of the Nanuq Project as outlined in the original application in 2007. As discussed in the current *Project Description*, the project activities – airborne and ground geophysics, drilling and sampling (sediment sampling, mini-bulk sampling and potentially bulk sampling in future) – are necessary in order to determine if the claims area holds economic potential. This activity occurs in planned stages over time, as property areas such as Nanuq are remote, subject to harsh weather conditions, and experience a highly variable drilling window and short summers. Without this level of care and effort, new kimberlites, which may host mineable quantities of diamonds, will not be discovered, and potential economic resources for Nunavut and Canada will remain unproven.**

   **Although less work could conceivably be conducted in a field season – *e.g.*, eliminating one of the components such as airborne geophysics or drilling – this is not cost effective nor is it good value for shareholders. The objective in remote areas such as the Nanuq property is to do as much work as is**

**feasible and within budget during the time that the field staff are on site, which is the wisest use of resources. Even more extreme, the company could opt to do no work at all. From a regulatory perspective, neither of these options is acceptable, as claimholding under the NWT & NU Mining Regulations requires that the proponent spend a certain amount per claim, to further the national objective of exploration, or else the proponent loses that claim.**

6. Discuss alternatives to the project and alternatives to project components, including the no-go alternative. Provide justification for the chosen option(s).
   ***See answer to Question #5 above.***

7. Provide a schedule for all project activities.

**The following is a tentative schedule, which is subject to adjustment closer to the mobilisation date. Startup is set to occur after receipt of a new land-use permit and water licence, which is anticipated to occur at or after completion of a possible winter-spring programme under the existing permit and licence between mid-March and late May 2013:**

**- <u>July-Sept 2013</u>: Reopen camp, prospecting, till sampling, ground geophysics, land-based drill programme, demobe and seasonal cleanup/shutdown. Plan for environmental baseline + archaeological studies next year, if warranted.**

**- <u>March-Sept 2014</u>: Activities will be predicated on results in 2013. Reopen camp; targeted airborne geophysics, if warranted, followed by ground geophysics, winter drilling of lake-based geophysical anomalies (with water-quality sampling); demobe and shut down, clean up camp. Reopen camp for summer programme possibly comprised of further prospecting and till sampling, drilling and collection of mini-bulk sample (by hand, hand drill or core drill); demobe and seasonal camp cleanup/shutdown. If results warrant, commence environmental baseline studies and further archaeological assessment. (Initial archaeological assessment was conducted in 2010). If bulk sampling appears likely in 2015, begin preparations for sample collection and possible camp expansion; consult with communities; seek amendment to permit and water licence.**

**- <u>March-Sept 2015</u>: A further mini-bulk sample may be collected, or planning for recovery of bulk sample at 1 or more locations by drilling or trenching may be undertaken. If bulk sampling is to proceed in 2015, implement amendment conditions and collect initial (Year 1) sample. Environmental and archaeological studies will commence or continue. Regular camp startup, maintenance or expansion of facilities. Should bulk sampling not be warranted, then monitoring and progressive reclamation of sites and work areas will advance toward final closure.**

**- <u>Years 4 - 5 and up to June 2018, and beyond</u>: If results continue to be favourable, focus at this time would shift toward various testwork, scoping, engineering, transportation, infrastructure and preliminary design studies. Environmental and archaeological studies may become more focused, and TK and socioeconomic studies undertaken. Though the project focus will be development and environmental assessment planning, exploration activities also may continue for various commodities. Conversely, should the project not be proved up, closure activities may commence if not already under way, and may or may not require permit extension. Continued exploration for diamonds or other commodities would require permit extension.**

8. List the acts, regulations and guidelines that apply to project activities.

**Peregrine will obey all legislation which applies to Nanuq, including but not limited to the NWT and NU Mining Regulations, Nunavut Land Claims Agreement, Territorial Lands Act, Territorial Land Use Regulations, Nunavut Waters Act, Northwest Territories Waters Regulations (or NU Regs. If promulgated), Fisheries Act, DFO Fish Screen Guidelines, Public Health Act and Camp Sanitation Regulations, Guidelines for Canadian Drinking Water Quality, Nunavut Wildlife Act, Nunavut Environmental Protection Act, Transportation of Dangerous Goods Act, Canadian Environmental Protection Act, Migratory Birds Convention Act and Regulations, Species at Risk Act, Nunavut Archaeological and Palaeontological Sites Regulations, *etc.***

9. List the approvals, permits and licences required to conduct the project.

**AANDC Class A Land-Use Permit *#N2007C0039 (with Amendment #1)* and NWB Water Licence *#2BE-CHI0813 (with Amendment #1)* continue in force until 13 June and 31 May 2013, respectively; a new permit and licence are sought so that exploration may continue. Drilling Authorisation will be sought from the NWT/NU WSCC - Mine Health & Safety closer to the proposed programme startup date of March 2013. An Extended Hours' Permit also will be sought in the same time period from Nunavut Labour Standards.**

**DFO Operational Statement (OS) Conformity**

10. Indicate whether any of the following Department of Fisheries and Oceans (DFO) Operational Statement (OS) activities apply to the project proposal:
    - Bridge Maintenance **N/A**
    - Clear Span Bridge **N/A**
    - Culvert Maintenance **N/A**
    - Ice Bridge **N/A**
    - Routine Maintenance Dredging **N/A**
    - Installation of Moorings **N/A**

    Please see DFO's OS for specific definitions of these activities available from either NIRB's ftp site at http://ftp.nunavut.ca/nirb/NIRB_ADMINISTRATION/ or DFO's web-site at http://www.dfo-mpo.gc.ca/canwaters-eauxcan/index_e.asp
11. If any of the DFO's OS apply to the project proposal, does the Proponent agree to meet the conditions and incorporate the measures to protect fish and fish habitat as outlined in the applicable OS? If yes, provide a signed statement of confirmation.

**Peregrine will follow the DFO NU Mineral Exploration Operational Statement in respect of the existing and renewed permit and licence, and will supply a signed Notification Form to DFO within 10 working days of commencement of the 2013 programme, as required by DFO.**

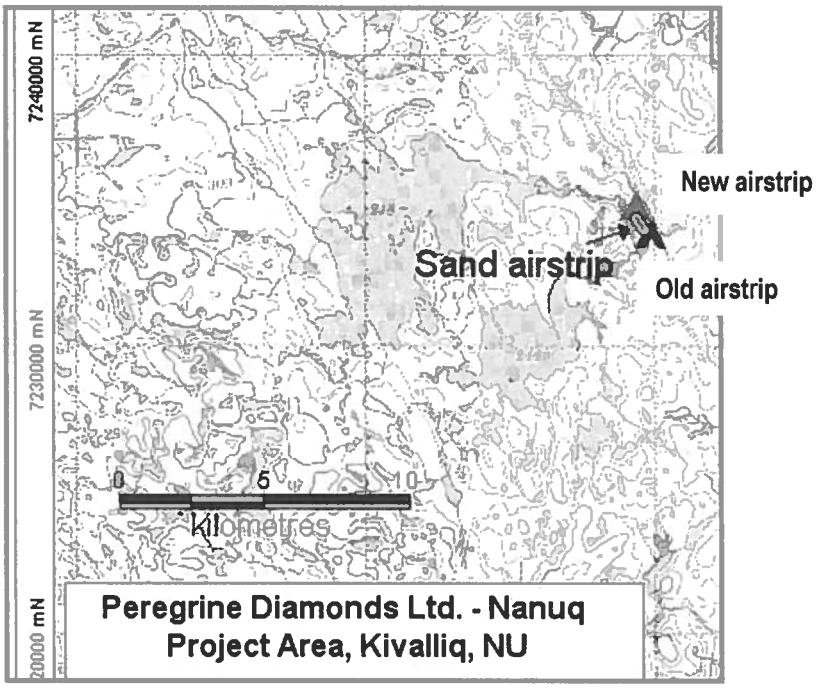
**Transportation**

12. Describe how the project site will be accessed and how supplies will be brought to site. Provide a map showing access route(s).

**Campsite, drillsites and sampling sites will be accessed by air only: fixed-wing for supply flights and helicopter for moving drills and conveying field crews to work sites. The helicopter will be based at camp, conveying personnel and equipment as required; there will be bermed fuel storage at camp; one or more temporary fuel caches of a few drums each (approx. 3-6) may be set up to serve a sampling or drillsite area, then removed. Fixed-wing ferry flights will be from Rankin Inlet and/or Baker Lake, as aircraft and weather at those locations permit. (*Map 1* (regional) and *Map 2* (claimblock) accompany the application and contain scale bars for calculating distances). Rankin is approx. 275km SSW and Baker Lake is approx. 250km SW.**

13. If a previous airstrip is being used, provide a description of the type of airstrip (ice-strip/all-weather), including its location. Describe dust management procedures and provide a map showing location of airstrip.

**An existing natural-sand airstrip will continue to be used and is located at 65° 13' 16" N. lat. – 91° 05' 00" W. long., in NTS 56G/03. A dust-suppression programme has not been warranted to date, but would be instituted, if necessary, by means of pumping water from the river or other nearby water source. Map excerpt here from NTS 1:250k mapsheet 56G depicts airstrip between OLD (removed) campsite at S and NEW (current) campsite at N. [Excerpt is from 2007 application, *Map 2.*] *Also refer to INSET on Map 3 accompanying this application.***




14. If an airstrip is being constructed, provide the following information:
    a. Discuss design considerations for permafrost **N/A**
    b. Discuss construction techniques **N/A**
    c. Describe the construction materials, type and sources, and the acid rock drainage (ARD) and metal leaching (ML) characteristics (if rock material is required for airstrip bed). **N/A**
    d. Describe dust management procedures. **N/A**
    e. Provide a map showing location of proposed airstrip. ***(see above)***

15. Describe expected flight altitudes, frequency of flights and anticipated flight routes.

**Flight altitudes would be on the order of 300m above ground level or higher (as per *Appendices G* and *H* of the *Keewatin Regional Land-Use Plan*), with ferry flights occurring approx. twice per week. Routes would represent the shortest distances to camp from worksites or the supply communities of Rankin Inlet and Baker Lake.**

**Camp Site**

16. Describe all existing and proposed camp structures and infrastructure. **No changes to Nanuq Camp as it currently exists under the land-use permit and water licence. A bear fence and extra sleep tent were added in 2010 by notice to AANDC. The camp consists of an office, kitchen, dry (for washing and laundry), coreshack,**

**generator shed, first-aid shack, 2 outhouse sheds, 3 fuel berms, 6 sleep tents with mini-berms for tent drums, 2 generators (one is a spare) and a dual-combustion chamber Inciner8 Model B-60 incinerator. (Detailed information is available in the accompanying *Project Description* and the *Abandonment Restoration Plan [Appendix 6 ]* .)**

17. Describe the type of camp:
    a. Mobile
    b. Temporary
    c. Seasonal or Limited Seasonal
    **Tent camp used seasonally (in 2013, this would be March-May, if there is a spring programme, then July to August or September).**
    Permanent
    d. Other
18. Describe the maximum number of personnel expected on site, including the timing for those personnel.

    **Between 20 and 24 persons on site (extra sleep tent added in 2010) at a maximum, *i.e.*, if various components (prospecting, sampling, geophysics and drilling) are occurring simultaneously during a winter-spring or summer programme. As discussed in the NIRB Part 2 Form with the 2007 application, because activities are staged, numbers of personnel decline as components are completed and their crews leave site. [Also refer to schedule in Question #7.]**

**Equipment**

19. Provide a list of equipment required for the project and discuss the uses for the equipment.
    **No changes to types of equipment originally identified in 2007 application. A Twin Otter will be the main supply aircraft (mobe/demobe, ferry supplies/equipment and fuel into camp/empties on backhauls); helicopter, A-Star or Long Ranger, (based at camp for conveying drums, drill equipment, samplers + sample bags, core); snowmobiles, spring only, for moving drums and supplies coming off the airplane and for drillers for accessing any drillsites nearby and for geophysical crew, if sled mag is carried out; diesel generator + backup for camp power; diesel-powered pumps (for pumping water to camp kitchen and dry, and for pumping water at drillsites); up to 2 surface diamond drills – Boart LF-70 anticipated (for extracting NQ, HQ- and PQ-diameter core from diamond drill holes (DDH). (If first-pass condemnation drilling is contemplated, then the waterless short-hole reverse-circulation (RC) Hornet drill will be added to the renewed permit by notice to AANDC, as occurred on Peregrine's Chidliak Project on Baffin Island in 2010).**

20. If possible, provide digital photos of equipment.
    **Photos of the LF-70 drill are in *Supplement* #1 with this application. *Supplement #2* with photos of the Hornet drill also is included with this application as an information item.**

**Water**

21. Describe the location of water source(s), the water intake methods, and all methods employed to prevent fish entrapment. Provide a map showing the water intake locations.
    **No change to this section or water intake location. Flexible-hose water line will be used for conveying water from Lorillard River to camp and from neighbouring**

**waterbodies to drillsite locations. Suction hose lowered into waterbody will be screened at intake to prevent entrainment of fish (as per DFO Fish Screen Guidelines). Water pumped for camp consumption is stored in a 1100L poly tank in the dry, from whence it is distributed via water line to the kitchen and dry. (Water intake point in relation to camp structures is depicted in *Map 3* accompanying this application).**

22. Describe the estimated rate of water consumption ($m^3$/day).
    **No change to existing allotment is requested in this renewal. Existing allotment = 10$m^3$/day for camp consumption and 50$m^3$/day for drilling and related.**

23. Describe how waste water will be managed. If relevant, provide detail regarding location of sumps, including capacity of sumps and monitoring.
    **No change to this section. Locations of camp sumps are displayed on *Map 3* (camp map) accompanying this application. Typical dimensions are 1m x 1m x1.5m; sump contents will be treated with Javex, if required, to control odours which could attract wildlife. The sump pit will be covered in snow periods to prevent its being filled with snow. Soaps and cleaners used will be biodegradable to the extent possible and phosphate-free. In summer conditions at Nanuq Camp, Liqui-Bac microbial treatment for grease control is carried out by pouring through kitchen and dry drains. Kitchen waste will be incinerated at least daily. Camp sump(s) and incinerator are checked daily by camp attendant as part of his/her rounds and regularly inspected by the site supervisor; a similar routine of monitoring occurs at drillsite water lines and sumps.**

24. If applicable, discuss how surface water and underground water will be managed and monitored. **Underground = N/A**

**Surface water is generally discussed in Question #23 above. However, it should be added that drillwater is recirculated up to 80%, with relict drillwater and cuttings reporting to suitable sump locations (natural depressions or outcrops), and monitored such that drainage is away from watercourses. Should a drilling mud be required, only environmentally-benign products are used.**

**Waste Water (Greywater, Sewage, Other)**

25. Describe the quantities, treatment, storage, transportation, and disposal methods for the following (where relevant):
    - Sewage

      **CAMP: Currently, sewage up to a volume of approx. 40L/day (if typical population of 20 is assumed), reports to the 2 privvy pits. Outhouses are checked daily by camp attendants. Should Pacto toilets be put into use in future, this bagged waste would be incinerated daily with regular dry kitchen and office garbage.**

      Camp grey water

      **CAMP: Approx. volume of 0.20$m^3$/person/day. Cooking grease is removed from the waste stream for incineration and does not enter the greywater sump. The liquid component of greywater reporting to the sump will both evaporate and percolate through the sand base during thaw periods. [*Sumps are discussed in Question #23 above.*]**
    - Combustible solid waste

      **CAMP: Combustible kitchen waste on the order of up to two 121L garbage bins by volume will be incinerated daily at camp.**
    - Non-combustible solid waste

**CAMP: Non-combustible solid waste which can't be immediately reused or recycled is collected and removed on backhauls for proper disposal (authorisation was obtained from Rankin Inlet hamlet in 2009 for landfill disposal). Products which can be recycled or reused locally, such as scrap lumber, metal or waste fuel, reports to a specific designated area at the landfill.**

- Bulky items/scrap metal
  **It is conceivable that up to 2/3 of a Twin-load of such scrap (500kg) could be accumulated during a programme and flown out for proper disposal, re-directed to a contractor's storage yard (*e.g.*, broken parts, spent drill rod, *etc.*) Timbers would be stored on site for future needs or outshipped to the designated area of the Rankin Inlet landfill if not usable in camp.**
- Waste oil/hazardous waste
  **Total volume of 5 drums' worth of such waste as used oil/fuel (UN 3082), filters, oily rags, used absorbents, *etc.* (UN 3077), could be generated in a season; these drums would be labelled as to contents, sealed and removed with GN-DOE Waste Manifest forms on backhauls for proper disposal to designated areas of Rankin Inlet landfill.**
- Contaminated soils/snow
  **Volume of contaminated soils/snow would be difficult to estimate. One of two approaches could be used for contaminated soils: (a) outshipment via expeditor for landfarming in Rankin Inlet, or (b) aeration of a small quantity in a liner on site over several seasons. Similarly, contaminated snow can be (a) containerised and subjected to oil/water separation in Rankin Inlet, or (b) containerised, allowed to melt over the summer, and subjected to oil/water separation on site by purchase of a separation unit. During winter operations, an excess of contaminated snow in fuel berms is bagged and incinerated on site or containerised and sent out to the expeditor for storage and then oil/water separation.**
- Empty barrels/ fuel drums
  **Empty drums will be segregated from full drums, bungs tight, and flown out on backhauls, with a certain number reserved for use as refuge drums (the *Spill Plan* suggests 4 drums should be retained as containers for waste fuel, scrap, any spilt hydrocarbons, should such occur).**
- Any other waste produced **N/A**

26. If the project proposal includes a landfill or landfarm, indicate the locations on a map, provide the conceptual design parameters, and discuss waste management and contact-water management procedures. **N/A**

**Fuel**

27. Describe the types of fuel, quantities (number of containers, type of containers and capacity of containers), method of storage and containment. Indicate the location on a map where fuel is to be stored, and method of transportation of fuel to project site.

**(*Map 3* accompanying this application shows location of camp fuel berms. Table below from the current *Spill Plan* depicts type and volume of fuels for a full programme season in 2013. GENERAL MANAGEMENT: Propane will be securely stored upright, caged or chained. Drums will be segregated as to fuel, with empties separated from full drums. Drums will be inspected upon receipt and daily or per shift for bung and drum soundness during the programme (as per *Inspections Log* in *Spill Plan.*) Drums hooked up to camp tents and shacks are secured in absorbent-lined mini-berms. Moulded plastic drip-collection containers which over-fit drums are commonly deployed at drillsites. All fuels travel to site by air.**

## Projected Fuel and Oil Use for 2013 Exploration Activities

| Fuels | No. of Containers | Capacity of Containers |
|---|---|---|
| Diesel for camp stoves, drills + heaters | 200 drums | 205L |
| Aviation turbine fuel (Jet-B or Jet-A) | 100 drums | 205L |
| Unleaded petrol (gasoline) | 10 drums | 205L |
| Propane | 25 cylinders | 45kg |
| Oxygen (welding and medical) | 4 cylinders | 45kg |
| Acetylene | 4 cylinders | 45kg |
| Oils/lubricants/cleaners | 140 | 1L to 5L (typical sizes) |

Empty drums, cylinders regularly backhauled.

28. Describe any secondary containment measures to be employed, including the type of material or system used. If no secondary containment is to be employed, please provide justification.

    **Berms referenced in this Form Part 2, in the *Project Description, Spill Plan* and *Abandonment and Restoration Plan* are manufactured Arctic-rated berms with bracket-supported sides. Mini-berms in use at camp tents are Arctic-rated manufactured berms designed for single-drum use, with zipper covers to keep precipitation out of berm interiors.**

29. Describe the method of fuel transfer and the method of refuelling.

    **Transfer by hand-wobble pump, grounded electric (battery) pump or diesel pump, with drip pans in place and absorbents on hand. If the transfer point is a designated refill station, such as for skidoos, a small Arctic-rated berm would be in place.**

### Chemicals and Hazardous Materials*

**included but not limited to oils, greases, drill mud, antifreeze, calcium or sodium chloride salt, lead acid batteries and cleaners*

30. Describe types, quantities (number of containers, the type of container and capacity of containers), method of storage and containment. Indicate the location on a map where material is to be stored, and method of transportation of materials to project site.

    **Items such as cleaners/degreasers, antifreeze and oils for camp use are kept in their original, labelled containers, which are generally 1L to 5L in size, and stored at use areas such as the gen shed, dry and kitchen; up to about 140L of chemicals/hazardous substances could be required in a programme season. Drilling-related chemicals, muds and oils/greases are stored in their original large tubs at drill-side, in the approx. volume of 200L. Lead-acid batteries in use would be in corrosive-resistant sleeves and storage of spares would be in similar boxes. Other chemicals are stored in their containers on layers of absorbents (if applicable), in sturdy drip trays or on liner material. Spill kits and extra absorbents are kept at key use/transfer locations, *i.e.*, each drillshack, each fuel cache/helicopter area, and at the camp. MSDS sheets for products on site are available digitally on camp computers and in hard copy; an updated MSDS inventory is included with this application.. An updated *Spill Plan* and *Emergency Response Plan* also are present for all staff, contractors. Materials are transported to site via fixed-wing service, thence to worksites by helicopter.**

31. Describe any secondary containment measures to be employed, including the type of material or system used.

    ***Please see Question #30 above.***

32. Describe the method of chemical transfer.

**Thick material, such as drill-rod grease, is typically transferred by hand, with absorbents placed under the immediate work area. Liquid material, such as antifreeze for snowmobiles, is typically funnel-poured, with a drip pan and absorbents in place, as well as protective goggles. Volumes of liquids, such as drilling-mud stabiliser or glycol coolants for stationary drill motors with compressors, can also be pump-transferred; for this procedure, all typical spill-control measures would be employed, such as non-reactive catch trays or cloths, control of nearby ignition sources, *etc.***

**Workforce and Human Resources/Socio-Economic Impacts**

33. Discuss opportunities for training and employment of local Inuit beneficiaries.

**Employment, accompanied by on-the-job training as required, in addition to the environmental and safety training provided to all staff, is provided for Inuit beneficiaries. Types of opportunities during the tenure of the current land-use permit have been for camp attendant, wildlife monitor, geological or geophysical assistant, research assistant, interpreter and meeting co-ordinator. It is acknowledged that the project has competed for potential hires with other exploration projects and Meadowbank Mine, and typically Peregrine recruited in advance of season startup to the extent possible.**

34. Discuss workforce mobilisation and schedule, including the duration of work and rotation length, and the transportation of workers to site.

**For proposed 2013 schedule, please see Question #7 above. The maximum length of a rotation by law is 6 weeks; however, such long rotations may not be suitable to those with families. A rotation of 2 or 3 weeks has been offered as an option for the past several years (both for the worker + his/her cross-shift), but the actual rotation is determined in consultation with workers, based upon the anticipated length of the programme. Transportation to/from the worksite, along with accommodation and food in camp, is supplied by Peregrine.**

35. Discuss, where relevant, any specific hiring policies for Inuit beneficiaries.

**Peregrine supports the principles of the Prospectors' and Developers' Association's "E 3" or Excellence in Exploration initiative, and, as well, enforces an internal policy of hiring from the closest communities to the extent possible.**

**Public Involvement/ Traditional Knowledge**

36. Indicate which communities, groups, or organisations would be affected by this project proposal.

**The communities most likely to be affected by this project, or interested in participating in it, are Rankin Inlet (275km SSW), Chesterfield Inlet (220km S), Repulse Bay (230km NE) and Baker Lake (250km SW). Because the project is small to date, most Rankin contact has been with the Kangiqliniq Hunters & Trappers Association. The Kivalliq Inuit Association has chosen not to be directly involved, as the Nanuq Project is entirely on Crown land.**

37. Describe any consultation with interested Parties which has occurred regarding the development of the project proposal.

**Consultation visits to communities and groups noted above commenced in February 2008 prior to issuance of the current permit and water licence, and have continued to the present. Components and activities planned have been explained during meetings. No new components are requested with this renewal application, so groups were advised about this and Peregrine's intention to seek a renewed permit and licence was made via letters dated 04 September 2012.**

38. Provide a summary of public involvement measures, a summary of concerns expressed, and strategies employed to address any concerns.
**Public-involvement measures are listed below by year; measures have consisted in: (1) regular meetings (presentation to groups + Q&A sessions), (2) meetings with key representatives, (3) involvement of group or hamlet in job postings, (4) providing copies of materials by e-mail and post, and (5) presentations to youth to interest them in careers in exploration and mining. Specific concerns were *not* raised, but questions were posed and Peregrine's responses are recorded below.**

**Consultation in 2008:**

***Rankin Inlet* – 07-08 Feb 2008: (1) Met with SAO, the late Paul Waye. Issues: No concerns, just seeking information from company. Response: Provided project information; stated that upcoming programme would be small, but 1 person from Rankin would be hired. (2) Met with Kangiqliniq HTO Mgr. Norm Ford; board not available. Issues: A few Rankin families may have used Wager Bay area for hunting pre-1945. Response: Peregrine looks forward to receiving further information on land use.**

***Rankin Inlet* – 02 Dec 2008: (1) HTO meeting. Issues: (a) Some people living in Rankin are from Wager Bay area, but we travel for caribou as far as we need to; (b) do you conduct geophysics when animals are there; (c) do you cross Park boundary; (d) what do you do with empty drums. Responses: (a) animals, hunters have right-of-way; Peregrine does not interfere; (b) Peregrine follows permit conditions re flying; (c) Peregrine has no-entry protocol in place with the Park; (d) empty drums are backhauled.**

***Chesterfield Inlet* – 04 Feb 2008: (1) Met with EDO David Kattegatsiak. Issues: Main interest is service opportunities. Response: Provided project information. Advised that Peregrine would await list of service providers; this discussion can evolve over time, particularly if project expands in future. (2) Community meeting. Issues: Several persons asked about govt. caribou mapping; telemetry data from the Beverly and Qamanirjuaq Caribou Management Board website was shown + discussed; HTO representatives attending said Chesterfield hunters do not use Nanuq Project area. Asked about jobs, services. Responses: Thanked all for information. Advised that job descriptions would be prepared + provided; this was done later.**

***Chesterfield Inlet* – 02 Dec 2008: (1) Community meeting: Issues: (a) respect Park boundary; (b) protect waters flowing into Wager Bay, incl. from drill additives; (c) offer jobs where possible; (d) follow local wisdom about caribou. Responses: (a) Peregrine has no-entry protocol in place with Park; (b) Peregrine follows legislation, permit and licence conditions regarding water use and protection, and only environmentally-safe additives would be used; (c) solicited job applications; (d) showed govt. caribou data + encouraged community to comment whenever they wish.**

***Repulse Bay* – 06-07 Feb 2008: (1) Community meeting, mainly attended by elders + members of Arviq HTO. Issues: Main focus was sharing of land-user knowledge on polar bears, grizzlies and caribou behaviour. Response: Peregrine made note of knowledge shared and said Peregrine looks forward to receiving more such guidance in future. (2) Hamlet tour with ASAO Annie Angotingoar, met EDO Steven Kopak, arranged with ASAO for jobs to be posted. (3) Presentation to Arctic College students; answered questions about types of work, including drilling. (4) Meeting with Ukkusiksalik Park Manager Paula Hughson; discussed no-entry protocol with Parks Manager (protocol was finalised in May 2008).**

*Repulse Bay* – 03-04 Dec 2008: (1) Met with school principal Leonie Aissaoui. (2) Community meeting. Issues: (a) recording of wildlife sightings + compensation if wildlife destroyed; (b) young people of region should not be overlooked for jobs. Responses: (a) wildlife sightings are recorded + used to inform activities; destroying any animal is a last resort – preventive measures are used first. Any compensation would depend on the protocol that exists between govt. and the HTO. (b) local hiring is important + Peregrine encourages local persons to respond to job postings; on-the-job training is part of the job, especially for new hires.

*Baker Lake* – 05 Feb 2008: (1) Meeting with SAO David Zettler attempted, but SAO declined. Hamlet focus is on road construction and Meadowbank Mine development. (2) Meeting with Baker Lake HTO attempted, but HTO declined, "too busy". Therefore, Peregrine sent the HTO a letter stating Peregrine's willingness to meet, along with a CD and hard copy of presentation and materials that Peregrine would have shared at a Feb 2008 meeting. (3) Community meeting attempted, but no local attendees.

*Baker Lake* – 04 December 2008: (1) Community meeting + interpreter arranged, but meeting cancelled due to weather.

Consultation in 2009:

*Rankin Inlet* – week of 11 October 2009: (1) Sent request letter to HTO, but HTO was not available to meet; waited several days for chance to meet. Met informally with HTO Mgr. Norm Ford. There were no concerns conveyed from the HTO. (2) Requested followup meeting with SAO, but this was declined.

*Chesterfield Inlet* – 13 Oct 2009: (1) Community meeting: Issues: (a) youth need jobs; advertise on radio, not just in postings around town; (b) community representatives may want to visit site in future. Responses: (a) Peregrine does advertise jobs, and arranges for the interpreter/meeting co-ordinator to put jobs on the radio, but local youth and others must apply in order to be considered; (b) site visit can be arranged when a programme is running; please make a request. (2) Presentation to Sammurtok High School students. (3) Presentation to Arctic College students.

*Repulse Bay* – 14 Oct 2009: (1) Community meeting: Issues: (a) town has high unemployment; identify services that this town could provide; (2) query about someone flying low + taking pictures of narwhals. Responses: (a) Peregrine is interested in working co-operatively with communities. We can continue to advise of activities, but please let us know what services the community is able to supply; (b) no Peregrine helicopter was flying offshore over narwhals. In addition to advising community of plans, Peregrine regularly informs regulators of its activities, but regulators may not have distributed this information widely. (2) Meeting with Acting Parks Mgr. Monty Yank. Peregrine discussed Nanuq Project and general Peregrine activities, such as no-entry protocol regarding Ukkusiksalik Park, archaeological data agreement with CLEY, waste management strategy, and potential of regional approach to caribou data collection as project advances.

*Baker Lake* – No meeting in 2009. Fixed-wing service opportunity was provided. Hamlet focused on development of Meadowbank Mine 70km away.

Consultation in 2010: Visits to communities and groups deferred until spring 2011.

**Consultation in 2011:**

***Rankin Inlet*** **– 01 June 2011: (1) Community meeting, providing information on 2010 programme + archaeological survey, and discussing 2011 plans. Issues: (a) has Peregrine requested to expand the property further E; (b) were you working around Roes Welcome Sound in 1980s; seeking to document where helicopters are, in case of emergency; (c) are you seeking workers for the whole summer; and (d) if a local prospector has a rock sample, would Peregrine look at it. Responses: (a) property actually got smaller in 2010; (b) Peregrine does have a helicopter for field programmes and helped to rescue several hunters in the Baffin in recent years; (c) yes, workers are sought for the whole summer programme in 2011, generally on a 2 in/2 out rotation, though we can be flexible; (d) yes, Peregrine is happy to identify rock samples which people show us.**

***Chesterfield Inlet*** **– 30 May 2011: (1) Community meeting, providing information on 2010 programme + archaeological survey, and discussing 2011 plans. Issues: Peregrine travels to the property by plane? Response: Yes. Peregrine also has 1 helicopter based at camp in case of emergencies. In the Baffin, Peregrine has participated several times in rescuing hunters on the land. (It was not part of the questions, but after the meeting, the interpreter, Marge Autut, announced job postings on the local radio.)**

***Repulse Bay*** **– 01 June 2011 (changed from 31 May, due to weather): (1) Community meeting: Issues: (a) have you done water sampling at the camp? (b) Typically, water samples are collected before and after drilling on lakes, but to date, Nanuq drilling has been on land. However, Indicator Minerals (property joining Nanuq at the north) did collect water samples at the lake-based kimberlite on Indicator's Nanuq North property in 2010.**

***Baker Lake*** **– No meeting in 2011. Fixed-wing service opportunity was provided.**

**Consultation in 2012: No programme was conducted in 2012, except internal inspection of camp and removal of some ancillary drill equipment that had been stored on the airstrip laydown area. Instead, update letters on the 2011 and 2012 activities (incl. map, photos and drill log) were provided to Rankin HTO, Chesterfield Inlet and Repulse Bay in September 2012. Fixed-wing service opportunity was provided to Baker Lake in 2012.**

39. Describe how traditional knowledge was obtained, and how it has been integrated into the project.

**To date, local knowledge shared (such as by Repulse Bay hunters and elders in 2008) aids in planning, including in safety planning. Local knowledge is always welcomed by Peregrine as it provides valuable guidance for field activities and can help the company plan for avoiding sensitive wildlife and heritage areas and lead to information about weather, areas of weak ice/good ice and best travel routes; this also is the case with the Nanuq property. Should the project advance, more formal traditional knowledge studies would be contracted with communities, to inform any future development planning.**

40. Discuss future consultation plans.

**Next community meetings: Visits to Rankin Inlet HTO (and to hamlet, if there is interest), to Chesterfield Inlet, Repulse Bay (and to Baker Lake if there is interest) would be sought in connection with next proposed field season, in March 2013. Future plans would be predicated on 2013 results, but, in any event, communities and groups would be kept informed and input solicited.**

## 3. PROJECT SPECIFIC INFORMATION

The following table identifies the project types identified in Section 3 of the NIRB, Part 1 Form. Please complete all relevant sections.

It is the proponent's responsibility to review all sections in addition to the required sections to ensure a complete application form.

| Project Type | Type of Project Proposal | Information Request |
|---|---|---|
| 1 | All-Weather Road/Access Trail | Section A-1 and Section A-2 |
| 2 | Winter Road/Winter Trail | Section A-1 and Section A-3 |
| 3 | Mineral Exploration | Section B-1 through Section B-4 |
| 4 | Advanced Mineral Exploration | Section B-1 through Section B-8 |
| 5 | Mine Development/Bulk Sampling | Section B-1 through Section B-12 |
| 6 | Pits and Quarries | Section C |
| 7 | Offshore Infrastructure(port, break water, dock) | Section D |
| 8 | Seismic Survey | Section E |
| 9 | Site Cleanup/Remediation | Section F |
| 10 | Oil and Natural Gas Exploration/Activities | Section B-3 and Section G |
| 11 | Marine Based Activities | Section H |
| 12 | Municipal and Industrial Development | Section I |

### SECTION A: Roads/Trails

*NOTE: Winter trails or routes are not currently authorised and no future use currently is proposed.)*

#### A-1 Project Information

1. Describe any field investigations and the results of field investigations used in selecting the proposed route (e.g. geotechnical, snow pack)
2. Provide a conceptual plan of the road, including example road cross-sections and water crossings.
3. Discuss the type and volume of traffic using the road/trail (i.e. type of vehicles and cargo and number of trips annually).
4. Discuss public access to the road.
5. Describe maintenance procedures.

#### A-2 All-Weather Road/Access Trail

6. Discuss road design considerations for permafrost.
7. Describe the construction materials (type and sources for materials), and the acid rock drainage (ARD) and metal leaching (ML) characteristics of the construction materials.
8. Discuss construction techniques, including timing for construction activities.
9. Indicate on a map the locations of designated refuelling areas, water crossings, culverts, and quarries/borrow sources.
10. Identify the proposed traffic speed and measures employed to ensure public safety.
11. Describe dust management procedures.

**A-3 Winter Road/Trail**

12. Describe the surface preparation, including the use of snow berms or compaction, and any flooding. If flooding is to be used, provide the location of the water source on a map.
13. Describe the operating time period.
14. Identify the proposed traffic speed and measures employed to ensure public safety.
15. Discuss whether the selected route traverses any fish-bearing water bodies.

**SECTION B: Mineral Exploration /Advanced Exploration /Development**

**B-1 Project Information**

1. Describe the type of mineral resource under exploration.
   **Peregrine is primarily exploring for kimberlite, a host rock for diamonds.**

**B-2 Exploration Activity**

2. Indicate the type of exploration activity:
   - Bulk Sampling (underground or other)

**Bulk sampling is acknowledged as possible in future, but an amendment would be sought under a renewed permit and licence, if target(s), quantity and location(s) of sample(s) are determined. Mini-bulk sampling by hand, hand drill or core drill is currently authorised up to approx. 200t as per the 2007 application. Peregrine requests that this component remain. Details of a potential mini-bulk sample or samples are currently unknown and would be supplied when available.**

- Stripping (mining shallow bedded mineral deposits in which the overlying material is stripped off, the mineral removed and the overburden replaced) **N/A**
- Trenching **may be sought in future as part of future bulk-sample amendment.**
- Pitting **Yes (mini-bulk sampling already approved)**
- Delineation drilling **Yes (drilling already approved for claimblock)**
- Preliminary Delineation Drilling **Yes (drilling already approved for claimblock)**
- Exploration drilling **Yes (drilling already approved for claimblock)**
- Geophysical work (indicate ground and/or air) **Yes (geophysics already approved for claimblock)**
- Other **N/A**

3. Describe the exploration activities associated with this project:
   - Satellite remote sensing **N/A**
   - Aircraft remote sensing **N/A**
   - Soil sampling **N/A**
   - Sediment sampling **Yes (sediment sampling already approved for claimblock)**
   - On-land drilling (indicate drill type) **(diamond core drilling already approved, incl. with Boart LF-70 fly rig. Should Peregrine so require, a second small waterless drill for short-hole condemnation drilling – the RC Hornet drill already used at Chidiak Project – could be added after permit renewed, by notice to AANDC. No change to this section is sought.**
   - On-ice drilling (indicate drill type) **Yes (diamond core drilling already approved, incl. with Boart LF-70 fly rig).**

- Water based drilling (indicate drill type) **N/A**
- Overburden removal **Yes**

**No change to this section. Minimal overburden would be removed and stockpiled, mainly associated with mini-bulk sampling.**

- Explosives transportation and storage **may be sought in future as part of future bulk-sample amendment.**
- Work within navigable waters **N/A**
- On site sample processing **N/A**
- Off site sample processing

**No change to this section. Sample processing at Saskatchewan Research Centre, if required.**

- Waste rock storage **N/A**
- Ore storage **N/A**
- Cuttings disposal **N/A**
- Portal and underground ramp construction **N/A**
- Landfilling **N/A**
- Landfarming **N/A**
- Other **N/A**

**B-3 Geosciences**

4. Indicate the geophysical operation type:
   a. Seismic (please complete Section E)
   b. Magnetic
      **(geophysics already approved)**
   c. Gravimetric
      **(geophysics already approved)**
   d. Electromagnetic
      **(geophysics already approved)**
   e. Other (specify)
5. Indicate the geological operation type: **N/A**
   a. Geological Mapping
   b. Aerial Photography
   c. Geotechnical Survey
   d. Ground Penetrating Survey
   e. Other (specify)
6. Indicate on a map the boundary subject to air and/or ground geophysical work.
   **Ground and air survey boundaries have not yet been selected. Assume the boundaries of the property, as presented in *Map 2* (accompanying application).**

7. Provide flight altitudes and locations where flight altitudes will be below 610m.
   **No change to this section. Flight altitude for airborne geophysical survey will be < 300m, but provision will be made for caribou right-of-way: Should numbers of animals be observed entering an area where survey is commencing or under way, other flight lines (away from the herd) will be flown so as to avoid overflying the animals. Peregrine will continue to follow *Appendices G* and *H* of *Keewatin Regional Land-Use Plan.***

**B-4 Drilling**

8. Provide the number of drill holes and depths (provide estimates and maximums where possible).
   **Number of drillholes has not yet been determined for next, or 2013, programme, though a total of 6000m was mentioned in the 2007 application. Breakdown**

**suggested in that application was approximately 2 000m of drilling producing HQ-diameter core or smaller and approximately 4 000m of drilling producing PQ-diameter core, although hole conditions at individual anomalies will dictate the hole diameter, percentages and precise methodology.**

9. Discuss any drill additives to be used.
**When drill additives are required, only environmentally-benign muds would be used. (As an example, Boart Longyear's list of potential drilling muds is included with the application in the drilling additives section of the MSDS Inventory list and on the MSDS CD, *Appendix* 2). A list of proposed additives will be required of each contractor prior to any potential use in the field, and data on any additive use is required to be recorded on the drill log.**

10. Describe method for dealing with drill cuttings.
**Cuttings will report to suitably-sized depressions or outcrops on land, so that any flow is away from waterbodies.**

11. Describe method for dealing with drill water.
**Drillwater will be recycled in the drilling circuit up to about 80%; the remaining 20% will be pumped through a flex-hose sludge line with rock flour as cuttings to a predetermined sump.**

12. Describe how drill equipment will be mobilised.
**Drill equipment will be flown to site via fixed-wing, then heliported in sling-loads to drillsite locations.**

13. Describe how drill holes will be abandoned.
**Peregrine ensures that each drillsite is properly cleaned up when the hole is closed, not simply when the project closes. Lake-based coreholes (should any be drilled in future) will be closed with grout plugs; land-based holes are capped after casing is cut, so that no potential hazards are presented for wildlife. Locations of drillholes are recorded as GPS co-ordinates for future reference.**

14. If project proposal involves uranium exploration drilling, discuss the potential for radiation exposure and radiation protection measures. Please refer to the *Canadian Guidelines for Naturally Occurring Radioactive Materials* for more information. **N/A**

**B-5 Stripping/ Trenching/ Pit Excavation** **N/A**

***(If trenching is deemed necessary in future in connection with a bulk-sample programme, trenching will be addressed as appropriate via an AMENDMENT.)***

15. Discuss methods employed. (i.e. mechanical, manual, hydraulic, blasting, other)
16. Describe expected dimensions of excavation(s) including depth(s).
17. Indicate the locations on a map.
18. Discuss the expected volume material to be removed.
19. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.

**B-6 Underground Activities** **N/A**

20. Describe underground access.
21. Describe underground workings and provide a conceptual plan.
22. Show location of underground workings on a map.
23. Describe ventilation system.

24. Describe the method for dealing with ground ice, groundwater and mine water when encountered.
25. Provide a Mine Rescue Plan.

**B-7 Waste Rock Storage and Tailings Disposal** **N/A**

26. Indicate on a map the location and conceptual design of waste rock storage piles and tailings disposal facility.
27. Discuss the anticipated volumes of waste rock and tailings.
28. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.

**B-8 Stockpiles** **N/A**

29. Indicate on a map the location and conceptual design of all stockpiles.
30. Describe the types of material to be stockpiled. (i.e. ore, overburden)
31. Describe the anticipated volumes of each type of material to be stockpiled.
32. Describe any containment measures for stockpiled materials as well as treatment measures for runoff from the stockpile.
33. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.

**B-9 Mine Development Activities** **N/A**

34. Indicate the type(s) of mine development activity(s):
    - Underground
    - Open Pit
    - Strip Mining
    - Other
35. Describe mine activities.
    - Mining development plan and methods
    - Site access
    - Site infrastructure (e.g. airstrip, accommodations, offshore infrastructures, mill facilities, fuel storage facilities, site service roads)
    - Milling process
    - Water source(s) for domestic and industrial uses, required volumes, distribution and management.
    - Solid waste, wastewater and sewage management
    - Water treatment systems
    - Hazardous waste management
    - Ore stockpile management
    - Tailings containment and management
    - Waste rock management
    - Site surface water management
    - Mine water management
    - Pitting and quarrying activities (please complete Section C)
    - Explosive use, supply and storage (including on site manufacturing if required)
    - Power generation, fuel requirements and storage
    - Continuing exploration
    - Other
36. Describe the explosive type(s), hazard class, volumes, uses, location of storage (show on map), and method of storage.

**B-10 Geology and Mineralogy** **N/A**

37. Describe the physical nature of the ore body, including known dimensions and approximate shape.
38. Describe the geology/mineralogy of the ore deposit.
39. Describe the host rock in the general vicinity of the ore body.
40. Discuss the predicted rate of production.
41. Describe mine rock geochemical test programmes which have been or will be performed on the ore, host rock, waste rock and tailings to determine acid generation and contaminant leaching potential. Outline methods and provide results if possible.

**B-11 Mine** **N/A**

42. Discuss the expected life of the mine.
43. Describe mine equipment to be used.
44. Does the project proposal involve lake and/or pit dewatering? If so, describe the activity as well as the construction of water retention facilities if necessary.
45. Discuss the possibility of operational changes occurring during the mine life with consideration for timing. (e.g. open pit to underground)
46. If project proposal involves uranium mining, consider the potential for radiation exposure and radiation protection measures. Particular attention should be paid to *The Nuclear Safety and Control Act*.

**B-12 Mill** **N/A**

47. If a mill will be operating on the property in conjunction with mining, indicate whether mine-water may be directed to the mill for reuse.
48. Describe the proposed capacity of the mill.
49. Describe the physical and chemical characteristics of mill waste as best as possible.
50. Will or does the mill handle custom lots of ore from other properties or mine sites?

**SECTION C: <u>Pits and Quarries</u>** **N/A**

1. Describe all activities included in this project.
   - Pitting
   - Quarrying
   - Overburden removal
   - Road use and/or construction (please complete Section A)
   - Explosives transportation and storage
   - Work within navigable waters
   - Blasting
   - Stockpiling
   - Crushing
   - Washing
   - Other
2. Describe any field investigations and the results of field investigations used in determining new extraction sites.
3. Identify any carving stone deposits.
4. Provide a conceptual design including footprint.
5. Describe the type and volume of material to be extracted.
6. Describe the depth of overburden.
7. Describe any existing and potential for thermokarst development and any thermokarst prevention measures.
8. Describe any existing or potential for flooding and any flood control measures.
9. Describe any existing or potential for erosion and any erosion control measures.
10. Describe any existing or potential for sedimentation and any sedimentation control measures.
11. Describe any existing or potential for slumping and any slump control measures.

12. Describe the moisture content of the ground.
13. Describe any evidence of ice lenses.
14. If blasting, describe methods employed.
15. Describe the explosive type(s), hazard class, volumes, uses, location of storage (show on map), and method of storage.
16. Discuss methods used to determine acid rock drainage (ARD) and metal leaching (ML) potential and results.
17. Discuss safety measures for the workforce and the public.

**SECTION D: Offshore Infrastructure** **N/A**

**D-1 Facility**

1. Describe any field investigations and the results of field investigations used in selecting the site (i.e. aerial surveys, bathymetric surveys, tidal processes, shoreline erosion processes, geotechnical foundation conditions)
2. Provide a conceptual plan, profile description and drawing(s) indicating shoreline, facility footprint, tidal variations, required vessel draft, keel offset, deck height freeboard
3. Discuss how anticipated loads on the seabed foundation and on the offloading platform will be incorporated into the design.
4. Describe how vessels will manoeuvre around the facility. (e.g. pull alongside or in front)
5. Discuss the anticipated life of the facility.

**D-2 Facility Construction** **N/A**

6. Describe the types of material used for construction (i.e. granular or rock, steel piling or sheet piling, concrete). If material is granular, consider acid rock drainage potential, metal leaching potential, percentage of fines, size.
7. Describe dredging activities.
8. Indicate source of granular or rock material used in construction.
9. List quantities of the various types of material used in construction.
10. Describe construction method(s).
11. Indicate whether a site engineer will be on-site to inspect construction.
12. If proposed construction method involves dumping of fill into water, discuss measures for mitigating the release of suspended solids.

**D-3 Facility Operation** **N/A**

13. Describe maintenance activities associated with the facility (e.g. dredging, maintenance to account for potential settlement of facility,)
14. Discuss whether the public will have access to the facility(s) and describe public safety measures.
15. Describe cargo and container handling, transfer and storage facilities.
16. Indicate whether fuel will be transferred from barges at this site and describe the method of that fuel transfer.
17. Discuss frequency of use.

**D-4 Vessel Use in Offshore Infrastructure**

18. Please complete Section H

**SECTION E: Seismic Survey** **N/A**

**E-1 Offshore Seismic Survey**

1. Indicate whether the survey is 2D or 3D at each site
2. Describe the type of equipment used, including:

- Type and number of vessels including length, beam, draft, motors, accommodation capacity, operational speeds when towing and when not towing
- Sound source (type and number of airguns)
- Type and number of hydrophones
- Number, length, and spacing of cables/ streamers

3. On a map, indicate the grid, number of lines and total distance covered at each site.
4. Indicate the discharge volume of the airguns, the depth of airgun discharge, and the frequency and duration of airgun operation at each site.
5. Discuss the potential for dielectric oil to be released from the streamer array, and describe proposed mitigation measures.
6. Indicate whether additional seismic operations are required for start-up of operations, equipment testing, repeat coverage of areas.
7. Indicate whether air gun procedures will include a "ramping up" period and, if so, the proposed rate of ramping up.
8. Indicate whether the measures described in the *Statement of Canadian Practice for Mitigation of Noise in the Marine Environment* will be adhered to for this project.

**E-2 Nearshore/ Onshore Seismic Survey** **N/A**

9. For each site, indicate whether nearshore and onshore surveys will be conducted during the ice season or once the ice has melted
10. Describe how nearshore and onshore areas will be accessed.
11. Describe the survey methods to be used (e.g. explosive charge, vibration, air or water gun, other)
12. Describe equipment to be used
13. If applicable, indicate number, depth and spacing of shot holes
14. Describe explosive wastes including characteristics, quantities, treatment, storage, handling, transportation and disposal methods.

**E-3 Vessel Use in Seismic Survey**

15. Please complete Section H

**SECTION F: <u>Site Cleanup/Remediation</u>** **N/A**

1. Describe the location, content, and condition of any existing landfills and dumps (indicate locations on a map).
2. Identify salvageable equipment, infrastructure and/or supplies.
3. Provide a list of all contaminants to be cleaned up, anticipated volumes and a map delineating contaminated areas. This includes buildings, equipment, scrap metal and debris, and barrels as well as soil, water (surface and groundwater) and sediment.
4. Describe the degree of pollution/contamination, and list the contaminants and toxicity.
5. Describe technologies used for clean-up and/or disposal of contaminated materials. Include a list of all the physical, chemical and biological cleanup/ remediation methods, operational procedures, and the dosage/frequency of reagents and bacterial medium.
6. Identify and describe all materials to be disposed of off site, including the proposed off site facilities, method of transport and containment measures.
7. Discuss the viability of landfarming, given site specific climate and geographic conditions.
8. Describe the explosive types, hazard classes, volumes, uses, location of storage (indicate on a map), and method of storage (if applicable).
9. If blasting, describe the methods employed.
10. Describe all methods of erosion control, dust suppression, and contouring and re-vegetation of lands.
11. Describe **all** activities included in this project.

- Excavation (please complete Section B-5)
- Road use and/or construction (please complete Section A)
- Airstrip use and/or construction
- Camp use and/or construction
- Stockpiling of contaminated material
- Pit and/or quarry (please complete Section C)
- Work within navigable waters (please complete Section H)
- Barrel crushing
- Building Demolition
- Other

**SECTION G: Oil and Natural Gas Exploration/Activities** **N/A**

**G-1 Well Authorisation**

1. Identify the location(s) of the well centre(s) by latitude and longitude. Attach a map drawn to scale showing locations of existing and proposed wells.
2. Indicate if the site contains any known former well sites.
3. Include the following information for each well:
    a. Well name
    b. Surface location
    c. Proposed bottomhole location
    d. Ground elevation (in metres)
    e. Spacing area (in units)
    f. Identify the well type:
        i. Production
        ii. Injection
        iii. Disposal
        iv. Observation
        v. Storage
        vi. Experimental
        vii. Other (specify)
    g. Identify the well classification:
        i. Exploratory wildcat
        ii. Exploratory outpost
        iii. Development
    h. Drilling operation (deviation):
        i. Vertical
        ii. Directional
        iii. Horizontal
        iv. Slant
    i. Objective Zones (copy chart style below)

| Objective Formation | Fluid (oil/gas/water) | Depth (mTVD) | Core (Y/N) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

    j. Proposed Total Depth in mTDV and mMD.
    k. Formation of Total Depth
    l. Sour well? (yes or no)
        i. If Yes: Maximum $H_2S$ concentration in mol/kmol
        Emergency planning zone radius in km

m. Blowout Prevention (Well Class I – VI)
n. Deviation Surveys
    i. Will be run at intervals less than 150m? (yes or no)
o. Wireline logs
    i. Will run logs in hole for surface casing? (yes or no)
    ii. Will run a minimum of 2 porosity measuring logs? (yes or no)

**G-2 On-Land Exploration**

4. Indicate if the site contains any known:
    a. Waste Dumps
    b. Fuel and Chemical Storage Areas
    c. Sump Areas
    d. Waste Water Discharge Locations
5. Attach maps drawn to scale showing locations of existing and proposed items identified in (2) above, as well as all proposed:
    a. Sumps
    b. Water sources
    c. Fuel and chemical storage facilities
    d. Drilling mud storage areas
    e. Transportation routes
6. If utilising *fresh water*, estimate maximum drawdown and recharge capability of the river or lake from which water will be drawn.
7. Indicate if permafrost is expected to be encountered under:
    a. Camp Facilities
    b. Well Site
    c. Access Routes
    d. Sumps
    e. Other: _____
8. Indicate any potential for encountering artesian aquifers or lost circulation within the surface hole (to casing depth).
9. Will drilling wastes contain detrimental substances (including, but not limited to, oil-based or invert mud and high salinity fluids)? If yes, indicate the substances and estimated volumes.
10. Indicate methods for disposal of drilling wastes:
    a. Sump
    b. Down Hole (requires NEB approval)
    c. On-Site Treatment (provide plan)
    d. Off-Site (give location and method of disposal)
11. If a sump is being used, attach the following information:
    a. scale drawings and design of sumps
    b. capacity in cubic metres
    c. berm erosion protection
    d. soil permeability and type
    e. recycling/reclaiming waters
    f. surface drainage controls
    g. abandonment procedures
12. Attach the proposed or existing contingency plan which describes the course of action, mitigative measures and equipment available for use in the event of system failures and spills of hazardous materials.
13. Attach an outline of planned abandonment and restoration procedures.

**G-3 Off-Shore Exploration**

14. Will drilling wastes contain detrimental substances (including, but not limited to, oil-based or invert mud and high salinity fluids)? If yes, indicate the substances and estimated volumes.
15. Attach the proposed or existing contingency plan which describes the course of action, mitigative measures and equipment available for use in the event of system failures and spills of hazardous materials.
16. Attach an outline of planned abandonment and restoration procedures.
17. Please complete Section H

**G-4 Rig**

18. Type of Rig. Draw works, make and model
19. Derrick/Mast make and model
20. H.P. available to draw-works

**SECTION H: Marine Based Activities** **N/A**

**H-1 Vessel Use**

1. Describe the purpose of vessel operations.
2. List classes and sizes of vessels to be used.
3. Indicate crew size.
4. Indicate operating schedule.
5. Provide a description of route to be traveled (include map).
6. Indicate whether the vessel will call at any ports. If so, where and why?
7. Describe wastes produced or carried onboard including the quantities, storage, treatment, handling and disposal methods for the following:
    a. Ballast water
    b. Bilge water
    c. Deck drainage
    d. Grey and black water
    e. Solid waste
    f. Waste oil
    g. Hazardous or toxic waste
8. List all applicable regulations concerning management of wastes and discharges of materials into the marine environment
9. Provide detailed Waste Management, Emergency Response and Spill Contingency Plans
10. Does the vessel(s) possess an Arctic Pollution Prevention Certificate? If yes, indicate the date of issue and the name of the classification society.
11. Describe the source of fresh water and potable water
12. Indicate whether ice-breaking will be required, and if so, approximately where and when? Discuss any possible impacts to caribou migration, Inuit harvesting or travel routes, and outline proposed mitigation measures.
13. Indicate whether the operation will be conducted within the Outer Land Fast Ice Zone of the East Baffin Coast. For more information on the Outer Land Fast Ice Zone, please see the Nunavut Land Claims Agreement (NLCA), Articles 1 and 16.
14. Indicate whether Fisheries or Environmental Observers will be onboard during the proposed project activities. If yes, describe their function and responsibilities.
15. Describe all proposed measures for reducing impacts to marine habitat and marine wildlife (including mammals, birds, reptiles, fish, and invertebrates).

**H-2 Disposal at Sea**

1. Provide confirmation you have applied for a *Disposal at Sea* permit with Environment Canada
2. Provide a justification for the disposal at sea
3. Describe the substance to be disposed of, including chemical and physical properties
4. Indicate the location where the disposal is to take place
5. Describe the frequency of disposals (disposals per day/week or month)
6. Describe the route to be followed during disposal and indicate on a map.
7. Indicate any previous disposal methods and locations
8. Provide an assessment of the potential effects of the disposal substance on living marine resources
9. Provide an assessment of the potential of the disposal substance, once disposed of at sea, to cause long-term physical effects.
10. Describe all mitigation measures to be employed to minimize the environmental, health, navigational and aesthetic impacts during loading, transport and disposal.

**SECTION I: Municipal and Industrial Development** **N/A**

1. Describe the business type, including public, private, limited, unlimited or other.
2. Describe the activity (e.g. development of quarry, development of hydroelectric facility, bulk fuel storage, power generation with nuclear fuels or hydro, tannery operations, meat processing and packing, etc.).
3. Describe the production process or service provision procedures.
4. Describe the raw materials used in this activity, the storage and transportation methods. If hazardous materials are included in raw materials, products or by-products; include safety regulations methodology.
5. Provide detailed information about the structure and/or building in which the activity will be conducted.
6. List the PPE (personal protective equipment) and tools to be used to protect personal health and safety.
7. Describe the firefighting equipment that are or will be installed.
8. Describe the noise sources, noise level in work area, technical measurements that will be adopted to abate the noise levels and regulatory requirements for noise abatement and noise levels.
9. Describe the type of gaseous emission that will be produced during this activity. Include the allowable thresholds and mitigation measures.
10. Describe odours that the activity might release and include corresponding allowable threshold. Describe mitigation measures if thresholds are exceeded.
11. Describe radiation sources that might be emitted during the activity. Include type and source and include mitigation measures. Also describe preventative measures for human exposure (i.e. PPE).
12. Discuss the employee safety and environment protection training program.
13. If the activity involves a bulk fuel storage facility, include drawings showing the bulk fuel storage facility location in proximity to natural water courses, high water marks, etc.
14. If the activity involves the development of a new quarry or expansion of an existing quarry, complete Section C.

## 4. DESCRIPTION OF THE EXISTING ENVIRONMENT

Describe the existing environment, including physical, biological and socioeconomic aspects. Where it is appropriate, identify local and regional study areas.

Please note that the detail provided in the description of the existing environment should be appropriate for the type of project proposal and its scope.

The following lists are intended as a guide only.

**Physical Environment**
*Please note that a description of the physical environment is intended to cover all components of a project, including roads/trails, marine routes, etc*

- Proximity to designated environmental areas, including parks; heritage sites; sensitive areas, including sensitive marine habitat areas (recreational areas; sport and commercial fishing areas; breeding, spawning and nursery areas; known migration routes of living ;marine resources; and areas of natural beauty, cultural or historical history and; other) and protected wildlife areas; and other protected areas.

**Nanuq Property at its northernmost limit is located 30km S of Wager, near the boundary of Ukkusiksalik National Park, thus far inland from polar bear habitat, though bears, both polar and grizzly may occasionally cross the project area in summer. The property has not been observed to be used as a calving ground and is not located within an IOL.**

- Eskers and other unique landscapes (e.g. sand hills, marshes, wetlands, floodplains).

**Please see Geology section below.**

- Evidence of ground, slope or rock instability, seismicity. **N/A**
- Evidence of thermokarsts **N/A**
- Evidence of ice lenses **N/A**
- Surface and bedrock geology.

**The Nanuq Property is located within the Rae domain of the Western Churchill Province. The property area is underlain primarily by Archaean tonalite-granodiorite-granite gneiss and by Archaean or Paleoproterozoic (Aphebian) biotite gneiss, migmatite, and granite (Panagapko *et. al.* 2003). Rocks in the Nanuq region have been divided into three major supracrustal belts. The Wager Bay Shear Zone cuts through the north central part of the property in an E-W direction and is the dominant structural element observed. It is a near-vertically dipping shear zone that displays dextral movement. The property is located within, and to the SE of, the Keewatin Ice Divide. Undifferentiated surficial materials, which consist mainly of tills, cover the bedrock. Two esker systems traverse the area; one trends in an ESE direction and the other, more dominant system is SE trending. In the southern part of the area, glacial striae indicate that ice flow was in a general southeasterly direction. To the N of the property, northerly ice flow directions have been recorded.**

- Topography.

***Please see Geology section above.***

- Permafrost (*e.g.* stability, depth, thickness, continuity, taliks). **N/A**
- Sediment and soil quality. **N/A**
- Hydrology/ limnology (e.g. watershed boundaries, lakes, streams, sediment geochemistry, surface water flow, groundwater flow, flood zones). **N/A**
- Tidal processes and bathymetry in the project area. **N/A**
- Water quality and quantity.

**Water quality can be considered pristine. Large lakes are not numerous on the Nanuq Property, though tributaries of the Lorillard River cross the claimblock.**

- Air quality.

**Air quality is undisturbed.**

- Climate conditions and predicted future climate trends. **N/A**

- Noise levels.

**Noise from drills, aircraft and camp generator is confined to a short, seasonal period of exploration in an activity year. There are no communities close by.**

- Other physical Valued Ecosystem Components (VECs) as determined through community consultation and/or literature review.

**A list of VECs has not yet been compiled. This would evolve in due course, should the project become focused on specific area(s)-of-interest, through community consultation coupled with review of Nanuq environmental baseline data that would be collected, as well as regional literature (including publicly-available research conducted by other proponents in the region).**

**Biological Environment**

- Vegetation.

**Plant studies and habitat mapping would occur at a more advanced project stage. Though activity across the project area has been both low-level and diverse, it can be observed that vegetation is generally sparse, with concentration around drainages, as would be expected.**

- Wildlife, including habitat and migration patterns.

**Wildlife studies would occur at a more advanced project stage. However, it has been observed that caribou of the Lorillard River and Wager Bay herds pass infrequently through the project area. Nunavut Government satellite-collar data shows limited passage through the Nanuq area at spring and autumn migration in occasional years (Wager Bay herd) and limited passage through the Nanuq area (Lorillard herd) in the post-calving period in occasional years. Camp records support this, though one large aggregation of approx. 2 000 animals was observed travelling south off the property in several observations between 25 and 27 July 2011. As these were observations from aircraft, likely ferrying supplies from Rankin Inlet, it is uncertain whether the observations were of Lorillard or Qamanirjuaq animals. As consultation proceeds on the project, and access to regional caribou data is negotiated with the regional Wildlife Biologist, verified information on habitat and wildlife use of the Nanuq area will be gained to further inform site activities and planning, and refine existing mitigations of the Action Plan.**

- Birds, including habitat and migration patterns.

**Avian studies and habitat mapping would occur at a more advanced project stage. However, Peregrine does maintain Wildlife Logs each season, and observations of various species have been recorded since 2008, including of sandhill cranes, several whooping cranes (possible), flocks of snow geese and Canada geese, seagulls, ravens, a ptarmigan, several ducks and raptors (several Peregrine falcons, a gyrfalcon [possible], bald eagle, owl and unidentified hawk). Peregrine maintains a Data Licence Agreement with the Canadian Wildlife Service regional office, and is aware that neither the camp nor claimblock are proximal to the nearest Key Migratory Bird Terrestrial Sites, being *Bird Site #39* (Lower Back River) to the northwest and *Bird Site #41* (Middle Quoich River) to the southwest.**

- Species of concern as identified by federal or territorial agencies, including any wildlife species listed under the *Species at Risk Act (SARA)*, its critical habitat or the residences of individuals of the species.

**The polar bear (*ursus maritimus*) is listed by the Canadian Species at Risk Act (SARA) as a Special Concern species, although Govt. NU data and Inuit land-user empirical evidence disputes that listing for NU populations. The Peregrine Falcon (*tundrius/anatum* subspecies) has been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as a Special Concern species. Polar bears hunt amid the ice floes and shorelines of Wager Bay, although observations in proximity to camp and worksites have been rare.**

**Several Peregrine Falcon sightings have been recorded in the vicinity of the camp by project personnel. The grizzly bear (*ursus arctos)* is occasionally observed across the North Kivalliq, beyond its normal range; but as it is a transient, the grizzly bear in Nunavut has not been assessed as endangered.**

- Aquatic (freshwater and marine) species, including habitat and migration/spawning patterns.
  **Species in regional rivers and lakes include Arctic char, lake trout, Arctic grayling and Northern pike. Aquatic studies, including habitat characterisation, would occur at a more advanced project stage.**

- Other biological Valued Ecosystem Components (VEC) as determined through community consultation and/or literature review.
  **Please see response to VEC question on previous page.**

**Socioeconomic Environment**

- Proximity to communities.

**Also please see Question #36 on Page 10. The communities most likely to be affected by this project, or interested in participating in it, are Rankin Inlet (275km SSW), Chesterfield Inlet (220km S), Repulse Bay (230km NE) and Baker Lake (250km SW).**

- Archaeological and culturally significant sites (e.g. pingos, soap stone quarries) in the project and adjacent areas.
  **There were no archaeological sites registered in the Nanuq Project area when the 2008 permit and water licence were granted. Peregrine conducted an archaeological assessment in August 2010 (*CLEY Permit #10-004A*), resulting in the discovery of 7 sites, mainly tent rings of the Thule period along the Lorillard River system. Peregrine has had an archaeological protocol (see *Appendix 4*) in place for this area even before the current permit and water licence. Prior to Peregrine's field study, the closest known archaeological sites were in Ukkusiksalik National Park.**

- Palaeontological component of surface and bedrock geology. **N/A**
- Land and resource use in the area, including subsistence harvesting, tourism, trapping and guiding operations.

**Harvesting and trapping for traditional income and subsistence occurs proximal to the communities of Rankin Inlet, Chesterfield Inlet, Repulse Bay and Baker Lake. Although HTOs and hunters have not identified to Peregrine that they utilise the Nanuq claimblock area, Rankin hunters did comment that they would travel as far afield as they needed to. Peregrine has not observed hunters on the land during its exploration work, but would not impede this activity in any way. Likewise, outfitters have not been observed on the claimblock, as they likely would focus on the more productive areas around Hudson Bay; nevertheless, Peregrine will not impede outfitter activities in any way. The closest tourism is in Ukkusiksalik National Park and there is accommodation for tourists there at Sila Lodge; Peregrine has a no-entry protocol in place with the Parks Manager. Regarding any proximal mineral exploration, AANDC does not list any claims or prospecting permits in close proximity, the closest two holdings being as follows: (1) Committee Bay North Ltd. claims immediately N of the Park, roughly 120km N at the closest point, and Olson prospecting permits, roughly 200km W at the closest point.**

- Local and regional traffic patterns.

**Local or regional traffic across the claimblock has not been observed or observed only infrequently. Natural Resources Canada has utilised the claimblock area occasionally for siting a fuel cache and has stored fuel at Nanuq**

**Camp in the recent past, and thus has crossed the claimblock via charter aircraft traveling to and from its own project areas. Committee Bay North, which holds claims north of the Park, likely has crossed the claimblock by aircraft charter to and from its own holdings. When based at Nanuq Camp, Indicator Minerals (who held Nanuq North property immediately north), would have crossed the claimblock occasionally over the life of its permit.**

- Human Health, broadly defined as a complete state of wellbeing (including physical, social, psychological, and spiritual aspects).

**Socioeconomic data collection and studies with communities would be commissioned at a more advanced project stage.**

- Other Valued Socioeconomic Components (VSEC) as determined through community consultation and/or literature review.

**A list of VECs and VSECs has not yet been compiled. This would evolve in due course, should the project become focused on specific area(s)-of-interest, through community consultation coupled with socioeconomic studies.**

## 5. IDENTIFICATION OF IMPACTS AND PROPOSED MITIGATION MEASURES

1. Please complete the attached Table 1 – Identification of Environmental Impacts, taking into consideration the components in Appendix A. Identify impacts in Table 1 as either positive (P), negative and mitigable (M), negative and non- mitigable (N), or unknown (U).
2. Discuss the impacts identified in the above table.
3. Discuss potential socioeconomic impacts, including human health.
4. Discuss potential for transboundary effects related to the project.
5. Identify any potentially adverse effects of the project proposal on species listed under the *Species at Risk Act (SARA)* and their critical habitats or residences, what measures will be taken to avoid or lessen those effects and how the effects will be monitored.
6. Discuss proposed measures to mitigate all identified negative impacts.

## 7. CUMULATIVE EFFECTS

Discuss how the effects of this project interact with the effects of relevant past, present and reasonably foreseeable projects in a regional context.

**For the reasonably foreseeable future, exploration impacts in the Wager Bay area and immediately south can be expected to be minimal, owing to a limited number of explorers over a vast area, the seasonal and low-intensity nature of the activity and the commitment of players to environmental sustainability through their own policies and permit and licence conditions. As noted above on this page, there are only two exploration holdings by others in any proximity (from 120 to 200km away), with most other activity occurring to the S and SW, including at Meadowbank Mine, which is 70km N of Baker Lake. Peregrine has applied for a new permit and water licence for the Nanuq North property which joins Nanuq at the north, as Indicator has shifted its interests elsewhere; Nanuq North has not been extensively explored.**

## 8. SUPPORTING DOCUMENTS

Where relevant, provide the following supporting documents:

- Abandonment and Decommissioning Plan **(included with application)**
- Existing site photos with descriptions **(one photo in *Project Description*)**

Emergency Response Plan **(included with application)**

- Comprehensive Spill Prevention/Plan (must consider hazardous waste and fuel handling, storage, disposal, spill prevention measures, staff training and emergency contacts) **(included with application)**
- Waste Management Plan/Program **(Waste Management Strategy has been updated and is included as *Supplementary Document #3*)**
- Monitoring and Management Plans (e.g. water quality, air pollution, noise control and wildlife protection etc.)
- If project activities are located within Caribou Protection Areas or Schedule 1 Species at Risk known locations, please provide a Wildlife Mitigation and Monitoring Plan **(Peregrine has followed avoidance and non-interference mitigations throughout the life of the permit and licence via its northern wildlife Action Plan; these are the same measures as those which Peregrine collected into a single Wildlife Management Plan for the Chidliak Project in the South Baffin -- the key mitigations being recording of any sightings for planning purposes, and avoidance of animals wherever possible, such as moving away from areas occupied by caribou. *(Peregrine's Action Plan components are listed on Page 33 below).***

In addition, for Project Type 9 (Site Cleanup/Remediation), please provide the following additional supporting documents:

- Remediation Plan including cleanup criteria and how the criteria were derived.
- Human Health Risk Assessment of the contaminants at the site.

THE NUNAVUT IMPACT REVIEW BOARD
SCREENING PART 2 FORMS

## TABLE 1 - IDENTIFICATION OF ENVIRONMENTAL IMPACTS

| PROJECT ACTIVITIES | ENVIRONMENTAL COMPONENTS | PHYSICAL | designated environmental areas (ie. Parks, Wildlife Protected areas) | ground stability | permafrost | hydrology/ limnology | water quality | climate conditions | eskers and other unique or fragile landscapes | surface and bedrock geology | sediment and soil quality | tidal processes and bathymetry | air quality | noise levels | other VEC: | other VEC: | other VEC: | BIOLOGICAL | vegetation | wildlife, including habitat and migration patterns | birds, including habitat and migration patterns | aquatic species, incl. habitat and migration/spawnin | wildlife protected areas | other VEC: | other VEC: | other VEC: | SOCIO-ECONOMIC | archaeological and cultural historic sites | employment | community wellness | community infrastructure | human health | other VSEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CONSTRUCTION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OPERATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DECOMMISSIONING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

*P* *Positive*
*N* *Negative and non-mitigatable*
*M* *Negative and mitigatable*
*U* *Unknown*

**MITIGATION FOR TABLE 1 IMPACTS:**

*Table 1is NOT fillable, so a simple set of charts for activities, components and impacts is produced below: Also refer to TEXT following the chart:*

***NOTE: There are NO transboundary effects.***

**PROJECT ACTIVITY: Operate Camp + Conduct Field Exploration Programme.**

| Components which Might Sustain Impacts | Rating (P, N, M, U or Not Applicable (N/A) |
|---|---|
| Designated environmental areas. | **N/A** (property is not in a special area, but as area is subject to Keewatin Land-Use Plan, the Plan-suggested mitigations are followed) |
| Ground stability. | **U** (no infrastructure requiring such testing) |
| Permafrost. | **U** (study in future as project advances and specific aspects become known.) |
| Hydrology/limnology. | **U** (study in future as project advances) |
| Water quality. | **M** (mitigation measures: winter water-quality sampling for lake-based drillholes; institute summer water-quality sampling at stations which would be determined once project areas-of-interest are identified. |
| Climate conditions. | **U** (study in future as project advances) |
| Eskers + other unique or fragile landscapes | **U** (eskers are not a common habitat, though the camp is located on a sand flat. Eskers and other unique/fragile landscapes, likely to be associated with small ecoregions, would be determined + quantified via future detailed habitat assessment) |
| Surface + bedrock geology | **N/A** (no harm from this activity) |
| Sediment + soil quality. | **M** (mitigation measures have been described) |
| Noise levels | **U** (study in future as project advances) |
| Vegetation. | **U** (study in future as project advances) |
| Wildlife, incl. habitat + migration patterns | **M** (environmental studies would commence as areas-of-interest are known and in co-operation with Kivalliq Wildlife Biologist) |
| Birds, incl. habitat + migration patterns | **M** (environmental studies would commence as areas-of-interest are known and in co-operation with GN-DOE and CWS) |
| Aquatic species, incl. habitat + migration/spawning | **U** (study in future as project advances) |
| Wildlife protected areas. | **N/A** (property is not in a special area) |
| Archaeological + cultural historic sites | **M** (mitigation measures have been described) Peregrine commissioned a field survey in 2010 + has had an archaeological protocol in place since before the permit and licence were issued in 2008. |
| Employment | **P** |
| Community wellness | **P** (providing employment + services brings $ into community, sense of self-esteem) |
| Community infrastructure | **N/A** (project is too small + not near community) |
| Human health | **N/A** (project is too small + not near community) |

There are a number of "unknowns" in the charts above, as Nanuq is still at the exploration stage and baseline environmental studies have not yet commenced. These areas – including wildlife, aquatics, hydrology/limnology and archaeological studies – will be addressed as and if the project advances, *i.e.*, as kimberlite occurrences are found and evaluated and the project moves toward potential development. Socioeconomic data also will be collected as the project advances and studies, including traditional-knowledge studies, contracted with local communities.

Component areas for potential mitigation – water quality, sediment and soil quality, use of eskers, presence of archaeological/historic sites, as well as mitigation post-drilling – have

been addressed elsewhere in this document and in the application's Project Description. As the first objective of any exploration programme is prevention of harm, Peregrine trains contractors and staff in environmental awareness and in maintaining the conditions imposed through permits and licences. Should spills occur, procedures are clearly laid out in Peregrine's Spill Contingency Plan and Emergency Response Plan and are noted in this Form Part 2 document. Impact to water quality will be mitigated by initiating sampling of waterbodies near kimberlite occurrences (when occurrences become areas-of-interest) to determine background levels for future monitoring. Provision of spill kits, refuge drums and extra absorbents, as well as use of drip pans, also mitigates against impact to water. Environmentally-benign drilling muds also reduce chances of impact to water. Similar mitigation measures are practised by Peregrine with respect to sediment and soil quality and use of eskers. Following both till sampling and drilling, pits/holes are closed and no debris left behind. Archaeological sites, where co-ordinates are known, can be protected through avoidance – hence, Peregrine's commitment to acquiring site data from the Archaeology Division of CLEY and commissioning of its own study in 2010. An archaeology protocol also exists to guide field personnel, should a suspected archaeological or historic site be encountered.

Although wildlife environmental-baseline studies have not yet commenced for this early-stage project, mitigations have been in place throughout the period of the current permit and licence via Peregrine's northern wildlife Action Plan, a collection of discrete actions. It must be stressed (as indicated elsewhere in this document and in the Project Description), that wildlife always have right-of-way on project sites and encounters are avoided to the extent possible. There will be no low-flying over caribou or other species, and wildlife logs will be kept in camp and to/from worksites to document any wildlife passage through the camp area or worksites. Peregrine has followed an *Action Plan* that has been fully integrated into the exploration programmes – taking the form of: (1) *training and retraining* of staff, (2) *discussion of wildlife issues and avoidance measures as regular topics* during camp Health, Safety and Environment meetings, (3) *strict site management* (includes clean camps, local wildlife monitors and wildlife fences to dissuade bears), (4) *granting animals the right-of-way*, (5) maintaining *Wildlife Logs*, and (6) *following height and distance requirements* set out in permit conditions, when, as the permit states "there are occurrences of wildlife".

If caribou or bears are encountered during programme activities (spotted by aircraft or by persons on foot or skidoo), plans will be altered so as to avoid disturbance, then the area returned to later, when there is no risk of interaction. Information from government biologists and local HTAs, as well as other land-users, also is used to inform surveys and overall planning, to lower the potential incidence of encounters. Peregrine will continue keeping Wildlife Logs for future programmes to document any wildlife passage through the property.